Knowledge mobilisation practices for small-scale tea farmers in Murang'a County, Kenya

by

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DECLARATION

I, Richard Khamali, student number 41070097, hereby declare that this thesis, Knowledge mobilisation practices for small-scale tea farmers in Murang'a County, Kenya, is my original work. Wherever any document or work of any author has been quoted or used in any way whatsoever, such work has been acknowledged and referenced. Further, I declare that this thesis, whether in part or in whole, has not previously been submitted for review towards any other academic qualification at the University of South Africa (UNISA) or any other institution of higher learning. The work was subjected to originality checking through plagiarism detection software and meets the prescribed standards of originality.



12/11/2025

…… ……

Signature Date

(Mr Richard Khamali)

DEDICATION

I dedicate this thesis to my dear wife, Caroline, and our two lovely children, Abegael and Adrian. Your unwavering encouragement, patience, and understanding have been my greatest source of strength throughout this research journey. I am truly blessed and fortunate to have had your support every step of the way.

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SUMMARY

Despite the critical role of knowledge mobilisation (KMb) in enhancing productivity, sustainable practices, and livelihoods, small-scale tea farmers in Murang'a County, Kenya, face persistent challenges in accessing and applying agribusiness knowledge promptly. This study investigated KMb practices for small-scale tea farmers in Murang'a County, Kenya, to develop a framework to improve these practices. Anchored in a pragmatic paradigm and employing a convergent mixed-methods design, the research integrated survey data from 56 respondents, comprising chairpersons of tea leaf buying centres and agribusiness researchers, with semi-structured interviews involving agricultural extension officers and managers.

The findings revealed three principal forms of knowledge: tacit knowledge (related to land preparation, pest control, and tea processing), explicit knowledge (reports, manuals, and online platforms), and embedded knowledge (processes, products, and artefacts). The study further identified key collaborators in KMb, including agribusiness researchers, scholars, and tea research and development institutes as knowledge creators; agricultural extension officers and knowledge champions as mobilisers; influential local tea farmers as knowledge champions; and small-scale tea farmers as knowledge beneficiaries. KMb strategies encompassed products (handbooks, reports, and scholarly journals), events (workshops, conferences, and project reviews), and networks (news media, podcasts, social media, communities of practice, blogs, and discussion boards). Indicators of KMb effectiveness were categorised as dissemination indicators (reach and access), use indicators (adoption and policy influence), usefulness indicators (knowledge acquisition, user satisfaction, and perception change), and collaboration indicators (learning, networking, and capacity building).

The study recommended integration of traditional and scientific knowledge practices, simplification of explicit knowledge for digital dissemination, and promotion of embedded knowledge through mobile tutorials, peer-led initiatives, and workshops. Additionally, it advocates strengthening collaborator networks, ICT infrastructure, and monitoring systems. The proposed KMb framework integrates various knowledge types, collaborators, strategies, indicators, and influencing factors to address the needs of small-scale tea farmers. This framework has implications for improving productivity in Kenya's tea sector and for the wider academic community. Key recommendations include enhancing collaborative platforms and increasing ICT adoption to mobilise knowledge effectively.

Keywords: knowledge mobilisation, knowledge management, small-scale tea farmers, tacit knowledge, explicit knowledge, embedded knowledge, collaboration, strategies, information and communication technology, ICT, Murang'a County, Kenya.

TABLE OF CONTENTS

DECLARATION ii
DEDICATION iii
ACKNOWLEDGMENTS iv
SUMMARY v
TABLE OF CONTENTS vii
LIST OF TABLES xv
LIST OF FIGURES xvii
LIST OF APPENDICES xviii
LIST OF INITIALISMS, ACRONYMS AND ABBREVIATIONS xix
CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY 1
1.1 Introduction 1
1.2 Conceptual setting of the study 1
1.3 Contextual setting of the study 4
1.4 Statement of the problem 6
1.5 Purpose of the study 8
1.5.1 Objectives of the study 8
1.6 Originality of the study 10
1.7 Significance of the study 11
1.8 Literature review 12
1.9 Theoretical framework 13
1.10 Scope and limitations of the study 14
1.10.1 Scope 15
1.10.2 Limitations 15
1.11 Research methodology 16
1.12 Definition of terms 17
1.13 Structure of the thesis 23
1.14 Summary of the chapter 25
CHAPTER TWO: CONCEPTUAL FRAMEWORK 26
2.1 Introduction 26
2.2 Theoretical framework 26
2.3 Theories/models in KMb 27
2.3.1 The socialisation, externalisation, combination and internalisation (SECI) model 27
2.3.1.1 Socialisation: tacit to tacit 28

2.3.1.2 Externalisation: tacit to explicit 29
2.3.1.3 Combination: explicit to explicit 29
2.3.1.4 Internalisation: explicit to tacit 30
2.3.2 The knowledge management (KM) matrix 30
2.3.3 The knowledge mobilisation activities and services (KMBAS) model 31
2.3.4 The why, whose, what and how KMb framework (Ward model) 32
2.3.5 The co-produced pathway to impact model 33
2.4 Application of the theories/models in this study 33
2.4.1 Application of the Ward model in this study 33
2.4.1.1 The nature of knowledge produced and mobilised 34
2.4.1.2 Knowledge collaborators 35
2.4.1.3 KMb strategies 36
2.4.1.4 KMb factors 36
2.4.1.5 Knowledge mobilisation (KMb) framework 37
2.4.2 Application of the SECI model in this study 38
2.4.2.1 The nature of the knowledge produced and mobilised 39
2.4.3 Application of the knowledge mobilisation activities and services (KMbAS) model in this study 40
2.4.3.1 KMb strategies 41
2.4.3.2 KMb factors 41
2.4.4 Application of the co-created pathway to the impact model in this study 42
2.4.4.1 The KMb indicators 42
2.5 Conceptual framework 44
2.6 Summary of the chapter 47
CHAPTER THREE: LITERATURE REVIEW 48
3.1 Introduction 48
3.2 Agriculture and tea farming 49
3.2.1 Small-scale tea farmers in Kenya 52
3.2.2 Small-scale tea farmers in Murang'a County 53
3.3 Concepts of knowledge management (KM) 53
3.3.1 Defining knowledge 54
3.3.1.1 Types of knowledge 54
3.3.2 Knowledge Management 57
3.3.2.1 Knowledge management processes 58

3.4 Concept of knowledge mobilisation (KMb) 61
3.5 Concepts of KMb for small-scale tea farmers 62
3.5.1 Knowledge types for small-scale tea farmers 63
3.5.1.1 Tacit knowledge (TK) 63
3.5.1.2 Explicit knowledge (EK) 64
3.5.1.3 Embedded knowledge 65
3.5.2 Knowledge collaborators for small-scale tea farmers 66
3.5.2.1 Knowledge creators 68
3.5.2.2 Knowledge mobilisers 68
3.5.2.3 Knowledge champions 69
3.5.2.4 Knowledge consumers 70
3.5.3 KMb strategies for small-scale tea farmers 70
3.5.3.1 Knowledge products 71
3.5.3.2 Knowledge events 74
3.5.3.3 Knowledge networks 75
3.5.3.4 Knowledge technologies 77
3.5.4 KMb indicators for small-scale tea farmers 80
3.5.5 KMb factors for small-scale tea farmers 82
3.5.5.1 Knowledge resources 83
3.5.5.2 Knowledge users 84
3.5.5.3 Knowledge complexity 85
3.5.5.4 Management support 86
3.5.6 KMb framework for small-scale tea farmers 86
3.6 Synthesis of literature review 87
3.7 Summary of the chapter 88
CHAPTER FOUR: RESEARCH METHODOLOGY 89
4.1 Introduction 89
4.2 Research paradigm 91
4.2.1 Positivism (quantitative) paradigm 91
4.2.2 Constructivism (qualitative) paradigm 92
4.2.3 Pragmatism (qualitative and quantitative) paradigm 93
4.3 Research approach 94
4.3.1 Qualitative research approach 94
4.3.2 Quantitative research approach 94

4.3.3 Mixed methods research approach 95
4.3.4 Justification for using a mixed method approach 95
4.4 Research design 96
4.4.1 Justification for using convergent triangulation design 97
4.5 Study area 98
4.6 Target Population 99
4.6.1 Chairpersons of small-scale tea farmers in Murang'a County 100
4.6.2 Agribusiness researchers from Murang'a University of Technology (MUT) 100
4.6.3 Agricultural extension officers 101
4.6.4 Management 101
4.7 Sampling procedures and methods 102
4.7.1 Cluster sampling 103
4.7.2 Purposive sampling 104
4.7.3 Census sampling 104
4.7.4 Stratified random sampling 105
4.7.5 Simple random sampling 105
4.8 Data collection procedures and methods 106
4.8.1 Semi-structured interviews 106
4.8.2 Structured questionnaires 108
4.9 Data analysis and presentation 108
4.9.1 Analysis of quantitative data 109
4.9.2 Analysis of qualitative data 110
4.9.3 Presentation of quantitative and qualitative data 111
4.10 Trustworthiness, validity, and reliability 112
4.10.1 Trustworthiness in the qualitative data collection instruments 112
4.10.2 Validity and reliability in quantitative studies 113
4.10.2.1 Validity 113
4.10.2.2 Reliability 114
4.11 Ethical consideration 114
4.12 Summary of the chapter 116
CHAPTER FIVE: PRESENTATION AND ANALYSIS OF RESULTS 117
5.1 Introduction 117
5.2 Presentation of the quantitative findings from the survey questionnaire 118
5.2.1 Response rate 118

5.2.2 Biographical data of the respondents 119
5.2.2.1 Respondents grouping 120
5.2.2.2 Gender distribution of respondents 120
5.2.2.3 Age distribution of respondents 120
5.2.2.4 Experience of respondents 120
5.2.2.5 Qualifications of respondents 121
5.2.3 Types of knowledge produced and utilised for small-scale tea farmers 121
5.2.3.1 Tacit knowledge 121
5.2.3.2 Explicit knowledge 123
5.2.3.3 Embedded knowledge 125
5.2.3.4 Other knowledge aspects 126
5.2.4 Collaborators involved in KMb for small-scale tea farmers 128
5.2.4.1 Knowledge creators 128
5.2.4.2 Knowledge disseminators 130
5.2.4.3 Knowledge champions 131
5.2.4.4 Knowledge consumers 133
5.2.5 KMb strategies for small-scale tea farmers 133
5.2.5.1 Knowledge products 134
5.2.5.2 Knowledge events 135
5.2.5.3 Knowledge networks 136
5.2.5.4 How knowledge products, events, and networks have facilitated the dissemination, sharing, and transfer of knowledge for small-scale tea farmers. 137
5.2.5.5 Effectiveness of technology in enhancing KMb 142
5.2.6 Indicators of KMb for small-scale tea farmers 143
5.2.6.1 Dissemination or reach indicator 144
5.2.6.2 Use indicator 145
5.2.6.3 Usefulness indicator 147
5.2.6.4 Collaboration indicators 148
5.2.7 Factors impacting KMb for small-scale tea farmers 150
5.2.7.1 Knowledge resources 150
5.2.7.2 Knowledge users 152
5.2.7.3 Knowledge complexity 153
5.2.7.4 Management support 154
5.2.8 Results of the exploratory factor analysis for developing a KMb framework 156

5.2.8.1 Sampling adequacy and factorability assessment 156
5.2.8.2 Factors useful for the development of the framework 157
5.2.8.3 Rotated Component Matrix interpretation for a developing framework for enhancing KMb 162
5.2.8.4 Confirmatory Factor Analysis (CFA) for a developing framework for enhancing KMb 167
5.2.8.5 The Principal Component Analysis (PCA) for the initial framework of KMb 174
5.2.8.6 PCA for the final framework of KMb 175
5.3 Qualitative findings for interviews 177
5.3.1 Response rate 177
5.3.2 Respondents' biodata 178
5.3.3 Types of knowledge produced and utilised for small-scale tea farmers 180
5.3.4 Collaborators involved in KMb for small-scale tea farmers 181
5.3.5 KMb strategies for small-scale tea farmers 182
5.3.5.1 Training needs for farmers and staff 182
5.3.5.2 Policy and programme support 183
5.3.5.3 Leadership and management support 183
5.3.5.4 Budgetary allocation and financial support for KMb 184
5.3.5.5 Access to agribusiness information and knowledge uptake 184
5.3.6 Factors and indicators of KMb for small-scale tea farmers 185
5.3.6.1 Training background and needs 185
5.3.6.2 Challenges in knowledge dissemination 185
5.3.6.3 Organisational support and resource availability 186
5.3.8 A framework for enhancing KMb for small-scale tea farmers 187
5.3.8.1 Training and capacity building 187
5.3.8.2 Leadership, policy, and strategic support 187
5.3.8.3 Financial and resource allocation 188
5.3.8.4 Mitigating challenges and barriers to KMb 188
5.4 Summary of Chapter Five 189
CHAPTER SIX: INTERPRETATION AND DISCUSSION OF THE RESEARCH FINDINGS 190
6.1 Introduction 190
6.2 Data consolidation, combination, and integration 191
6.3 Demographic profile of respondents 191

6.3.1 Category of respondents 192
6.3.2 Gender of respondents 192
6.3.3 Age of respondents 193
6.3.4 Experience of respondents 193
6.3.5 Education of respondents 194
6.4 Types of knowledge produced and mobilised for small-scale tea farmers 195
6.4.1 Tacit Knowledge 196
6.4.2 Explicit Knowledge 197
6.4.3 Embedded knowledge 198
6.4.4 Other aspects of knowledge 198
6.5 Collaborators involved in KMb for small-scale tea farmers 199
6.5.1 Knowledge creators 200
6.5.2 Knowledge disseminators 200
6.5.3 Knowledge champions 201
6.5.4 Knowledge consumers 202
6.6 KMb strategies for small-scale tea farmers 203
6.6.1 Knowledge products 203
6.6.2 Knowledge events 204
6.6.3 Knowledge networks 205
6.7 How knowledge products, events, and networks have facilitated the dissemination, sharing, and transfer of knowledge for small-scale tea farmers 206
6.7.1 Knowledge products 206
6.7.2 Knowledge events 208
6.7.3 Knowledge networks 209
6.8 Effectiveness of technology in enhancing KMb 209
6.9 Indicators of KMb for small-scale tea farmers 211
6.9.1 Dissemination or reach indicator 211
6.9.2 Use indicator 212
6.9.3 Usefulness indicator 213
6.9.4 Collaboration indicator 213
6.10 Factors influencing KMb for small-scale tea farmers 214
6.10.1 Knowledge resources 214
6.10.2 Knowledge users 215
6.10.3 Knowledge complexity 216

6.10.4 Management support 216
6.11 Chapter summary 217
CHAPTER SEVEN: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS 219
7.1 Introduction 219
7.2 Summary of chapters 220
7.3 Summary of findings 221
7.3.1 Types of knowledge produced and mobilised for small-scale tea farmers. 221
7.3.2 Collaborators involved in KMb for small-scale tea farmers. 222
7.3.3 KMb strategies for small-scale tea farmers. 222
7.3.4 Indicators of KMb for small-scale tea farmers 223
7.3.5 Factors influencing KMb for small-scale tea farmers. 224
7.4 Conclusions 224
7.4.1 Types of knowledge produced and mobilised for small-scale tea farmers 224
7.4.2 Collaborators involved in KMb for small-scale tea farmers 225
7.4.3 KMb strategies for small-scale tea farmers 225
7.4.4 Indicators of KMb for small-scale tea farmers 225
7.4.5 Factors influencing KMb for small-scale tea farmers. 226
7.5 Recommendations 226
7.5.1 Types of knowledge produced and mobilised for small-scale tea farmers 227
7.5.2 Collaborators involved in KMb for small-scale tea farmers 227
7.5.3 KMb strategies for small-scale tea farmers 228
7.5.4 Indicators of KMb for small-scale tea farmers 229
7.5.5 Factors influencing KMb for small-scale tea farmers. 229
7.6 The proposed framework 229
7.7 Implications for theory, policy and practice 233
7.8. Limitations of the research 233
7.9 Recommendations for future research 235
7.10 Final conclusion 236
REFERENCES 238
APPENDICES 279

LIST OF TABLES

Table 1.1 Summary of research objectives, sources of data and research instruments. 8

Table 1.2: Link of research objectives to the theoretical framework 13

Table 1.3: Structure of the thesis 23

Table 2.1: Application of the theories and models in this study 43

Table 3.1: The knowledge products for KMb for small-scale tea farmers 72

Table 3.2: The knowledge events for KMb for small-scale tea farmers 74

Table 3.3: The knowledge networks for KMb for small-scale tea farmers 76

Table 3.4: The knowledge technology for KMb for small-scale tea farmers 78

Table 3.5: The indicators for KMb for small-scale tea farmers 81

Table 4.1: Mixed method research (MMR) design 96

Table 4.2: Target population of the study 102

Table 4.3: Sample size 106

Table 4.4: Ratings for interpretation of Likert-scale data 112

Table 5.1: Response rate 118

Table 5.2: Biographical data of the respondents 119

Table 5.3: Types of tacit knowledge 121

Table 5.4: Sources of explicit knowledge relevant to small-scale tea farmers 123

Table 5.5: Embedded knowledge relevant to small-scale tea farmers 126

Table 5.6: Other knowledge aspects 126

Table 5.7: Knowledge creators 128

Table 5.8: Knowledge disseminators 130

Table 5.9: Knowledge champions 132

Table 5.10: Knowledge consumers 133

Table 5.11: How knowledge products facilitate knowledge dissemination, sharing, and transfer 137

Table 5.12: How knowledge events facilitate knowledge dissemination, sharing, and transfer 139

Table 5.13: How knowledge networks facilitate knowledge dissemination, sharing, and transfer 141
Table 5.14: The effectiveness of technology in enhancing KMb 142
Table 5.15: Dissemination indicator 144
Table 5.16: Use indicator 145
Table 5.17: Usefulness indicator 147
Table 5.18: Collaboration indicators 148
Table 5.19: Knowledge resources 150
Table 5.20: Knowledge users 152
Table 5.21: Knowledge complexity 153
Table 5.22: Management support 155
Table 5.23: KMO and Bartlett's test of sphericity 156
Table 5.24: Eigenvalues 157
Table 5.25: Rotated Component Matrix Showing Retained Factor Loadings 162
Table 5.26: Demographic information of interview participants 178

LIST OF FIGURES

Figure 2.1: The SECI model by Nonaka and Takeuchi 28

Figure 2.2: The knowledge management (KM) matrix model..... 31

Figure 2.3: Conceptual framework for KMb for small-scale tea farmers..... 47

Figure 3.1: Literature review map..... 49

Figure 4.1: A road map of the research methodology for the current study 90

Figure 5.1: Knowledge products..... 134

Figure 5.2: Knowledge events..... 135

Figure 5.3: Knowledge networks 136

Figure 5.4: CFA for types of knowledge produced and utilised 168

Figure 5.5: CFA for collaborators involved in knowledge mobilisation 169

Figure 5.6: CFA for knowledge mobilisation strategies 170

Figure 5.7: CFA for indicators of knowledge mobilisation 171

Figure 5.8: CFA for the factors impacting knowledge mobilisation..... 173

Figure 5.9: Principal Component Analysis (PCA) for the initial KMb framework..... 174

Figure 5.10: Principal Component Analysis (PCA) for the final KMb framework..... 176

Figure 7.1: Proposed framework for KMb for small-scale tea farmers.....230

LIST OF APPENDICES

Appendix A: Questionnaire distributed to chairpersons of tea leaf buying centres 279

Appendix B: Questionnaire distributed to agribusiness researchers 300

Appendix C: Interview guide for collecting data from agricultural extension officers 321

Appendix D: Interview guide for managers 324

Appendix E: Ethical clearance approval from UNISA 327

Appendix F: Research permit (NACOSTI) 329

Appendix G: Consent to participate in the study 331

Appendix H: Consent to participate in this study 335

Appendix I: Turnitin digital receipt 336

Appendix J: Similarity index 337

Appendix K: An example of data generated from SPSS 338

LIST OF INITIALISMS, ACRONYMS AND ABBREVIATIONS

AEO	Agricultural Extension Officers
AI	Artificial intelligence
CFA	Confirmatory Factor Analysis
CoP	Community of practice
DMS	Document management systems
DSS	Decision-support systems
FAO	Food and Agriculture Organisation
FAQ	Frequently asked questions
GDP	Gross Domestic Product
GOK	Government of Kenya
ICT	Information and Communication Technologies
IT	Information Technology
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KM	Knowledge mobilisation
KMb	Knowledge mobilisation
KMbAS	Knowledge mobilisation activities and services model
KMO	Kaiser Meyer Olkin
KNBS	Kenya National Bureau of Statistics
KS	Knowledge sharing
KT	Knowledge transfer
KT	Knowledge translation
KTDA	Kenya Tea Development Authority
KTE	Knowledge transfer and exchange
MAN	Manager
MMR	Mixed method research
MUT	Murang'a University of Technology
PCA	Principal Component Analysis

PhD	Doctor of Philosophy
RCM	Rotated Component Matrix
SECI	Socialisation, Externalisation, Combination, and Internalisation
SMS	Short Message Service
SPSS	Statistical package for the social sciences
TCP/IP	Transmission control protocol/internet protocol
TV	Television
USD	United States dollar
UNISA	University of South Africa

CHAPTER ONE
INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

Knowledge remains unusable unless it is shared, transferred, and applied to address real-time world challenges. The value and transformative potential of knowledge can only emerge through effective mobilisation and utilisation. In the context of small-scale tea farming, the mobilisation and application of agribusiness knowledge are crucial for small-scale tea farmers to achieve sustainable farming outcomes. However, farmers continue to face several challenges arising from fragmented and poorly coordinated knowledge systems that hinder effective knowledge flow from researchers to farmers (Zaehringer, Wambugu, Kiteme, & Eckert, 2018). These barriers to sustainable tea production include limited access to relevant agribusiness knowledge, inefficient farming techniques, and low adaptive capacity to climate change (Bezus & Samofal, 2019; Mwenda et al., 2019). As emphasised by Younie et al. (2018), these barriers also contribute to reduced yields and compromised product quality among the small-scale tea farmers.

In this regard, effective KMb becomes a strategic response to bridging the gap between knowledge creation and utilisation in the tea sector. KMb enables the timely, targeted, and contextual transfer of agribusiness knowledge to the small-scale tea farmers in a format they can understand and apply. The current study, therefore, investigated KMb practices to develop a framework to enhance the utilisation of tea agribusiness knowledge among small-scale tea farmers in Murang'a County, Kenya. Chapter One outlines the conceptual and contextual foundations of this study, articulates the research problem, and states the purpose, objectives, and research questions that guide the study. Moreover, this chapter presents the scope of the study, significance, and originality, and provides an overview of the literature review, theoretical framework, and research methodology. The chapter concludes with key definitions and a summary of the overall thesis structure.

1.2 Conceptual setting of the study

Rural populations in many African countries, such as Kenya, heavily depend on small-scale tea farming as a primary source of income, employment, and food security. Kalungu and Leal Filho (2018) observe that high poverty levels, low population density, limited education, inadequate infrastructure, and persistent underdevelopment often characterise such rural communities. Due to the scarcity of alternative livelihoods, many rural households engage in small-scale tea farming to supplement their income (Jouzi et al., 2017). In Kenya, small-scale tea farmers

significantly contribute to the tea agribusiness sector, accounting for approximately 60% of total tea production, 75% of agricultural output, and 70% of market products, while employing about 80% of the national labour force (Gatimbu & Ogada, 2020; GOK, 2023). Despite this significant contribution, small-scale tea farmers continue to face persistent challenges such as limited access to agricultural information, inadequate technical expertise, and poor dissemination of best farming practices, factors that collectively led to low productivity, reduced income, and diminished livelihoods (Fanzo, 2018; Elijah & Odiyo, 2019; Kimaru-Muchai et al., 2020; Wangeci & Ndung'u, 2020).

Scholars in the field of agribusiness have proposed several strategies to mitigate the persistent challenges faced by small-scale tea farmers in rural areas to access agribusiness research outputs from higher education institutions. These strategies include disseminating relevant information and knowledge, providing extension and advisory services, formulating supportive agricultural policies, and promoting research, innovation, and technology to enhance the application of knowledge and value addition in tea farming (Vesperi et al., 2021; Soam et al, 2023; Habtom, 2020; Dhillon & Moncur, 2023). To make well-informed decisions, small-scale tea farmers require accurate, timely, and accessible knowledge, which is an essential driver of their productivity, sustainability, and competitiveness. However, such knowledge often remains unavailable, insufficient, or poorly disseminated, thus limiting the farmers' ability to optimise their farming practices. La Velle and Flores (2018) contend that the production, mobilisation, and utilisation of precise and timely knowledge substantially improve productivity, income, and food security among the small-scale farmers. Mobilising relevant agribusiness research outputs therefore empowers small-scale tea farmers to adopt innovative practices, use quality inputs, make informed pricing and marketing decisions, and achieve higher-quality yields (Sales et al., 2024; Gardeazabal et al., 2023). Governments (such as the Kenyan Government) play a central role in facilitating this process through developing and enforcing policy frameworks (such as Vision 2030 and the Big Four Agenda), which aim to strengthen knowledge access and capacity among small-scale farmers (KIPPRA, 2021; GOK, 2023).

Spurk et al. (2020) observed that small-scale farmers in sub-Saharan Africa encounter several barriers in their quest to adopt high-quality agribusiness research outputs, policies, and innovations from higher education institutions, such as limited exposure to information and knowledge within their rural settings. Consequently, the uptake of technological advances and research outputs from higher education institutions considerably low. Cooper, Rodway and Read (2018) similarly contend that while academic researchers generate valuable knowledge

and innovations capable of influencing policy and improving livelihoods, these outputs frequently fail to reach intended users. To address this disconnection, Powell, Davies and Nutley (2018) emphasised KMb as the optimal strategy for bridging the gap between knowledge creation and utilisation, and ultimately maximising the benefits of research and innovation. KMb serves various functions, including facilitating knowledge creation, sharing, and utilisation, as well as promoting collaboration between academic and non-academic sectors by making academic works and innovations accessible to a wider audience (Powell, Davies, & Nutley, 2018; Canas et al., 2019). Canas et al. (2019) further stated that KMb encompasses multiple aspects, such as research, knowledge integration, storage, dissemination, transmission, sharing, and reuse.

KMb, is defined based on its specific context and application. According to Bayley et al. (2018), KMb entails collaborating with other entities (practitioners and decision makers) to make evidence-based decisions about communal policies, expert practices, and social services for the benefit of society as a whole and the environment. Haynes et al. (2020) also viewed KMb as a strategy for developing robust and valuable knowledge and facilitating its sharing and utilisation in fields where it can have the greatest impact. KMb is closely linked to other KM processes, for example, knowledge production, capture, sharing, transfer, utilisation, and dissemination. Abma et al. (2017) described KMb as a collaborative process in which individuals interact to produce, learn, use, and share knowledge in their everyday lives. Another review by Ivcovici et al. (2022) identified KMb as a means for individuals seeking specific knowledge to learn from those who already possess expertise in that area. Hudson, Krogman and Beckie (2016) identified various interconnected roles of KMb, including fostering a learning environment where participants can create, access, and share knowledge; enabling stakeholders to strategically share, transfer, disseminate, and utilise knowledge to solve daily challenges and problems; and empowering people to generate innovations necessary for adaptation and transformation in the face of adversity. To bridge the gap between knowledge production, sharing, and utilisation, this study establishes a framework for KMb and its impact on enhancing research, policy development, environmental awareness, improved health, and literacy among small-scale tea farmers.

Studies in various domains have prominently demonstrated the widespread application of KMb both globally and regionally, including Kenya. For instance, Liu, Teng and Han (2020) revealed that the utilisation of environmental knowledge positively influenced the environmental attitudes, behavioural intentions, and pro-environmental behaviours of the Chinese population.

In the domain of environmental health, Stieb et al. (2019) identified the effectiveness of graphical tools such as maps in mobilising and disseminating information and knowledge related to environmental exposure and health risks. In the healthcare sector, D'Souza, Prema, & Balaji (2020) and Haynes et al. (2020) shed light on how KMb contributes to capacity building, enhances public health policies, and improves the provision of high-quality health services. Similarly, within the education sector, research has consistently shown that KMb promotes scholarly research engagement and fosters knowledge-sharing among academics, experts, policymakers, and various educational stakeholders (Zuiker et al., 2019; Malik, 2020). Veit et al. (2017) introduced a transdisciplinary approach within the business sector in their study, identifying knowledge production, mediation, and practical utilisation as critical drivers of business innovation and performance. Similarly, Irfan et al. (2022) noted that businesses strategically acquire, transfer, and integrate market information to navigate disruptions and uncertainties.

In research and policy settings, the development of KMb has enhanced the connection between policy creation and real-world application, with a growing focus on its economic, social, and scientific impacts (Buchanan, 2016). Bayley et al. (2018) advanced this discussion by identifying essential skills for promoting research outside of academia and developing a knowledge-brokering framework that encompasses extraction, categorisation, cleaning, and re-categorisation. Even with these contributions, the majority of current KMb literature emphasises knowledge production, capture, sharing, and dissemination, with minimal attention to knowledge utilisation and its impact on research, policy, environmental management, health, and literacy results. This disparity underscores the need for further investigation into how KMb can enhance knowledge utilisation and foster sustainable change among small-scale tea farmers.

1.3 Contextual setting of the study

Kenya, situated in East Africa, was formerly a British colony and shares borders with neighbouring countries, including South Sudan, Ethiopia, Somalia, Tanzania, and Uganda (Kenya National Bureau of Statistics, 2021). With a total area of approximately 582,000 square kilometres, Kenya is home to a population of around 53.77 million as of 2020, with 75% residing in rural areas (Kenya National Bureau of Statistics, 2021). As pointed out by Minoia (2020), agriculture occupies roughly 20% of Kenya's land, with an additional 10% being marginally suitable for agricultural activities. The remaining 70% comprises desert or semi-desert regions. Consequently, agriculture plays a vital role in Kenya, providing sustenance,

income, poverty alleviation, employment, foreign exchange, and overall economic development. In recognition of this significance, the Kenyan government is actively committed to strategically supporting the agricultural sector to achieve food security, reduce poverty, and promote economic progress. These objectives are encapsulated within the Big Four Agenda and Vision 2030, which serve as guiding frameworks for national development (KIPPRA, 2024).

Small-scale tea farming in Kenya has a historical context dating back to the 1950s, when British colonialists established small tea factories managed by multinational companies in various regions (Ahring et al., 2020). However, with the implementation of the Agriculture Act (Cap 318), Section 91 and Legal Notice No. 42, the management of small-scale tea was transferred to the Kenya Tea Development Authority in 1964, marking a significant shift (Government of Kenya, 2010). Currently, tea cultivation in Kenya is predominantly located in high-altitude areas, situated between 1,500 and 2,700 meters above sea level. Notable tea-growing regions include Nakuru, Narok, Kericho, Bomet, Nyamira, Kisii, Kakamega, Bungoma, Vihiga, Nandi, Elgeyo Marakwet, Trans-Nzoia, Kiambu, Murang'a, Nyeri, Kirinyaga, Embu, and Tharaka-Nithi (Ahring et al., 2020). The tea industry plays a vital role in Kenya's social and economic development, contributing approximately 40% of the country's marketed agricultural production, 4% of its GDP, and 25% of its foreign exchange (Kenya National Bureau of Statistics, 2021; KIPPRA, 2024).

Murang'a County, located in central Kenya, is bordered by Kirinyaga, Embu, and Machakos to the east. It is surrounded by Kiambu, Nyandarua, and Nyeri to the north, south, and west, respectively. According to KIPPRA (2024), Murang'a County had an estimated population of 1,056,640 people, with a population density of 419 per square kilometre as of 2019. Of this population, 523,940 (49.6%) were male and 532,669 (50.4%) female. The county's economy is primarily driven by agriculture, which sustains and provides income for 80% of the population. Major agricultural products in the county include maize, beans, green vegetables, tea, coffee, bananas, potatoes, cassava, arrowroots, pumpkins, and dairy products. Additionally, forestry and tourism also make significant contributions to the local economy. Tea cultivation is mainly concentrated in the highland agroecological regions of Kigumo, Kangema, Mathioya, Kandara, and Gatanga within Murang'a County. The majority of tea production is carried out on a small scale, with tea-growing associations serving as organisational structures that facilitate the purchasing, processing, marketing, and sale of tea on behalf of their members (Kamau et al., 2018; Murang'a County Government, 2020). Despite its agricultural potential, Murang'a County faces challenges, particularly in terms of poverty levels. It is among the most

disadvantaged counties in Kenya's central region. As of 2021, the county's unemployment rate was 37%, with a significant portion of unemployed persons being youth (Kenya National Bureau of Statistics, 2021). The high unemployment rate can be attributed to several factors, including negative perceptions of farming as a viable employment option, low literacy levels, a preference among youth for white-collar jobs over blue-collar jobs, and a greater desire for salaried employment over self-employment. These factors limit the income opportunities and overall quality of life for residents of Murang'a County.

The Murang'a County Government has formulated strategies outlined in its Fiscal Strategy Paper 2021 to enhance small-scale tea farming as a means of generating income, creating employment opportunities, reducing poverty, and ensuring food security (KIPPRA, 2021; Murang'a County Government, 2021). The strategy paper prioritises several key areas, including improving market information and access, establishing new local and international markets for agricultural products, developing a knowledge portal for agribusiness, promoting the adoption of innovative technologies in agribusiness, enhancing access to information, providing farmer awareness, training, and education, and improving communication and information flow. KMb holds significant potential for facilitating the effective utilisation of research findings and innovations in agribusiness, ensuring that small-scale tea farmers in Murang'a County can readily access and benefit from high-quality research knowledge products. The study specifically focused on the tea-growing regions of Kigumo and Kangema within Murang'a County.

1.4 Statement of the problem

In an ideal scenario, the knowledge generated through research in higher education institutions would reach its intended consumers with accuracy, timeliness, and in an appropriate format ensuring maximum impact. Small-scale tea farmers are no exception, as they heavily depend on relevant agribusiness knowledge to enhance productivity, sustainability, income generation, and value addition. This knowledge encompasses a wide array of aspects, including smart farming practices, market trends, tea prices, and innovative farming techniques. However, knowledge remains ineffective unless it is shared, transferred, and applied to solve real-world challenges. In practice, small-scale tea farmers continue to face a number of confines arising from fragmented and poorly coordinated knowledge systems, which limit the effective flow of knowledge from researchers to end users (Zaehringer et al., 2018). These challenges contribute to limited access to relevant information, inefficient farming practices, and reduced capacity to adapt to climate change, ultimately affecting yields and product quality (Bezus & Samofal,

2019; Mwenda et al., 2019; Younie et al., 2018). Consequently, there is an increasing need for researchers to move beyond knowledge creation towards effective knowledge sharing, mobilisation, and utilisation to address these gaps.

Although extensive literature and empirical studies have explored KMb in the agricultural domain, many may fall short in revealing how the adoption of knowledge generated by researchers within higher education institutions impacts farmer practices. Instead, these studies have predominantly focused on knowledge creation, dissemination, and sharing rather than knowledge utilisation and implementation. For instance, Gow (2018) proposed a framework for sharing knowledge between academics and non-academics, including strategies for knowledge sharing among farmers in Sri Lanka. Kommey (2020) suggested approaches to enhance knowledge-sharing practices among rice farmers in Ghana's Eastern Region. Šūmane et al. (2018) recommended collaborations between farmers and academics as knowledge co-producers as a strategy for enhancing the resilience and viability of the farming sector. Thomas, Riley, and Spees (2020) claimed that knowledge reshaping and trust serve as mechanisms for influencing how farmers in the United Kingdom interact with, use, and share knowledge in a social context.

This study is prompted by the need to ascertain whether KMb practices have resulted in increased knowledge utilisation among small-scale tea farmers, thereby improving the impact on the tea farming value chain, policy, the environment, health, and competitive advantage. The study aimed to identify, among other factors, the influences on KMb for small-scale farmers and provided practical strategies for enhancing KMb in small-scale tea farming communities. Younie et al. (2018) proposed a KMb framework as the best strategy for mobilising knowledge. Ward (2017) further noted that a classic KMb framework exemplifies several issues: the nature of the knowledge to be mobilised, the rationale for KMb, the identity of the knowledge collaborators, the KMb strategies involved, the resources required for KMb, the implementation timelines, KMb progress indicators, and the KMb beneficiaries. The study aims to investigate KMb practices to develop a KMb framework tailored to the knowledge needs of small-scale tea farmers in Murang'a County, Kenya. This framework is envisioned as a catalyst for enhancing KMb practices and fostering the utilisation, uptake, and sharing of knowledge within this farming community. The study conjectures that leveraging agribusiness research output from higher education institutions can significantly enhance tea farming practices and services, thereby spurring the overall development and economic prosperity of small-scale tea farmers

in Murang'a County. Subsequently, this study has considerable implications for both policy formulation and professionalism in the domains of KM and agriculture.

1.5 Purpose of the study

The purpose of this study was to investigate KMb practices to develop a framework that enhances the creation, sharing, and dissemination of agribusiness knowledge from higher education institutions to small-scale tea farmers in Murang'a County, Kenya. The study was motivated by the ineffective utilisation of agribusiness knowledge among these farmers, which results from fragmented and poorly coordinated KMb practices that adversely impact tea production.

1.5.1 Objectives of the study

The study's objectives were as follows:

1. To establish the nature of knowledge produced and mobilised for small-scale tea farmers in Murang'a County.
2. To determine the knowledge collaborators involved in KMb for small-scale tea farmers in Murang'a County.
3. To explore the strategies used for KMb for small-scale tea farmers in Murang'a County.
4. To assess the indicators of KMb for small-scale tea farmers in Murang'a County.
5. To examine the factors that negatively impact KMb for small-scale tea farmers in Murang'a County.
6. To propose a framework to enhance KMb for small-scale tea farmers in Murang'a County.

The connection between the research objectives, research methods, data sources, and data collection instruments of the study is summarised in Table 1.1 below:

Table 1.1 Summary of research objectives, sources of data and research instruments.

Research objective	Research question	Research method	Source of data	Research instruments
To establish the nature of knowledge produced and mobilised for	What is the nature of knowledge produced and mobilised for	Mixed method research (MMR)	-MUT agribusiness researchers -Small-scale tea farmers -Extension officers	Interviews Questionnaire

small-scale tea farmers in Murang'a County.	small-scale tea farmers in Murang'a County?		-Management	
To determine the collaborators in KMb for small-scale tea farmers in Murang'a County.	Who are the knowledge collaborators involved in KMb for small-scale tea farmers in Murang'a County?	Mixed method research (MMR)	-MUT agribusiness researchers -Small-scale tea farmers -Extension officers -Management	Interviews Questionnaire
To explore the strategies used for KMb for small-scale tea farmers in Murang'a County.	What strategies are used for KMb for small-scale tea farmers in Murang'a County?	Mixed method research (MMR)	-MUT agribusiness researchers -Small-scale tea farmers -Extension officers -Management	Interviews Questionnaire
To assess the indicators of KMb for small-scale tea farmers in Murang'a County.	What indicators measure the effectiveness of KMb for small-scale tea farmers in Murang'a County?	Mixed method research (MMR)	-MUT agribusiness researchers -Small-scale tea farmers -Extension officers -Management	Interviews Questionnaire
To examine the factors that impact KMb for small-scale tea farmers in Murang'a County	What factors impact KMb for small-scale tea farmers in Murang'a County?	Mixed method research (MMR)	-MUT agribusiness researchers -Small-scale tea farmers -Extension officers -Management	Interviews Questionnaire
To propose a framework to	What framework can enhance	Mixed method	-MUT agribusiness researchers	Interviews

enhance KMb for small-scale tea farmers in Murang'a County.	KMb practices for small-scale tea farmers in Murang'a County?	research (MMR)	-Small-scale tea farmers -Extension officers -Management	Questionnaire

1.6 Originality of the study

Originality in scholarly research is demonstrated through various aspects, such as the development of novel tools, techniques, and procedures; exploration of uncharted territories; collection and analysis of unique data; and the potential applicability of the work for publication, among others (Gichohi, 2016). Additionally, Phaladi (2021) highlights that graduate-level research is evaluated based on its originality and impact on the existing body of knowledge. Guided by these considerations, the present study aimed to examine KMb practices for small-scale tea farmers in Murang'a County, Kenya, employing a pragmatic research approach. The study demonstrated originality in several ways. First, originality was achieved through the use of specific tools and techniques, notably the administration of structured questionnaires. These questionnaires were designed to elicit precise and focused responses, gathering quantitative data from agribusiness researchers at Murang'a University of Technology (MUT) and chairpersons of small-scale tea farmers regarding how agribusiness knowledge is created, shared, and applied within the sector. Furthermore, the study incorporated semi-structured interviews to complement the quantitative instruments. The interviews enabled the researcher to gain an in-depth understanding from the managers and agricultural extension officers. Before the data collection exercise began, the researcher obtained all the necessary permissions from relevant institutions.

Originality in research can also be demonstrated through the exploration of unknown areas. Given the novelty of the KMb concept, this study positions itself as the pioneering inquiry of its kind in Murang'a County. By introducing a new topic and paradigm, the study makes a significant contribution to the realm of knowledge. Originality in data gathering and analysis was ensured by evaluating the qualitative and quantitative data acquired, enabling the researcher to comprehend the distinctive aspects of the data for this study. Additionally, the data underwent various numerical assessments. The well-structured questionnaires emphasised the significance of primary and secondary data. In the event of data collection challenges, appropriate mechanisms were developed to address such issues. Regarding potential

publishability, the researcher believes that the study's outcomes can stimulate further scholarly publications on KMb. It is anticipated that the study's recommendations will be embraced by other Kenyan county governments engaged in agribusiness, particularly at the small-scale level. Ultimately, the study aims to develop an integrated framework tailored to improving KMb practices for small-scale tea farmers, thereby revitalising KMb and agricultural practices in Kenya. The proposed KMb framework constitutes an original contribution derived from the study's findings.

1.7 Significance of the study

The purpose of this study was to develop a framework specifically designed to enhance KMb practices for small-scale tea farmers in Murang'a County. The framework was intended to guide KMb initiatives aimed at minimising knowledge loss within the agribusiness community and promoting effective knowledge mediation. Furthermore, the study aimed to identify key strategies for improving access to relevant information and knowledge for small-scale tea farmers. These strategies helped in fostering a structured platform for knowledge creation, sharing, dissemination, and utilisation among agribusiness researchers and farmers. The study findings are expected to make a meaningful contribution to the existing body of knowledge by addressing gaps associated with the limited implementation of KMb initiatives and by improving the efficiency of the KMb process. The framework holds significant value for key stakeholders in Murang'a County and within the broader Kenyan agribusiness sector. For small-scale tea farmers, the framework provides a platform to access, apply, and share practical knowledge on emerging markets, innovative farming methods, smart agricultural technologies, and other pertinent agribusiness insights, ultimately strengthening the tea value chain. For the agribusiness researchers and scholars at Murang'a University of Technology (MUT), the framework facilitates systematic knowledge creation, transfer, and feedback exchange between these researchers and the small-scale tea farmers, ultimately enhancing the practical impact of research on farming practices.

The third group comprises agricultural extension officers, who serve as key knowledge champions by bridging the gap between agribusiness scholars and small-scale tea farmers. Their primary responsibility is to facilitate interaction and support farmers in effectively applying the knowledge acquired to achieve optimal outcomes. The study is also relevant to the Departments of Agriculture, Livestock, and Irrigation within the Murang'a County Government, as it can assist in assessing existing strategies and support mechanisms for small-scale tea agribusiness stakeholders. Beyond the county level, the study's findings may have broader implications for

the Kenyan Government, particularly in advancing the implementation of the Big Four Agenda and the strategic priority areas of Vision 2030 related to food security and job creation. Consequently, the outcomes contribute to both regional and national socio-economic development.

Furthermore, the study holds significant potential to impact society through promoting enhanced productivity, economic sustainability, and improved farming practices. Small-scale farmers are expected to benefit from improved KMb and better access to agribusiness information, which can foster sustainable development and reduce poverty through increased employment and income-generating activities. The study also aims to deepen the understanding of academics and policymakers regarding the relationship between KMb and economic development, particularly in the contexts of job creation, poverty alleviation, and value chain strengthening. Moreover, the findings offer valuable insights for academics seeking to comprehend the evolving dynamics of agribusiness knowledge and service mobilisation. By delineating the roles of diverse stakeholders, the study underscores their collective significance in this process. The mixed-methods approach, underpinned by a pragmatic paradigm and diverse sampling techniques, provides a robust foundation for further evaluation and validation of the study's outcomes.

1.8 Literature review

This section provides an overview of the literature that serves as the basis for this study, establishing connections with key theories, models, and study objectives. According to Aveyard (2023), a literature review is defined as a scholarly process involving the examination, summarisation, and critique of existing research literature. Hart (2018) further outlines the fundamental purposes and objectives of a literature review, which encompass the following aspects: distinguishing between what has been accomplished and what remains unexplored; identifying crucial variables relevant to the research topic; synthesising existing knowledge to gain fresh perspectives; uncovering relationships between ideas and practice; contextualising the topic or problem under investigation; justifying the theoretical or practical significance of the problem; expanding and acquiring subject-specific vocabulary; understanding the origins and structure of the subject matter; linking ideas and theories to research questions and problems; identifying key methodologies and data collection tools employed in previous studies; situating the research within a historical framework; and establishing a knowledge base that aligns with the research findings.

In this context, the study reviewed relevant literature from previous studies to identify existing research gaps that required attention. Aligned with the theoretical framework and research objectives, the study identified key concepts that were subsequently explored in greater depth throughout the research., These concepts include knowledge types, knowledge collaborators, KMb strategies, KMb indicators, KMb impact, and the KMb framework. A comprehensive review of the literature is presented in Chapter Three of this study.

1.9 Theoretical framework

The theoretical framework underlying this study is briefly discussed in this section, with a comprehensive review presented in Chapter Two. Four distinct theories and models have been selected as suitable instruments for investigating the pivotal topic of KMb for small-scale tea farmers. These theories are the SECI model, the Phipps and Shapson model, the Ward model, and the co-created pathway to impact model. The appropriateness of these four theories determined their choice in informing this study. In this research, a conceptual framework is embraced, a choice justified by the utilisation of four theories. According to Varpio et al. (2020), a theoretical framework is employed when a single theory underpins a study. Conversely, a conceptual framework is utilised in academic research when there is a lack of relevant theories or when multiple theories are employed (Ngulube, 2018). The conceptual framework serves to establish logical connections between the identified theories and concepts, review pertinent literature, identify research gaps, and define the methodological underpinnings of the study. Within the scope of this study, an extensive review of existing and prior literature on KMb and KMb frameworks was conducted, which focused specifically on key concepts derived from the study's objectives.

Drawing upon the study objectives, four theories were employed as the foundation for this study: the SECI model (Nonaka, Toyama, & Konno, 2000), the KMb activities and services model (Phipps & Shapson, 2009), the Ward model (Ward, 2017), and the co-created pathway to impact model (Phipps et al., 2016). These theories further informed the exploration of essential concepts in this study. These concepts include the nature of knowledge, knowledge collaborators, KMb strategies, KMb indicators, factors influencing KMb, and KMb frameworks. The theories and models employed are effectively linked to the study's objectives and constructs, as illustrated in Table 1.2 below.

Table 1.2: Link of research objectives to the theoretical framework

Research objective	Model/Theory	Construct or variable

To establish the nature of knowledge produced and mobilised for small-scale tea farmers in Murang'a County.	SECI model Ward model	(i) Tacit knowledge (ii) Explicit Knowledge (iii) Embedded knowledge (iv) What knowledge
To determine the collaborators in KMb for small-scale tea farmers in Murang'a County.	Ward model	(i) Knowledge creators (ii) Knowledge mobilisers (iii) Knowledge champions (iv) Knowledge beneficiaries.
To explore the strategies used for KMb for small-scale tea farmers in Murang'a County.	Ward model Phipps and Shapson's model	(i) Products (ii) Networks (iii) Events (iv) Technology
To determine the indicators of KMb for small-scale tea farmers in Murang'a County.	The co-produced pathway to impact model	(i) Dissemination indicator (ii) Use indicator (iii) Usefulness indicator (iv) Collaboration indicator
To examine the factors that impact KMb for small-scale tea farmers in Murang'a County.	Ward model Phipps and Shapson's model	(i) KMb resources (ii) Knowledge users (iii) Knowledge complexity (iv) Management support
To propose a framework to enhance KMb for small-scale tea farmers in Murang'a County.	Ward model Co-produced pathway to impact model	(i) Products (ii) Collaborators (iii) Resources (iv) Strategies (v) Indicators & timeliness

1.10 Scope and limitations of the study

Small-scale tea agribusiness is a vital component of the agricultural sector, playing a crucial role in driving economic growth and promoting sustainable development. In Kenya, the importance of small-scale tea farmers is well-documented, as they have made significant contributions to achieving the social and economic objectives outlined in Vision 2030. Furthermore, the Kenyan government acknowledges the pivotal role these farmers play in

advancing the food security pillar of the Big Four Agenda, which aims to achieve full food security and improved nutrition (Government of Kenya, 2023; KIPPRA, 2024). The scope and limits of the study are described below.

1.10.1 Scope

The scope of a study refers to its defined framework and the expectations of carrying out the study (Paler-Calmorin & Calmorin, 2007; Mutisya, 2017). This study focused on KMb practices within the small-scale agribusiness sector and their impact on the productivity of small-scale tea farmers in Murang'a County, Kenya. Precisely, the study concentrated on agribusiness researchers from Murang'a University of Technology (MUT) and small-scale tea farmers in the sub counties of Kigumo and Kangema. These locations were selected due to their proximity to the MUT Mariira Campus, where the agribusiness researchers and extension officers targeted for this study are based. The scope encompassed various aspects, including the nature of mobilised knowledge, the rationale for KMb, the knowledge collaborators involved, the strategies adopted for mobilisation, the indicators of KMb, and the development of a framework to enhance KMb for small-scale tea farmers in Murang'a County. To comprehensively understand the research area, a convergent triangulation mixed-method design is employed, allowing for the simultaneous gathering and evaluation of both qualitative and quantitative data. A mixed-methods approach integrates diverse data and methodologies to gain a comprehensive understanding of the subject (Creswell, 2021).

1.10.2 Limitations

Recognising the inherent confines of any scholarly research is essential, as every study is subject to unique contextual and methodological limitations. The present study examined KMb practices for small-scale tea farmers in Murang'a County, Kenya. Given the scope and nature of the research, several limitations were anticipated. First, the study was restricted to developing a framework for mobilising agribusiness research output from researchers at Murang'a University of Technology (MUT) to small-scale tea farmers within Murang'a County. Second, geographical constraints and challenging terrain necessitated the selection of three specific study locations, namely Kigumo, and Kangema. These areas were chosen for their proximity to the MUT Mariira Campus, where most agribusiness researchers are based. Third, the study employed questionnaires to collect quantitative data from researchers at MUT's agribusiness department and small-scale tea farmers. At the same time, semi-structured interviews were used to obtain qualitative data from agricultural extension officers and managers in the selected areas. Lastly, the study anticipated logistical challenges in administering questionnaires and

conducting interviews. This was due to the demanding schedules of the stakeholders in this study (MUT researchers, small-scale tea farmers, agricultural extension offices and managers), whose professional and farming engagements limited their availability for participation.

1.11 Research methodology

Research methodology refers to the systematic and scientific processes employed to collect and analyse data to draw conclusions and address specific research questions (Patten & Newhart, 2017). In this study, the primary objective was to examine KMb practices for small-scale tea farmers in Murang'a County, Kenya, and ultimately to develop a framework for improving these practices. This section hence presents a concise overview of the research paradigm, approach, and design. It also discussed several pertinent issues, including methodologies, target population, sampling techniques, data collection procedures, considerations of validity, reliability, trustworthiness, and ethical considerations.

The study was grounded in the pragmatic paradigm, which, as noted by Creswell and Creswell (2017), enables the integration of both qualitative and quantitative approaches within a single study. The pragmatic paradigm achieves this by combining the ontological assumptions of post-positivism (acknowledging a single, observable reality) with those of constructivism (which recognises the existence of multiple, subjective realities). This combination provides a comprehensive philosophical foundation for the research. Accordingly, the study adopted a mixed-methods research (MMR) approach, consistent with Creswell and Creswell (2017) assertion that MMR allows researchers to collect, analyse, and integrate qualitative and quantitative data through distinct yet complementary designs, philosophical assumptions, and theoretical frameworks. Supporting this perspective, Ngulube (2020) emphasises that MMR is underpinned by the pragmatic belief that qualitative and quantitative methods can coexist and be effectively integrated within a single study. Given the study's focus on multiple dimensions, specifically KMb practices and small-scale tea farming, the MMR approach was considered the most appropriate.

As mentioned earlier, the study employed a mixed-methods research (MMR) approach, which, as noted by Ngulube (2018), enables the integration of qualitative and quantitative research techniques within a single study. This approach encompasses two design paradigms: sequential and convergent (Kajamaa, Mattick, & De La Croix, 2020). For this study, the convergent MMR design was adopted, which can be further categorised into three scopes: convergent triangulation design, convergent nested design, and convergent transformative design, as

asserted by Creswell and Clark (2017). The study adopted the convergent triangulation MMR design, where both quantitative and qualitative data were collected and analysed concurrently. The findings from both sets of data were then compared and integrated during the interpretation and discussion phases.

The target population of the study consisted of agribusiness stakeholders in the tea-growing regions of Kangema and Kigumo sub-counties in Murang'a County, totalling 271 persons. This population comprised chairpersons of tea leaf buying centres, agribusiness researchers from Murang'a University of Technology (MUT), agricultural extension officers, and managers. Stratified random sampling was employed to obtain a sample of 74 respondents, with samples derived from each of the four strata. Quantitative data was collected using questionnaires administered to the chairpersons of tea leaf buying centres and agribusiness researchers, while qualitative data was gathered through semi-structured interviews with extension officers and management. The reliability and validity of the quantitative data were assessed using test-retest and internal consistency measures, while the trustworthiness of the qualitative data was established through the establishment of credence, applicability, reliability, and confirmability.

Data for this study was collected, analysed, and presented using the mixed-methods research (MMR) approach. Quantitative data was analysed using the Statistical Package for the Social Sciences (SPSS) version 27, while qualitative data was examined through thematic analysis. For presentation, quantitative findings were displayed using frequencies, percentages, diagrams, tables, and charts. Conversely, qualitative results were organised and presented through themes, codes, and illustrative quotations drawn from participants' narratives. Ethical considerations formed an integral part of the study. Approval was obtained from the University of South Africa (UNISA) Ethics Board before the commencement of data collection. Informed consent was sought from participants either verbally or through signed consent forms. Participants were provided with comprehensive information about the study's purpose and procedures. Measures were implemented to safeguard confidentiality and anonymity, ensuring that individual responses could not be directly associated with participants' identities. Finally, participants were assured that their involvement was entirely voluntary, with no coercion, compulsion, or financial inducement to participate.

1.12 Definition of terms

This section provides definitions of key terms that are relevant to and used in this study.

Knowledge: In this study, expounding the concept of knowledge is important because it underpins how agribusiness information is generated, shared, and applied within the small-scale tea sector. Knowledge encompasses facts, feelings, understanding, or expertise acquired through education or experience (Mohajan, 2016). Gamble and Blackwell (2001) further describe knowledge as a fusion of personal experience, values, contextual information, expert insights, and grounded intuition that enables individuals to interpret and apply new information. In the context of this study, knowledge refers to agribusiness knowledge generated by researchers in higher education institutions and disseminated to support small-scale tea farmers.

Knowledge management (KM): In this study, KM refers to the organisation and utilisation of agribusiness knowledge generated by higher education institutions and shared with small-scale tea farmers. KM constitutes a systematic process aimed at efficiently administering knowledge resources to generate value and fulfil both strategic and tactical requisites (Mardani et al., 2018). KM also encompasses a range of strategies aimed at facilitating access to relevant knowledge for individuals, empowering them to utilise, learn from, and disseminate these knowledge assets for their endeavours (Grayson & O'Dell, 2011; Girard & Girard, 2015). In the agricultural context, KM strengthens the effective flow of research-based knowledge to farming communities.

Knowledge mobilisation (KMb): In this study, KMb refers to the process where the knowledge created by scholars in the agribusiness sector is translated into practical uses by small-scale tea farmers. KMb denotes a strategic approach focused on developing robust and valuable knowledge and supporting its dissemination and application in contexts where it can have the greatest impact (Haynes et al., 2020). It involves fostering collaborative partnerships between researchers and stakeholders, while providing relevant evidence in accessible formats and within appropriate timeframes to inform decision-making processes (Bannister & Hardill, 2016). In agriculture, KMb facilitates the transfer of knowledge from academic settings to practical farming contexts.

Knowledge collaboration: In this study, knowledge collaboration is a central process that enables researchers, extension officers, and farmers to interact and exchange agribusiness knowledge. Knowledge collaboration refers to the interactive process through which individuals share, acquire, exchange, and integrate knowledge. It encompasses both the act of sharing one's knowledge with others and integrating knowledge provided by others (Faraj, Jarvenpaa, & Majchrzak, 2011; Cheng & Chang, 2020). By working together, participants create shared knowledge and develop feasible solutions, thereby strengthening agricultural

knowledge networks and enhancing the dissemination and implementation of farming innovations.

Knowledge collaborators: In this study, knowledge collaborators are key actors who facilitate the exchange and application of agribusiness knowledge within the small-scale tea sector. Knowledge collaborators refer to individuals who actively enable knowledge sharing and collaborative learning processes (Cheng & Chang, 2020). They commonly include researchers, extension officers, experts, and experienced community members who contribute their expertise and maintain social and professional networks. These actors are often motivated to support learning and innovation within their communities (Zapata Cantu & Mondragon, 2016). Their engagement strengthens knowledge networks and supports the effective transfer and adaptation of knowledge in local agricultural contexts.

Knowledge mobilisation (KMb) framework: In this study, a KMb framework aims to provide a structured approach for guiding the mobilisation of agribusiness knowledge among stakeholders in the tea sector. A KMb framework serves as a platform that supports knowledge collaborators in developing the competencies required to mobilise knowledge effectively within organisations and communities (Bayley et al., 2018). According to Ward (2017), such a framework guides knowledge mobiliser by addressing key questions regarding why knowledge is mobilised, whose knowledge is involved, what type of knowledge is mobilised, and how the mobilisation process occurs. This structure facilitates systematic and purposeful knowledge exchange.

Knowledge mobilisation (KMb) strategy: In this study, a KMb strategy guides how agribusiness research findings are translated into practical actions that benefit small-scale tea farmers. A KMb strategy serves as a bridge between research outputs and real-world challenges, demonstrating how research can be applied to address practical problems (Baranek, Frank, & Aldrich, 2021). According to Sales et al. (2024), a KMb strategy encompasses a range of activities related to the production, processing, dissemination, sharing, adoption, and use of knowledge by both researchers and end users. Such strategies help ensure that research knowledge is effectively utilised to support agricultural development.

Knowledge mobilisation (KMb) practice: In the context of this study, KMb practice refers to the practical initiatives used to connect research knowledge with policy and tea farming practices. The concept involves activities designed to strengthen linkages between research, policy, and practice across sectors and professional communities (Kislov et al., 2014). These

practices promote collaboration and facilitate the transfer of knowledge across institutional and regional boundaries to maximise the social and organisational benefits of research (Bannister & Hardill, 2016). In agricultural contexts, such practices support the effective application of research-based knowledge by farmers and other stakeholders.

Knowledge exchange: The current research proposes that knowledge exchange helps in interaction among researchers, extension officers, and farmers, thus disseminating of agribusiness knowledge. Knowledge exchange involves the sharing of information and expertise among individuals with similar interests or for the benefit of an organisation (Imran et al., 2019). As highlighted by Rose et al. (2019), knowledge exchange plays a critical role in the agricultural sector, enabling farmers to engage in discussions and acquire insights into new ideas and innovations.

Knowledge dissemination: In this study, knowledge dissemination refers to the processes used to communicate agribusiness knowledge generated by researchers to small-scale tea farmers and other stakeholders. It involves the deliberate and collaborative sharing of knowledge with specific audiences to promote learning, awareness, and behavioural change (Ordoñez & Serrat, 2017). According to Prinsloo, Van Waveren, and Chan (2017), the effectiveness of knowledge dissemination is influenced by several factors, including individual experiences, trust, the credibility of the knowledge source, shared understanding, motivation, and articulation ability. Effective dissemination ensures that research knowledge reaches its intended users in forms that are both understandable and usable.

Knowledge sharing (KS): In this study, KS facilitates the exchange of agribusiness knowledge among researchers, extension officers, and small-scale tea farmers. KS is defined as the transfer of task-related information, advice, and expertise to help others and promote teamwork in achieving tasks, resolving issues, and generating new concepts (Ahmad & Karim, 2019). Interpersonal KS refers to the sharing of knowledge between individuals, either in person or through online communication platforms (Ahmad, 2018). KS enhances teamwork, collective learning and exchange of experiences, which are essential for improving agricultural practices and fostering innovation among the tea farming communities by enabling farmers to share successful techniques, learn from each other's challenges, and collaboratively develop new solutions to common problems.

Knowledge transfer (KT): In the context of this study, knowledge transfer describes the movement of agribusiness knowledge from research institutions to small-scale tea farmers and

other stakeholders. Knowledge transfer encompasses a range of structured activities aimed at enabling the application of knowledge within organisations and communities (De Wit-de Vries et al., 2019). It involves purposeful interactions, in which individuals actively share expertise and learn from one another to support both individual and organisational development (Anosike, 2018). Effective knowledge transfer ensures that research outputs are translated into practical improvements in the agricultural production sector.

Knowledge translation: In this study, knowledge translation focuses on transforming research findings into practical knowledge that can guide agricultural decision-making. It entails the generation, dissemination, and application of scholarly knowledge (Curtis et al., 2017). Moreover, it denotes the process of transferring knowledge into actionable practices (Olson & Oudtshoorn, 2020). In the agricultural setting, knowledge translation ensures that scientific knowledge is re-packaged into formats and languages that are easily understood, relevant, and applicable to farmers and other agricultural stakeholders.

Knowledge networks: In the context of this study, knowledge networks facilitate collaboration among researchers, extension officers, and farmers involved in the small-scale tea sector. O'Brien et al. (2021) define a knowledge network as a group of individuals who share a common interest, interact, and collaborate to mutually assist and support one another based on their collective knowledge. It also refers to a group of actors connected through knowledge communications, forming the foundation for an innovation network and serving as the knowledge base for enterprise innovation (Xue, 2018). In an agricultural setting, knowledge networks enable the flow of information and enhance collaborative problem-solving among stakeholders.

Agriculture: In the current study, agriculture forms the general background in which agribusiness knowledge is created and utilised among small-scale tea farmers. Agriculture, also known as farming, is the practice of cultivating arable land, growing crops, and farming animals that ensures food production and livelihoods of the world population (Jayne et al., 2019; Iqbal, 2024). It also comprises a wide range of activities in respect to the management of natural resources to produce food and fibre. In rural economies, agriculture has continued to be a dominant sector, which supports household income, food security and socio-economic development.

Agribusiness: In this study, the term 'agribusiness' refers to the entire economic system that encompasses the tea production industry. It includes a wide range of enterprises involved in the

production of agricultural goods and services, such as food and animal husbandry, seed propagation, agrochemical development, farm machinery and processing, marketing, and retail distribution. The fundamental principles of agribusiness therefore emphasise sustainability and value addition throughout the agricultural supply chain (Tsan et al., 2019; Leo et al., 2022). This conceptualisation anticipates the creation of value all along the entire agrarian value chain, while also striving to enhance efficiency, innovation, and sustainability in both agricultural production and related industries.

Small-scale farming: This study defines small-scale farming as the mode of production practised by tea farmers in Murang'a County. Small-scale farming refers to crop or livestock production carried out on relatively small plots of land, typically less than two hectares (Mango et al., 2018; Deka and Goswami Anurupam, 2022). Such farming is typically labour intensive and heavily reliant on family labour and locally available resources. Small-scale agriculture is a major source of rural livelihoods and food security in developing countries, significantly contributing to the household income of rural farmers and the development of local agriculture.

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Research: In this study, research forms the foundation for generating agribusiness knowledge that can be mobilised to support agricultural development. Research is a systematic and evidence-based study of theoretical propositions about the presumed relationships between different phenomena (Dubey & Kothari, 2022). Creswell and Plano Clark (2023) assert that research involves a series of steps: defining and refining problems; formulating hypotheses or research questions; collecting, organising, and evaluating data; making deductions and drawing conclusions; and testing these conclusions to ascertain their alignment with the initial hypotheses or research questions.

Researcher: In this study, researchers are critical actors who are mandated with the responsibility of producing agribusiness information that can be harnessed to assist small-scale

tea farmers. A researcher is a specialist who is interested in the systematic study of issues and develops new knowledge or insights (Datta, 2018; Hwang and Chien, 2022). Researchers are involved in different phases of the research process and they include: designing of the studies, data collection, data analysis and sharing and publication of results. Their academic efforts help in furthering knowledge and preserving evidence-based decision making in the academic, policy and practice fields.

Extension worker: In this study, extension workers play a salient role in providing connection between research institutions and the farming communities. An extension worker is a skilled specialist that provides technical assistance, consultancy, and capacity-building programs to community development (Obaid Khalil et al., 2008; Cook, Satizabal, & Curnow, 2021). The transfer of knowledge and skills to the community members is achieved by the extension workers in promoting learning, innovation, and problem solving. Their roles regularly cut across the gap between knowledge that is instilled through research and the application of the knowledge in local development situations.

Agricultural extension worker: In the context of this study, agricultural extension workers facilitate the dissemination and application of agribusiness knowledge among small-scale tea farmers. An agricultural extension worker is a specialist in agricultural practices who provides technical advice, training, and support to farmers while linking them to research institutions and agricultural markets (Che, Strang, & Vajjhala, 2020; Maulu et al., 2021). They act as intermediaries between farmers and key stakeholders within the agricultural value chain, helping farmers adopt improved farming practices, technologies, and innovations that enhance productivity and sustainability.

1.13 Structure of the thesis

The research consists of seven distinct sections, and the contents of each chapter are outlined as shown in Table 1.3 below:

Table 1.3: Structure of the thesis

Chapter	Title of the chapter	Overview of the content
Chapter One	Introduction and background to the study	The first chapter of this study presents an introduction to the topic under study. It comprises various sections, including a conceptual and contextual framework, a problem statement, the purpose and objectives of the study, the scope and limitations of the study, the research

		methodology, a brief literature review, the significance and originality of the study, a description of key terms used, and an outline of the overall structure of the study.
Chapter Two	Theoretical framework	The second chapter focuses on developing a theoretical foundation by incorporating relevant theories and models. The chapter encompasses the following sections: an examination of the theoretical frameworks utilised in the research; a concise overview of the theories and models associated with KMb; an exploration of how these theories have been employed in the present study; and the presentation of a conceptual framework that aids in the conceptualisation of the key concepts examined in this research. The chapter concludes with a succinct summary of the main points expounded.
Chapter Three	Literature review	The third chapter offers a comprehensive overview of the relevant literature in the field of KMb. The literature review section critically evaluates previous studies and scholarly works related to the research topic.
Chapter Four	Research Methodology	The fourth chapter delves into the research methodology, beginning with the research paradigm, approach, and design. It also discusses the target population, sampling techniques, and data collection procedures. Finally, the chapter discusses the data analysis and presentation methods, along with considerations of validity, reliability, and trustworthiness.
Chapter Five	Presentation of the findings.	The fifth chapter unveils the outcomes of the data analysis, showcasing the results and findings relating to KMb practices and frameworks among agribusiness researchers and small-scale tea farmers in Murang'a County. The chapter employs the MMR approach to present the results comprehensively.

Chapter Six	Interpretation and discussion	Chapter six provides an in-depth explanation and discussion of the results obtained from the analysis conducted in chapter five.
Chapter Seven	Conclusions and recommendations	The outcomes and recommendations of the research are outlined at this point.
References		This is a list of cited works that were reviewed as reference resources for the study.
Appendices		This section comprises relevant copies of letters, study tools, and other works that were employed throughout the study.

1.14 Summary of the chapter

The first chapter introduced the main problem underpinning this study. It presented an in-depth discussion of the study's contextual and conceptual background, the problem statement, the purpose and objectives, the research questions, a brief outline of the theoretical foundation, and the significance and originality of the study. Additionally, the chapter provided a summary of the research methodology and the ethical considerations that were taken into account. Overall, this chapter served as an overview of the study's context and laid the groundwork for the subsequent chapter (Chapter Two), which explores the theoretical framework underpinning the research.

CHAPTER TWO
CONCEPTUAL FRAMEWORK

2.1 Introduction

To develop a comprehensive understanding of the concepts under investigation, it was imperative to conduct a review of the pertinent theories that underpinned this study. This chapter, therefore, presents an analysis of the conceptual framework upon which the study was constructed. The chapter further explores the theoretical grounding of assorted theories that contributed to the formulation of the study. The chapter incorporates the following sections: the theoretical frameworks utilised in the study; an overview of the theories and models allied with KMb; a review of how the theories and models have been applied in the study; and a presentation of the conceptual framework that aids in the anchoring of the key concepts in this study. The chapter concludes with a succinct summary of the main points developed.

2.2 Theoretical framework

This section examines the theoretical foundations of the study, focusing on the concepts, adaptations, and applications of the theories underpinning the research. Scholars in the social sciences have offered various definitions of the term theory within a research context. According to Okoli (2021), a theory is described as a coherent description of the relationship between two or more measurable concepts. Likewise, Kasirye (2021) defined theory as an explanation of a phenomenon based on facts, hypothesised statements, or assumptions that may be used to predict research outcomes. As such, theory plays a pivotal role in social research, as it guides the processes of collecting, analysing, comprehending, and ultimately deploying data (Alderson, 2020).

A significant number of scholars have extensively discussed the features of a good theory. According to Christensen (2017), a good theory should possess the following attributes: it must be rational and consistent, clearly define constructs and variables, and be applied in a specific domain. Additionally, a good theory should clearly describe the connections between variables, define and describe concepts, themes, principles, and constructs, be founded on empirical evidence, be testable and verifiable, and be concise and clear. Finally, its assumptions must be broad enough to be applicable across a variety of contexts. Kivunja (2018) accentuates that a good theory should outline the phenomena by establishing the relationships among the variables. It should further present, determine, and link the study constructs, enabling a comprehensive understanding of the subject. Lastly, it should outline the interrelationships among variables, thereby providing a cohesive framework for examining the phenomena.

According to Ngulube (2018), a theoretical framework plays a crucial role in enhancing comprehension of a research issue by illuminating the subject under investigation, clarifying the research questions, and offering a distinctive perspective on the study. The application of a theoretical framework in research has long been a subject of debate among scholars. In essence, there is a consensus that a theoretical framework is employed to describe the theoretical foundations of a study that is underpinned by a single theory (Ngulube, 2020; Varpio et al., 2020). Furthermore, scholars contend that a theoretical framework plays a vital role in advancing research across multiple dimensions. It serves to enhance the authenticity of qualitative data and bolster the construct validity of quantitative data. Moreover, it fosters the generalisability of findings by bolstering the trustworthiness of qualitative research and the predictive validity of quantitative data. Additionally, a good theory framework contributes to the validity of qualitative findings and fosters intellectual trustworthiness in quantitative findings. Lastly, it strengthens the reliability and consistency of both quantitative and qualitative data, thus creating a solid foundation for scholarly investigation (Kivunja, 2018; Ngulube, 2020; Johansson, Grandien & Strandh, 2019; Varpio et al., 2020).

2.3 Theories/models in KMb

Several theories and models have emerged in the fields of KMb and knowledge management, providing important frameworks for research. Among these, notable theories include the KM spiral (SECI) model proposed by Nonaka, Toyama and Konno (2000), the KM matrix theory presented by Gamble and Blackwell (2001), the KMb activities and services model introduced by Phipps and Shapson (2009), the Ward model (why, whose, what, and how KMb framework) developed by Ward (2017) and the co-produced pathway to impact model (Phipps et al., 2016). The theories were developed in the mid-to-late 1990s and the post-2000s and propose unique pathways and perspectives for KMb as well as knowledge management. In the subsequent discussion, we delve into the intricacies of these five theories.

2.3.1 The socialisation, externalisation, combination and internalisation (SECI) model

The SECI model, introduced by Nonaka, Toyama, and Konno (2000), encompasses the following processes: socialisation, externalisation, combination, and internalisation, serving as a fundamental framework for understanding how knowledge is generated, shared, communicated, and utilised (Nonaka, Toyama, & Konno, 2000). Particularly, the SECI model has gained widespread acceptance as a valuable tool for managing knowledge within organisations, as highlighted by Hislop, Bosua and Helms (2018). Consequently, the SECI

model serves as an essential framework for administering KM activities within organisations, ensuring effective utilisation and dissemination of knowledge (Hislop, Bosua, & Helms, 2018).

The SECI model evolves through a cyclical process comprising socialisation, externalisation, combination, and internalisation, with each stage building upon the previous one. It is also shaped by the dynamic interplay between tacit and explicit knowledge. Li, Liu and Zhou (2018) assert that the SECI model is anchored on two fundamental types of knowledge. The first type is tacit knowledge, often referred to as "know-what" knowledge, which encompasses experiential, skill-based, and activity-based knowledge that is challenging to articulate, replicate, or codify. The second type is explicit knowledge, which consists of facts that can be conveyed through both written and verbal means (Li, Liu, & Zhou, 2018). The diagrammatic representation of the SECI model is provided below:

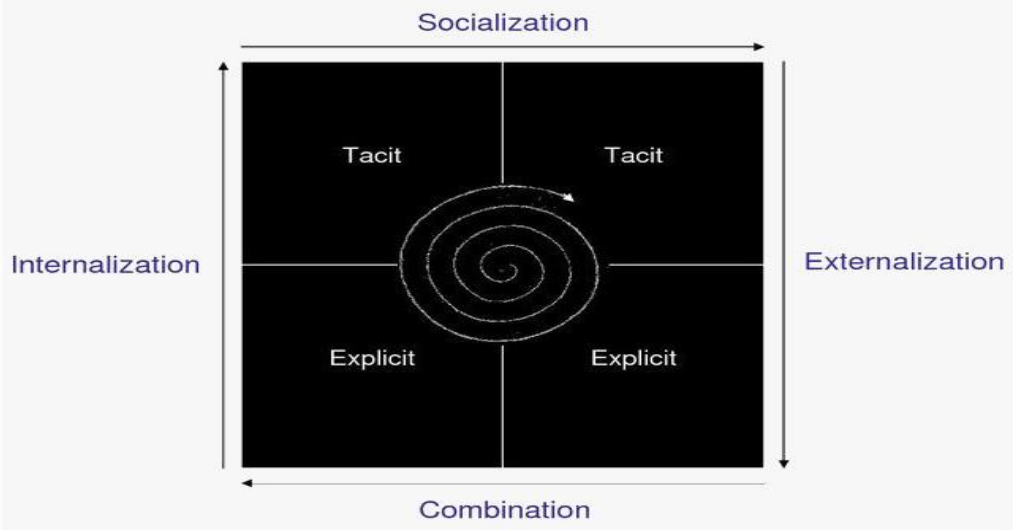


Figure 2.1: The SECI model by Nonaka and Takeuchi

Source: Nonaka and Takeuchi (1996)

2.3.1.1 Socialisation: tacit to tacit

In the SECI model, socialisation serves as the initial mode of knowledge transformation. It involves the conversion and sharing of tacit knowledge through practices, interactions, guidance, simulation, and observation among individuals or groups (Li, Liu, & Zhou, 2018). Socialisation emphasises the idea that knowledge is created and disseminated through social contact and communication. It takes place through activities such as storytelling, apprenticeships, observation, and knowledge sharing. According to Hislop, Bosua and Helms (2018), these activities facilitate the transfer and assimilation of tacit knowledge by individuals, drawing from their own experiences as well as those of others. Socialisation is crucial in

organisational contexts, as it contributes to the development of a shared culture and identity within the organisation. It allows individuals to gain a common understanding of the organisation's values, goals, and operating principles through the exchange of tacit knowledge. This shared culture and identity, in turn, can foster collaboration, innovation, and overall organisational effectiveness (Chib & Sehgal, 2019).

2.3.1.2 Externalisation: tacit to explicit

According to Ravanal Moreno et al. (2021), externalisation within the SECI spiral is essential, as it enables the sharing of tacit knowledge more broadly and efficiently within an organisational establishment. By converting tacit knowledge into explicit knowledge, individuals can articulate their ideas and insights more clearly, leading to enhanced creativity, problem-solving, and knowledge transfer across the organisation. Natek and Zwilling (2016) define externalisation as the process of transforming tacit knowledge into explicit knowledge through articulation and expression. It is based on the notion that knowledge can be made explicit and communicated through language and various forms of communication. During the externalisation stage, techniques such as metaphors, analogies, and models are employed to represent tacit knowledge more explicitly. For instance, agricultural scholars may use diagrams or models to depict their scholarly knowledge visually, facilitating easier sharing and expression. However, Flores Torres et al. (2021) caution that externalisation alone is insufficient and may result in the loss of complexity and nuance inherent in tacit knowledge. It is therefore critical to strike a balance between externalisation and other modes of knowledge translation, including socialisation, combination, and internalisation.

2.3.1.3 Combination: explicit to explicit

The combination serves as the third phase of knowledge conversion in the SECI model. Nonaka, Takeuchi and Umemoto (1996) define combination as the process of integrating explicit knowledge into more sophisticated and systematic knowledge sets through activities such as classification, categorisation, and recombination. The combination is based on the concept that explicit knowledge can be combined and reconfigured to generate new knowledge. It involves applying existing explicit knowledge to create novel insights and understanding. By integrating and synthesising contemporary knowledge, individuals and organisations can generate fresh knowledge that can be shared and analysed to identify trends and patterns. This process enables the creation of more comprehensive and refined knowledge sets, which in turn can contribute to effective decision-making, problem-solving, and innovation (Hoe, 2006).

2.3.1.4 Internalisation: explicit to tacit

Internalisation, as defined by Nonaka, Takeuchi and Umemoto (1996), involves the transformation of knowledge from explicit to tacit through individual learning and application. The internalisation phase is therefore based on the premise that individuals eventually comprehend and utilise knowledge. Through this process, individuals can acquire knowledge and develop their skills through practice, experimentation, and the application of explicit knowledge in everyday situations (Kaur, 2015). Internalisation is crucial because it enables individuals to integrate explicit knowledge into their tacit knowledge and abilities. This process empowers individuals to employ explicit knowledge in innovative and creative ways, thus fostering organisational growth and innovation.

2.3.2 The knowledge management (KM) matrix

Gamble and Blackwell (2001) developed their adaptation of the KM matrix, drawing motivation from the original model by Prusak and Davenport (1998). According to Gamble and Blackwell (2001), the KM matrix serves as a convenient tool for organisations to identify, manage, and share their knowledge resources. The model outlines a four-stage process for knowledge management. The initial phase involves the management of an organisation locating knowledge sources, and the second stage involves classifying the knowledge to assess strengths, weaknesses, relevance, and reusability. The third stage is socialisation, which includes various techniques to facilitate knowledge sharing and dissemination. Finally, knowledge is internalised through the utilisation process within and beyond the organisation. Critics have raised concerns about the KM matrix. Frost (2014) argued that, unlike the Davenport and Prusak model, the KM matrix tends to prioritise knowledge sharing over other important KM processes such as knowledge creation and capture. However, for this study, the model proves synergistic as it focuses on knowledge sharing and retrieval, which closely aligns with KMb. The model is graphically depicted below.

Type / Approach	Embodied	Represented	Embedded
Sense	Observe	Gather	Hypothesize
Organize	Contextualize	Categorize	Map
Socialize	Share	Disseminate	Simulate
Internalize	Apply, Decide, Act		

Figure 2.2: The KM matrix model

Source: Gamble and Blackwell (2001)

2.3.3 The knowledge mobilisation activities and services (KMBAS) model

The KMb activities and services model, also known as the Phipps and Shapson KMb model, emerged as a trailblazing framework in the field of KMb. Developed by Phipps and Shapson (2009), this model has had a significant impact on the field of KMb, both in practice and research. As accentuated by Phipps and Shapson, the model provides a structured approach to effective KMb by emphasising the importance of understanding the context, setting clear goals, and employing diverse strategies to achieve those goals (Phipps & Shapson, 2009). The model highlights the importance of engaging multiple stakeholders, fostering meaningful relationships, and continually evaluating and enhancing KMb initiatives.

The model is built upon three key elements: context, goals, and activities: Context encompasses the social, economic, and political factors that shape the process of knowledge creation through research, creativity, and innovation; Goals represent the specific targets and outcomes of KMb activities, ranging from short-term objectives to long-term aspirations, tailored to the needs and circumstances of stakeholders; Activities encompass a range of initiatives employed to achieve the set goals, including identifying essential knowledge and stakeholders, facilitating connections between researchers and knowledge users, disseminating research evidence, adapting knowledge to different contexts, promoting the use of research evidence, and evaluating the impact of KMb efforts (Phipps & Shapson, 2009; Ungar et al., 2015). This model provides organisations with a crucial framework to establish relationships with diverse stakeholders, assess the impact of their initiatives, and continuously improve KMb processes.

Its adaptability and versatility emphasise the importance of understanding the context, setting clear goals, and implementing a variety of activities to achieve desired outcomes. The model's widespread adoption in both practice and research demonstrates its significant influence on the field of KMb.

The model has further gained significant recognition and endorsement from scholars, practitioners, and organisations in the KMb field. Phipps (2011) highlights six core activities within the model: identifying pertinent knowledge and stakeholders, establishing partnerships and collaborations, disseminating research knowledge in accessible and usable formats, adapting knowledge to diverse contexts, promoting the implementation of research, and evaluating and integrating KMb efforts into policy and practice. The model also highlights supporting services, including planning and coordination, capacity building, stakeholder engagement, and infrastructure support. To further enhance the model, Phipps et al. (2016) introduced the knowledge and mobilisation logic model, also known as the co-produced pathway to impact model, which simplifies the KMb process into key steps: research, dissemination, uptake, implementation, and impact. This streamlined version improves the clarity and effectiveness of the model, ensuring a systematic approach to KMb.

2.3.4 The why, whose, what and how KMb framework (Ward model)

The why, whose, what and how KMb framework originates from a conglomerate of KMb models, including one developed by Melanie Barwick (Barwick et al., 2014), a Canadian researcher and practitioner in the field of KMb. Dr Vicky Ward inaugurated the model, also known as the Ward model, as a foundation for thinking about KMb and knowledge transfer and exchange (KTE) in organisations. Ward (2017) theorised that those four major components form the fundamental idea and principle of the Ward model. The components are framed as questions that organisations need to interrogate when implementing KMb. The first question is, "Why mobilise knowledge?" This encompasses the reasons for and goals of KMb. It involves knowing the significance of KMb, what advantages it can provide, and its precise aims and outcomes.

The second component is "whose knowledge?" This defines the various stakeholders involved with KMb initiatives. It calls for recognising and connecting with a variety of stakeholders, including researchers, practitioners, decision-makers, community members, and other knowledge seekers (Hislop, Bosua, & Helms, 2018). The third concern is, "What type of knowledge?" Organisations must specify the precise knowledge being mobilised, including

both academic and non-academic knowledge, as well as the evidence or information required to support the objectives being pursued (Ward, 2017). The final component is "How is knowledge mobilised?" This refers to the methods and approaches used to mobilise knowledge, such as knowledge dissemination, exchange, co-production, and assessment. It provides a framework for organisations to formulate the best solutions based on the specific situation and the demands of the parties involved (Hislop, Bosua, & Helms, 2018). According to Barwick, Dubrowski and Petricca (2020), the why, whose, what, and how framework offers central lucidity that KMb initiatives can succeed if organisations use a comprehensive and flexible approach, engage with diverse stakeholders, use a range of strategies to mobilise knowledge effectively, and identify clear goals and outcomes.

2.3.5 The co-produced pathway to impact model

The co-created pathway to impact model provides a helpful foundation for KMb activities within the context of organisations. This model, developed in 2016 by David Phipps and his colleagues, was designed to address the shortcomings of previous KMb models, which lacked a comprehensive strategy for monitoring the impact of research outputs on the community (Phipps et al., 2016). Pain et al. (2015) have noted that the perception of impact in KMb has historically leaned heavily towards the perspective of academic researchers, often overlooking the viewpoints and contributions of the broader community. The co-produced pathway to impact model, therefore, streamlines the complexities of impact monitoring by offering a logical framework that traces the trajectory of research, encompassing its dissemination, uptake, implementation, and ultimately impact. According to Phipps et al. (2016), the primary objective of this model is to cultivate a collaborative environment in which researchers work closely with non-academic partners who are instrumental in producing products, policies, and services that ultimately have a tangible impact on the lives of end beneficiaries.

2.4 Application of the theories/models in this study

Four theories, namely the SECI model, the Phipps and Shapson model, the Ward model, and the co-created pathway to impact model, were considered ideal for probing into the practices of KMb for small-scale tea farmers. These theories and models are discussed below:

2.4.1 Application of the Ward model in this study

The Ward model, also known as the why, whose, what, and how KMb framework, serves as the first model selected to underpin this study. Developed by Dr Vicky Ward, this model offers valuable insights into the context, stakeholders, and desired outcomes of KMb activities within

organisations (Ward, 2017). The Ward model identified four key components that are pertinent to KMb, namely why, whose, what, and how. In the current study, the Ward model has been selected as the central anchoring model, given its ability to influence five variables: the nature of knowledge produced and mobilised, knowledge collaborators, KMb strategies, KMb factors, and the KMb framework. Within the context of agribusiness, this model can be employed to anchor KMb activities within the agribusiness discipline. These five key variables and their constructs are identified and elucidated below.

2.4.1.1 The nature of knowledge produced and mobilised

Commencing with the first variable, 'knowledge types,' this variable elucidates the specific kind of knowledge tailored for small-scale tea farmers. Within the agribusiness sector, this knowledge encompasses, among other elements, agribusiness research findings and products, academic and non-academic expertise residing within the collective knowledge pool of stakeholders (comprising agribusiness researchers and farmers), traditional wisdom passed down through generations of farmers, and experiential knowledge attained through farmers' engagement in their core farming activities. The relevant construct in the Ward model that shapes this variable is "what." As highlighted by Smith (2020), the "what" element plays a pivotal role in pinpointing the precise type of knowledge being mobilised, such as agribusiness research findings, traditional wisdom, or experiential knowledge from farmers. This crucial step ensures that the agricultural knowledge being mobilised remains pertinent and fitting for the intended audience.

Two distinct knowledge types are recognised in this study: tacit knowledge and explicit knowledge. Concerning tacit agribusiness knowledge, Šūmane et al. (2018) conducted a comprehensive review within their study, delving into the various categories of tacit knowledge exchanged among farmers. Their study identified that tacit agribusiness knowledge stems from farmers' personal experiences, informal exchanges between researchers and farmers, and the expertise residing within the minds of both researchers and farmers. The mobilisation of such tacit knowledge holds significant sway in creating alternative pathways in sustainable agriculture and enhancing agricultural resilience. Conversely, explicit knowledge, as outlined by the Ward model, encompasses scientific and information. This domain includes research findings, data on quality and performance, population statistics, evaluation data, and practical knowledge disseminated through recognised platforms (Ward, 2017). It is noteworthy that explicit knowledge can be formalised and codified, rendering it more accessible for identification, storage, retrieval, and effective management through KM systems (Berraies,

Hamza, & Chtioui, 2021; Kadio, Dagenais, & Ridde, 2023). This study offers valuable and practical insights into the strategies employed by knowledge stakeholders, including agribusiness researchers, knowledge mobilisers, and small-scale tea farmers, to generate new knowledge by capturing and exchanging both explicit and tacit knowledge. As underscored by Dhir et al. (2020), the creation of new knowledge holds paramount importance, not only for enhancing productivity and process improvements but also for bestowing a competitive advantage within an organisational setting.

2.4.1.2 Knowledge collaborators

The second variable addressed in this study, anchored by the Ward model, pertained to knowledge collaborators. The objective of the knowledge collaborators variable was to delineate the various stakeholders engaged in KMb for small-scale tea farmers. Specifically, this variable aligned closely with the 'Whose' construct within the Ward model. In elaborating on this construct, Ward (2017) sought to answer the pivotal question, "Whose knowledge is being mobilised?". In concurrence, Smith (2020) opined that the "whose" element played a crucial role in identifying and understanding the needs and perspectives of key stakeholders involved in KMb. This understanding was therefore vital in determining the most suitable KMb strategies to be implemented.

In this context, Ward identified five distinct knowledge collaborators integral to the process of KMb: professional knowledge producers, responsible for generating empirical and theoretical knowledge and evidence; frontline practitioners and service providers, tasked with delivering services to the public; members of the public, acting individually or on behalf of their communities; individuals receiving services; decision makers, responsible for commissioning services and shaping policies and strategies; and product and programme developers, charged with designing, producing, and implementing tangible products, services, and programmes (Ward, 2017). In the context of this study, the knowledge collaborators encompassed agribusiness researchers, knowledge mobilisers, and small-scale tea farmers. These collaborators needed to work together, as advocated by Carton et al. (2022), who stated that farmer–researcher collaborations could stimulate knowledge exchange and collective learning by encouraging active exchange between participants and integrating and complementing processes.

2.4.1.3 KMb strategies

The third dimension addressed by the Ward model focused on the question of how knowledge was mobilised. This construct, as previously elaborated, was identified as critical and pertained to the methods, processes, and approaches through which knowledge was translated into use. The 'how' construct pinpointed various approaches to KMb, including knowledge dissemination, exchange, co-production, and utilisation, among others. Critically, contemporary KMb literature challenged linear models of knowledge transfer, instead advancing interactive and systems-oriented perspectives in which knowledge was co-created through iterative engagement among stakeholders (Ward, 2017). In reporting this construct, it was observed that the 'how' of KMb was inherently shaped by the nature of knowledge collaborators, the context of application, and the institutional environment, thereby reinforcing the interdependence between strategies and actors.

Similarly, the third objective of this study focused on investigating the strategies employed for enhancing KMb practices for small-scale tea farmers in Murang'a County. KMb strategies were identified as critical for mobilising agribusiness knowledge. These strategies facilitated the understanding of the approaches and catalysts that shaped and affected small-scale farming operations. They assisted knowledge stakeholders in the following ways: agribusiness researchers to conceptualise ideas and emerging issues in creating agribusiness research knowledge; knowledge mobilisers to facilitate integration, collaboration, and knowledge exchange among agribusiness scholars and small-scale tea farmers; and small-scale tea farmers who were propelled to seek, access, and utilise information and knowledge. Bravo Chapa (2019), Rodway (2019), and Adhikari and Shrestha (2023) contended that the effective implementation of KMb strategies and practices could render knowledge generated by higher education institutions more pertinent and valuable to diverse decision-makers, thereby contributing to positive social impacts. In this study, the strategies identified aligned with the Ward model's "how" dimension and encompassed products, networks, events, and technology. These KMb strategies and practices possessed the potential to assist agribusiness researchers in higher education institutions in devising effective strategies to reach their intended knowledge users, specifically small-scale tea farmers, most effectively.

2.4.1.4 KMb factors

The fourth aspect under analysis in this study pertains to the factors that impact KMb. The aim of investigating this variable is to examine the factors that influence KMb practices for small-scale tea farmers in Murang'a County. Per the perspective offered by Sá, Li and Faubert (2011),

considering the KMb factor is of profound significance as it empowers stakeholders, among them scholars in academic institutions, practitioners, and policymakers, to understand the determinants of mobilising research knowledge to the broader community and enhance the transference and uptake of the research knowledge. Within this study, four interconnected constructs have been identified, all anchored by the "why" construct within the Ward model. These constructs encompass the resources allocated to KMb, the knowledge users, the complexity of the knowledge generated and mobilised, and the support from management. Considering these KMb factors is of vital importance since it empowers agribusiness scholars, policymakers, and practitioners who aim to mobilise their knowledge for small-scale tea farmers to understand the opportunities, challenges, and user requirements before engaging in the exercise. Powell, Davies and Nutley (2018) assert that a thorough consideration of KMb factors facilitates a comprehensive evaluation of KMb programs. Additionally, it serves to bridge the gap between academic research and non-academic audiences, fosters collaborations and partnerships, and enhances the future landscape of KMb in both practice and theory (Powell, Davies, & Nutley, 2018).

2.4.1.5 Knowledge mobilisation (KMb) framework

The fifth and final variable in this study, anchored by the Ward model, focuses on the KMb framework. The primary objective of this variable is to propose an enhanced framework tailored to improve KMb practices for small-scale tea farmers in Murang'a County. In this context, the model operates on the premise that agribusiness scholars and knowledge mobilisers can develop a comprehensive framework that encompasses all facets of KMb, targeting and benefiting small-scale tea farmers. This study suggests that the KMb framework can involve integrating all the aspects, including knowledge types, knowledge collaborators, KMb strategies, KMb resources, KMb indicators, and the factors influencing KMb. The purpose of establishing a KMb framework is to assist knowledge mobilisers in effectively facilitating knowledge transfer, knowledge flow, and KMb among different players in the tea agribusiness value chain.

Ward (2017) developed a KMb framework by conducting a comprehensive assessment of 47 KMb models, based on four essential questions: What is the purpose of mobilising knowledge? Whose expertise is being mobilised? What kinds of knowledge are being mobilised? How is knowledge mobilised? Bayley et al. (2018) developed another KMb framework by synthesising several KMb models through a process of extraction, classification, refinement, and re-categorisation. As a result, a KMb model is a powerful tool for knowledge mobilisers, allowing them to critically reflect on, clarify, and assess their aims, ultimately encouraging greater clarity

and understanding across the entire profession. The Ward model serves as the anchor for all five variables discussed in the preceding paragraphs.

The Ward model has been widely used in many agricultural studies, demonstrating its usefulness and versatility. Chen et al. (2018) employed this model to examine the adoption of KMb in agri-food supply chains, aiming to promote collaboration among all stakeholders and reduce waste comprehensively. The research identified information brokers, artefacts, and pathways that supported cross-border KMb, leading to a significant decrease in agricultural-related waste. Similarly, Jayathilake et al. (2018) explored the use of information and communication technologies (ICTs) in Sri Lankan agricultural communities to promote sustainable KMb. According to the findings, ICTs played a critical role in catalysing positive transitions in agriculture-based rural populations, in particular in economically deprived countries such as Sri Lanka. Dinesh et al. (2021) additionally applied the Ward model to create a KMb strategy for climate-smart farming. The authors gathered knowledge about the requirements and desires of farmers and other interested stakeholders through stakeholder engagement. They also employed knowledge-sharing and capacity-building approaches to transform the study findings into practical tools and resources. These examples demonstrate the Ward model's adaptability and efficacy in addressing various challenges and enhancing KMb in the agricultural sector, particularly in the application of sustainable agricultural methods.

2.4.2 Application of the SECI model in this study

The SECI model, as previously discussed, was pioneered by Nonaka, Takeuchi and Umemoto (1996) to illuminate how knowledge is both created and exchanged within an organisational context. This model highlights four critical stages that comprise a spiral process of transforming tacit knowledge into explicit knowledge, sharing it, and integrating it into an organisation's operations (Nonaka, Takeuchi, & Umemoto, 1996; Farnese et al., 2019). Conversely, KMb encompasses the processes of knowledge creation, exchange, and transfer, for which the SECI model offers a valuable framework for understanding how this can be achieved (Ahmad-Yousefi et al., 2022). Hence, within the context of KMb, the SECI model proves instrumental in grasping the dynamics of knowledge creation, exchange, and transfer within a societal framework. Regarding the mobilisation of agricultural knowledge, Flores Torres et al. (2021) argue that the SECI model can be effectively employed to facilitate the creation, transfer, and exchange of knowledge among diverse stakeholders, including farmers, researchers, and policymakers.

The model's four stages influence KMb activities in the agricultural sector. For example, socialisation can occur through the sharing of knowledge between farmers who may have different experiences and expertise. Externalisation can occur when researchers work with farmers to document their tacit knowledge and convert it into explicit knowledge that can be shared more broadly. A combination can occur when different stakeholders come together to share their knowledge and create new solutions to agricultural problems. Internalisation can occur when farmers incorporate new knowledge and practices into their tacit knowledge, improving their agricultural practices (Flores Torres et al., 2021). This, therefore, informed why the SECI model was deemed pertinent to this study. In the current study, the SECI model has identified one construct related to KMb for small-scale tea farmers, namely the nature of the knowledge produced and mobilised. This variable is described below.

2.4.2.1 The nature of the knowledge produced and mobilised

The nature of the knowledge produced and mobilised is a critical variable in determining whether the KMb process succeeds or fails. The variable expounds the type of resources required for the KMb exercise and has underpinned the knowledge types tailored for small-scale tea farmers, as well as how and why they are created, mobilised, and exchanged. Hence, understanding the various types of knowledge is paramount for the effective adoption of knowledge by small-scale tea farmers. Agribusiness researchers must remain well-informed about the evolving dynamics within the small-scale tea farming sector. This awareness enables them to generate and disseminate research knowledge that aligns with the specific needs and challenges faced by these farmers. Similarly, small-scale tea farmers need guidance on accessing agribusiness knowledge cost-effectively and integrating it into their farming value chain to enhance productivity. Fulfilling this crucial role rests with knowledge mobilisers, who serve as vital conduits for linking agribusiness knowledge with the appropriate small-scale tea farmers to facilitate knowledge uptake.

Ahmad-Yousefi et al. (2022) emphasised the critical role of researchers in generating high-quality research, knowledge, and innovations. The SECI model underscores two primary types of knowledge: tacit knowledge and explicit knowledge (Nonaka, Takeuchi, & Umemoto, 1996). Furthermore, there exists embedded knowledge, denoting knowledge integrated within processes, products, cultural norms, routines, artefacts, and structures. As highlighted by Joy (2018), while embedded knowledge is typically implicit, it can be presented explicitly through written guides and instructions. These three knowledge categories have been exhaustively elaborated on in Chapter Three of this study. An ideal KMb process should, therefore, identify

all knowledge types and develop a strategy for whether mobilisation and knowledge exchange involve one or both knowledge types. Based on the SECI model, the KMb process should consider knowledge creation to be a dynamic process in which there is a constant dialogue between tacit and explicit knowledge, resulting in the generation and sharing of new knowledge among people, organisations, and within the organisation (Farnese et al., 2019).

Preliminary empirical studies on the SECI model interrogated how the SECI model influences the knowledge transfer process between academia and the agricultural sector. Flores Torres et al. (2021) applied the SECI model to explore the emerging innovations for reconfiguring knowledge interaction dynamics in the agricultural artisan production of agave-mezcal from Oaxaca. The study found that the model was useful in enhancing interactions and collaborations between mezcaleros and external agents, as well as other producers, through the use of mobile technologies (Flores Torres et al., 2021). A study by Stilwell (2010) applied the SECI model to reconnoitre the management of agricultural indigenous knowledge in developing countries (Stilwell, 2010). The study found that the model was effective in capturing, preserving, and sharing indigenous agricultural knowledge among local communities. Another study by Ong et al. (2021) utilised the SECI model to analyse the utilisation of information and knowledge-sharing platforms for disseminating knowledge and building networks among small-scale farmers and related experts in Malaysia. The study designed and developed a framework for a dynamic web-based KM system with a Chatbot application for knowledge sharing and dissemination among small-scale farmers and related experts in Malaysia (Ong et al., 2021).

2.4.3 Application of the knowledge mobilisation activities and services (KMbAS) model in this study

The KMb activities and services model (KMbAS), also known as the Phipps and Shapson Model, holds significance in the context of this study. This model explores the mechanisms through which agribusiness stakeholders, including agribusiness researchers, knowledge mobilisers, and small-scale tea farmers, can methodically design and implement effective KMb initiatives within their respective organisational setups. Central to this model is the emphasis on selecting the most appropriate strategies for agribusiness KMb initiatives, including co-creation, capacity building, and knowledge exchange. These strategies need to be tailored to cater to the unique needs and context of the knowledge users, fostering strong and meaningful relations between researchers and the intended recipients of knowledge. In the context of agriculture, the application of KMb has not been explicitly explored, although there have been studies conducted in other fields. Phipps and Shapson (2009) utilised their model to enhance

the institutional capacity for supporting KMb and maximise the impact of research in the social sciences and humanities at York University in Toronto, Canada. They encouraged researchers and research consumers to collaborate, facilitating improved access to research findings. Phipps and Morton (2013) further employed the model to emphasise the value of knowledge brokering as a strategy for increasing the dissemination of research outcomes beyond higher education institutions.

The study recommended the establishment of knowledge brokers within institutions to disseminate knowledge to non-academic audiences effectively. Zhang et al. (2023) conducted a study investigating the impact of institutional-level factors on researchers' KMb activities. Their study, employing the KMbAS model, emphasised that research institutions should adopt programmatic approaches to empower their researchers to actively participate in the knowledge co-production process while also making systematic efforts at the institutional level to foster well-developed collaborative networks. This study engages the KMbAS model as a foundational framework for mobilising agribusiness knowledge for small-scale tea farmers. It also aligns with and addresses two specific constructs: KMb strategies and KMb factors that collectively outline the mobilisation and adoption of agribusiness knowledge among small-scale tea farmers.

2.4.3.1 KMb strategies

The KMbAS model plays a pivotal role in fostering a collaborative environment between researchers and the community, facilitating the development of products, policies, and services that have a profound impact on community members. During the process of designing and implementing these strategies, knowledge producers and mobilisers need to address crucial questions: What strategies will optimise reaching their intended knowledge users? How can they effectively convey their message(s)? Why have they chosen these specific strategies? What resources are at their disposal? What is the complexity of the knowledge intended to be mobilised, and how closely connected is the target audience to this information and knowledge? (Phipps & Shapson, 2009a; Venkitachalam & Bosua, 2014; Durrant et al., 2024). In this study, the identified KMb strategies encompass four key elements crucial for effective KMb: products, networks, events, and technology.

2.4.3.2 KMb factors

Closely tied to the variable of KMb strategies are the KMb factors. According to the KMbAS model (Phipps & Shapson, 2009) and its proponents (Ungar et al., 2015; Durrant et al., 2024),

knowledge is a dynamic entity influenced by a myriad of factors, encompassing both internal and external elements. Internally, factors are those intrinsic to and controllable within the organisational sphere, including resources, users, internal processes, and systems, among others. Conversely, external factors encompass economic aspects like funding, taxation, subsidies, and inflation; socio-cultural elements such as beliefs, attitudes, and cultural values; governance considerations, including KM policies, regulations, levies, and fees, as well as infrastructure; institutional frameworks like associations, professional bodies, and management support; market dynamics involving market conditions, prices, and customer intricacies; and technological aspects, such as IT affordability and competence in its utilisation by small-scale tea farmers. In this study, the constructs adopted under this variable include knowledge users, knowledge complexity, institutional support, and KMb resources. By scrutinising these variables, this study endeavours to illuminate the intricacies of KMb and its associated determinants.

2.4.4 Application of the co-created pathway to the impact model in this study

The Co-created Pathway to Impact model, as previously elucidated, was formulated by Phipps et al. (2016) and serves as a valuable augmentation to earlier KMb models. The preceding models had one major weakness: they lacked a comprehensive framework for assessing the impact of research outputs within the community (Phipps et al., 2016; Halvorsrud et al., 2021). This new model, therefore, provides a valuable avenue for identifying the indicators that enable the evaluation and monitoring of the impact of mobilisation and uptake of agribusiness knowledge by small-scale tea farmers. The co-created Pathway to Impact model, therefore, takes a central role, focusing on the dissemination, uptake, implementation, and impact of academic research knowledge on pertinent issues like agribusiness productivity and value addition, sustainable development, environmental awareness, competitive advantage, and overall societal impact in relation to health standards, education and income levels within the community (Moallemi et al., 2021; Gerke, Uude, & Kliewe, 2023). From the researcher's standpoint, this model is an ideal foundation for anchoring the fourth variable in this study, which pertains to KMb indicators.

2.4.4.1 The KMb indicators

The KMb indicators variable encompasses four critical elements pivotal for gauging KMb within the agribusiness context. The study identifies four indicators: dissemination indicators, use indicators, usefulness indicators, and collaboration or partnership indicators. Through a comprehensive exploration of these variables and their conceptualisation, this study aims to

provide clarity on the KMb process and illuminate the pivotal adoption indicators driving the agribusiness sector. As noted earlier, the primary objective of this model is to cultivate a collaborative ecosystem where researchers closely engage with non-academic partners. These collaboration partners play a crucial role in developing products, policies, and services that ultimately deliver tangible benefits to end-users. In the agricultural context, this model provides a robust framework for understanding the dissemination, utilisation, implementation, and diffusion of academic research within a collaborative social system.

Studies in the agricultural domain have effectively applied this theoretical framework to support their findings. For instance, Ramirez-Andreotta et al. (2015) investigated how academic research programmes can respond to community research needs, establish community-academic partnerships, and foster co-created citizen science programs. Their study highlighted that involving the community in academic research not only enhanced information transfer and communication but also yielded individual and community-level learning outcomes. In a distinctive context, Jacobi et al. (2020) examined the role of knowledge co-creation, a facet of transdisciplinary research, in promoting sustainable development. Through the application of the co-created pathway to impact model, they concluded that a significant link exists between usability, inclusivity, and collaboration in transdisciplinary research. In a related study, West et al. (2021) examined co-created transdisciplinary research employing arts and humanities methods to investigate air pollution in an informal settlement in Nairobi, Kenya. By engaging various stakeholders through interviews, the study found that the dissemination of environmental knowledge, such as air pollution, necessitates a blend of qualitative, participatory, and creative methods. These methods effectively engage a wide range of stakeholders, eliciting novel and unexpected insights that might not emerge otherwise.

Having described the adopted models and key constructs of this study to provide a theoretical foundation for the discussion, these theoretical constructs are summarised in Table 2.1. The table establishes the connection between the four selected theories and the specific objectives of this study.

Table 2.1: Application of the theories and models in this study

Research objective	**Model/Theory**	**Construct or variable**
To establish the nature of knowledge produced and	SECI model.	Tacit knowledge Explicit Knowledge Embedded knowledge

mobilised for small-scale tea farmers in Murang'a County.	The Ward model	What knowledge
To determine the knowledge collaborators involved in KMb for small-scale tea farmers in Murang'a County.	The Ward model	Knowledge creators Knowledge mobilisers Knowledge champions Knowledge beneficiaries.
To explore the strategies used for KMb for small-scale tea farmers in Murang'a County.	The Ward model Phipps and Shapson model	Products Networks Events Technology
To determine the indicators of KMb for small-scale tea farmers in Murang'a County.	The co-produced pathway to impact model	Dissemination indicator Use indicator Usefulness indicator Collaboration indicator
To examine the factors that impact KMb for small-scale tea farmers in Murang'a County.	The Ward model Phipps and Shapson model	KMb resources Knowledge users Knowledge complexity Management support
To propose a framework to enhance KMb for small-scale tea farmers in Murang'a County.	The Ward model The co-produced pathway to impact model	Products Collaborators Strategies Indicators Timeliness

2.5 Conceptual framework

The preceding discussions on the four theoretical frameworks reveal the immense relevance and need for a conceptual framework in this study. As outlined by Bertoldi et al. (2018), it serves as a foundational structure utilising concepts and theories to explain the interconnectedness among constructs in a study. Varpio et al. (2020) emphasise that a conceptual framework is forged through a comprehensive literature review, providing a holistic view of existing knowledge and identifying crucial research gaps. Conceptual frameworks also possess the remarkable ability to translate essential concepts and processes into diagrammatic representations, as highlighted by Adom, Hussein, and Agyem (2018). Pearse (2022) further

argues that conceptual frameworks can be evaluated both quantitatively and qualitatively, employing a range of media, including diagrams, flowcharts, and other schematic illustrations.

KMb has emerged as a vital process in the field of knowledge management, finding extensive application across numerous sectors globally. This study discusses the variables within the context of KMb practices for small-scale tea farmers, perceiving them as both independent and dependent variables. According to Farmer, Farmer, and Farmer (2020), an independent variable is the factor that causes a change in another variable, while a dependent variable is the one influenced by the independent variable. To provide further clarity, Wagner, Wagner III, and Gillespie (2018) assert that a dependent variable relies on the independent variable. In the current study, six constructs represent the independent variables: the nature of knowledge, knowledge collaborators, KMb strategies, KMb indicators, KMb factors, and a KMb framework. Conversely, the dependent variable is encapsulated in one concept: small-scale tea farmers.

Countless scholars offer valuable insights into the circumstances that necessitate the use of theoretical or conceptual frameworks in academic research. Ngulube (2018) proposes two scenarios in which a conceptual framework is warranted: when no relevant theory has been identified, or when multiple theories are employed in the research. Conversely, Varpio et al. (2020) contend that a theoretical framework is appropriate when a study is supported by a single theory. In the present study, four theories were utilised to investigate KMb practices and enhance knowledge utilisation among small-scale tea farmers. These theories encompass the SECI model, the Ward model, the KMb activities and services model, and the co-produced pathway to impact model. The conceptual framework employed in this research elucidates the integration of concepts derived from these four theories to examine KMb practices for small-scale tea farmers in Murang'a County. The study aims to explore KMb practices by investigating key concepts such as the nature of knowledge, knowledge collaborators, KMb strategies, KMb indicators, KMb factors, and a KMb framework. This study presents a visual representation of the conceptual framework (see Figure 2.3) and offers a concise overview of the research structure. The framework illustrates the logical connections between theories, concepts, and findings. It also addresses research gaps and underpins the methodological foundation, thereby enhancing clarity and comprehension of the study.

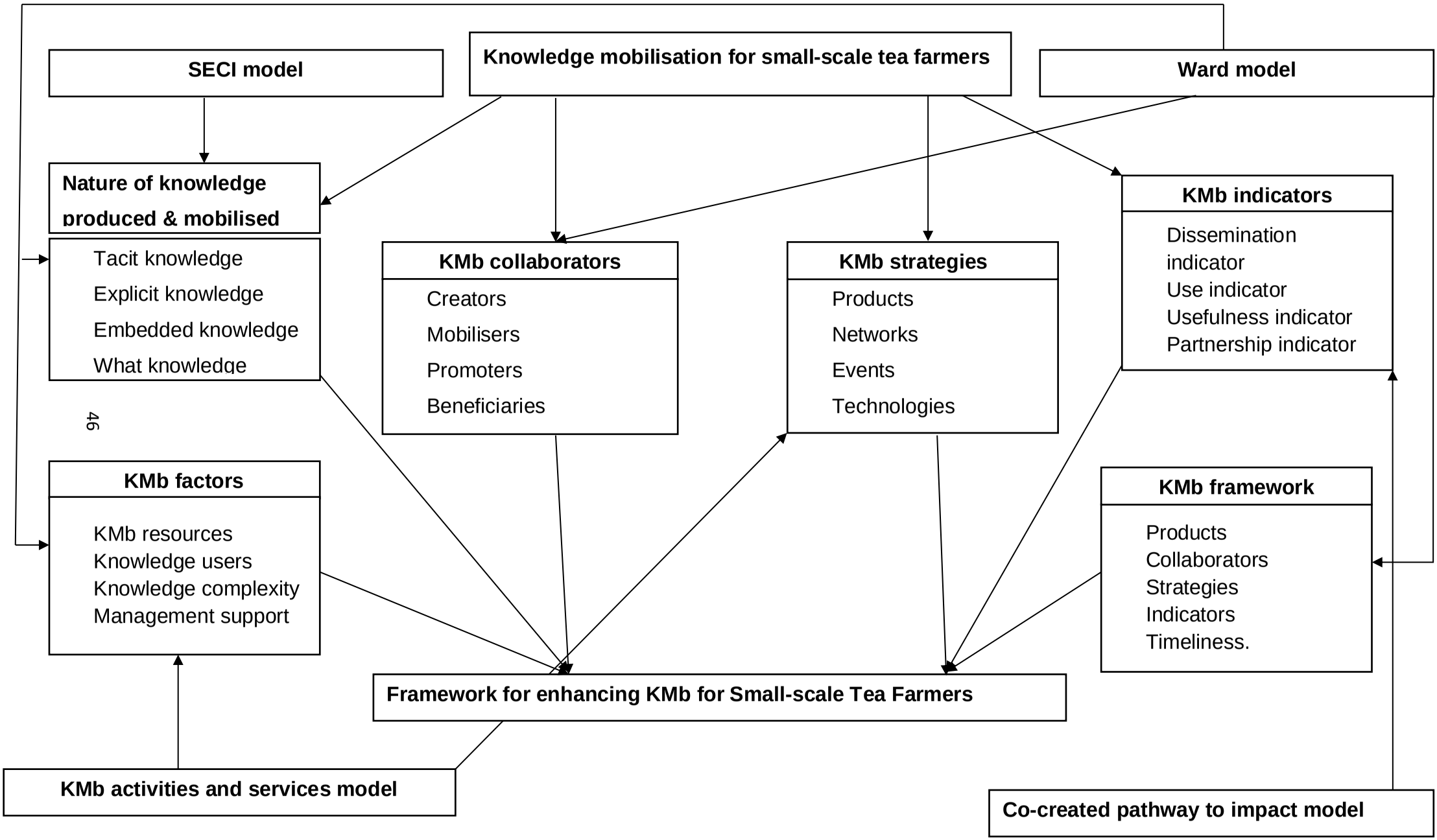

SECI model
Knowledge mobilisation for small-scale tea farmers
Ward model
Nature of knowledge produced & mobilised
Tacit knowledge
Explicit knowledge
Embedded knowledge
What knowledge
KMb collaborators
Creators
Mobilisers
Promoters
Beneficiaries
KMb strategies
Products
Networks
Events
Technologies
KMb indicators
Dissemination indicator
Use indicator
Usefulness indicator
Partnership indicator
KMb factors
KMb resources
Knowledge users
Knowledge complexity
Management support
KMb framework
Products
Collaborators
Strategies
Indicators
Timeliness.
Framework for enhancing KMb for Small-scale Tea Farmers
KMb activities and services model
Co-created pathway to impact model

Figure 2.3: Conceptual framework for KMb for small-scale tea farmers

Source: Researcher's paradigm (2023)

2.6 Summary of the chapter

This chapter offers a comprehensive discussion on KMb practices in the context of small-scale tea farming. The chapter presents a meticulous analysis of the theoretical and conceptual foundations upon which the study is constructed. The theoretical foundation of this study was built upon four prominent theories: the SECI model (Nonaka, Toyama & Konno, 2000), the KMb activities and services model (Phipps & Shapson, 2009), the Ward model (Ward, 2017), and the co-created pathway to impact model (Phipps et al., 2016). These theories and models were employed to explore the key constructs essential for developing a KMb framework tailored for small-scale tea farmers. The study embraces these four theories to anchor the six variables under investigation, employing a conceptual framework. The adopted theories emphasise the importance of equipping small-scale tea farmers with the necessary orientations, appropriate attitudes, skills, and values that can significantly influence their knowledge uptake and exchange behaviours. The resulting conceptual framework, informed by these theories, is then integrated, synthesised, and aligned to establish the methodological framework of the study, forming a robust foundation for the research methodology. The chapter concludes by providing a schematic representation and summary of the identified constructs in this study, illustrating how they interrelate and influence the creation, mobilisation, uptake, and exchange of agribusiness knowledge.

CHAPTER THREE
LITERATURE REVIEW

3.1 Introduction

A review of pertinent literature is an essential step in the procedure for conducting social and scientific studies. Aveyard (2023) defines a literature review as a scholarly process that involves examining, summarising, and critiquing previous research. Snyder (2019) further interprets a literature review as a published piece of work that presents the current knowledge and latest scientific findings on a specific issue, incorporating both significant discoveries and theoretical ideas from academic studies. Hence, this chapter explores the relevant literature that underpins the study. It provides a comprehensive overview of the relevant literary works, connecting them to key theories and concepts, as well as the study's purpose and objectives and the research gaps that need to be addressed. To achieve this, the study examined pertinent literature on the following topics: knowledge types, KMb collaborators, KMb strategies, KMb indicators, KMb factors, and the KMb framework. In social research, a literature review can be used to achieve the following: establish the theoretical foundation of the study, identify research gaps, review the concepts under investigation, provide extensive references to related studies in the field, establish connections between literature sources, identify pertinent variables relevant to the study matter, and understand the historical context of the study topic (Hart, 2018; Bless, 2021; Aveyard, 2023).

This chapter, therefore, evaluates, analyses, and synthesises previous research to establish a comprehensive framework for KMb. The discussions within the chapter are organised around the following key concepts: tea, small-scale tea farming, and the agricultural sector; KMb; KMb practices for small-scale tea farmers; KMb practices in small-scale tea farming sector; related studies on KMb in tea farming; related studies on KMb in other agricultural products; studies on knowledge sharing, transfer, and utilisation among small-scale tea farmers; a synthesis of the reviewed literature; and a summary of the chapter. Figure 3.1 provides a diagrammatic representation of the key themes explored in this study, offering a concise visual overview of the literature review's contents.

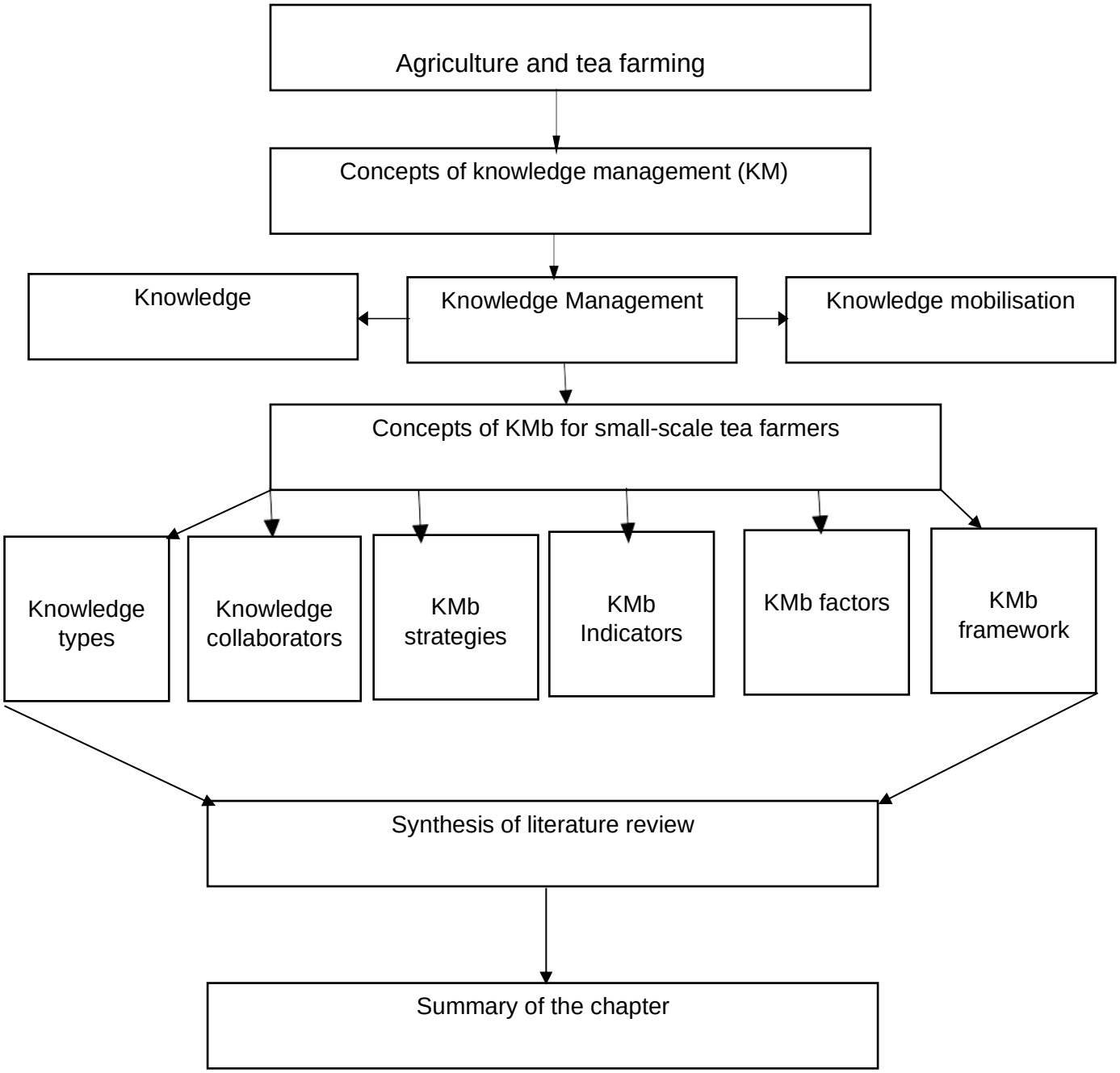


Figure 3.1: Literature review map

Source: Researcher's construct (2024)

3.2 Agriculture and tea farming

This section contextualises the agricultural practices in general, with a specific emphasis on small-scale tea farming. It delves into the fundamental concepts of agriculture, the agricultural sector, tea farming, and small-scale tea farming. Moreover, it establishes a connection between KMb, the focal point of this discussion, and its impact on the farming practices of small-scale tea farmers in Murang'a County, Kenya. Agriculture has emerged as a powerful force and

contributor to global economic growth and sustainable development (Takahashi, Muraoka, & Otsuka, 2020). Its significance is evident in its ability to provide sustenance, generate income, alleviate poverty, create employment opportunities, earn foreign exchange, and promote overall economic advancement. According to the World Bank Group (2023), the agricultural sector accounts for approximately 4% of the global gross domestic product (GDP). However, its impact is far more pronounced in developing and impoverished economies across Africa, Asia, South America, and the Caribbean, where it accounts for a staggering 25% of GDP. Furthermore, agriculture employs a significant portion of the workforce in these regions, ranging from 27% to 40% (FAO, 2021; World Bank Group, 2023).

The importance of agriculture in sub-Saharan nations (such as Kenya) cannot be overstated. According to the Kenya National Bureau of Statistics (2021), agriculture contributes approximately 27% of Kenya's Gross Domestic Product (GDP) and employs 40% of the total population, with almost 70% of this populace residing in rural areas. This sector's contributions to Kenya's economic prosperity are diverse. As noted by several intellectual authorities, agriculture provides employment and economic stability, particularly to the rural population, playing a pivotal role in sustaining Kenya's labour force. In addition to this, agriculture in developing economies like Kenya yields numerous benefits, including increased value addition, significant contributions to overall GDP and economic growth, enhanced food security and income opportunities, positive impacts on environmental quality and conservation efforts, improvements in population nutrition and health standards, as well as the provision of raw materials and export earnings (FAO, 2021; Kenya National Bureau of Statistics., 2021; Kogo, Kumar, & Koech, 2021; World Bank Group, 2023).

Small-scale agriculture plays a pivotal role in the livelihoods of rural populations across various African countries, including Kenya. These communities face numerous challenges, including high poverty levels, low educational attainment, inadequate infrastructure, and elevated mortality rates, which collectively contribute to their overall underdevelopment (Fanzo, 2018; Elijah & Odiyo, 2019). Despite these, small-scale farmers in sub-Saharan Africa encounter a range of inhibiting factors, including environmental fluctuations, unpredictable rainfall patterns, soil degradation, outdated agricultural practices, declining soil fertility, and limited access to information on the best farming methods (Kimaru-Muchai et al., 2020; Lottering, Mafongoya, & Lottering, 2021). Kimaru-Muchai et al. (2020) assert that, consequently, it is crucial to implement strategies that can enhance small-scale farming practices and uplift these farmers. Such strategies include the dissemination of technology, extension services, access to

relevant information, infrastructure improvements, effective agricultural policies, quality seed development, and financial and credit support. The implementation of such strategies can significantly enhance the productivity and overall well-being of small-scale farmers. This can eventually contribute to the overall agricultural development of their regions and foster economic growth.

Tea, a globally cultivated crop, plays a pivotal role in generating foreign exchange and contributing to the GDP of many nations. Numerous studies predict that the value of the tea industry will reach a staggering USD 73 billion by 2025. Moreover, 70% of tea production is carried out by small-scale farmers, predominantly located in Asia and Sub-Saharan Africa. In terms of production volumes, China leads the way with 2.7 million metric tonnes annually, followed by India with 1.5 million metric tonnes and Kenya with 0.5 million metric tonnes (Voora, Bermúdez, & Larrea, 2019; Deka, Goswami, & Anurupam, 2022). In terms of tea imports, Pakistan tops the list, spending USD 590 million, followed by the United States with USD 473 million. Other top tea importers include Russia (USD 412.2 million), the United Kingdom (USD 349 million), and Saudi Arabia (USD 243.6 million) (FAO, 2021; Statista, 2023). Consequently, the tea sector will continue to thrive, thereby maintaining its significant influence on global economies. Tea farming stands as a significant subsector within global agricultural production, making substantial contributions to the sector's overall output. Currently valued at USD 52 billion, the tea farming subsector is expected to witness a remarkable growth trajectory, reaching a projected worth of USD 86 billion by 2026 (Zhen et al., 2023).

In the context of Kenya, tea farming plays a pivotal role in the nation's GDP and serves as a prominent source of foreign exchange earnings for the government. Renowned worldwide, Kenya ranks among the top tea producers and exporters, contending with countries such as India, Sri Lanka, Indonesia, China, and Malawi (FAO, 2021; Kariuki, Njaramba, & Ombuki, 2022). Kenyan tea enjoys top exports to key markets, including the United Kingdom, the United States of America, Canada, and several others. Globally, the tea farming sector is diverse, consisting of three main types of tea farmers: subsistence tea farmers, small-scale tea farmers, and commercial tea farmers. Subsistence tea farmers cultivate tea on a small scale, primarily to support the needs of their families or households. Small-scale tea farmers, on the other hand, grow tea on a small scale to sell and provide sustenance for their households. Commercial tea farmers engage in large-scale cultivation with the aim of both local sales and international exports (Sen, 2018; Mbeche, Mose, & Ateka, 2022).

The contributions of each of these farmer categories are instrumental in shaping the overall output of tea production. Small-scale tea farmers, in particular, play a significant role, accounting for 70% of global tea production, with China, Sri Lanka, and Kenya being the top producers (Voora, Bermúdez, & Larrea, 2019). Within the domain of top tea-producing countries, small-scale farming has emerged as the dominant form of tea farming, primarily practised by rural populations (Voora, Bermúdez, & Larrea, 2019). As such, these three countries collectively contribute 50% of global tea production, underscoring the pivotal role of small-scale tea farming in this dynamic industry.

3.2.1 Small-scale tea farmers in Kenya

There is evidence that small-scale tea farmers have a significant niche in Kenya. According to Ateka, Onono and Etyang (2018), small-scale tea farming plays a pivotal role in enhancing the incomes, food security, and living standards of Kenya's rural population. It also serves as a catalyst for the Kenyan government to realise its developmental agenda, including Vision 2030 and the Big Four Agenda, with a specific focus on achieving food security and creating employment opportunities. The Big Four Agenda is an intermediate-term plan aimed at realising Vision 2030 (Government of Kenya, 2023; KIPPRA, 2024). In contrast, Vision 2030 aspires to transform Kenya into a newly industrialised, middle-income country by 2030, ensuring a high quality of life for all citizens within a clean and secure environment (Government of Kenya, 2023). Hence, the Kenyan government must provide substantial support to the small-scale tea farming subsector, as it holds the key to achieving the pillars of food security and job creation, particularly for the rural population.

Small-scale tea farming in Kenya dates back to the 1950s, when multinational companies established small tea factories across various regions (Ahring et al., 2020). In 1964, the Kenya Tea Development Authority was established under the Agriculture Act (Cap. 318), Section 91, Legal Notice No. 42, to assume management of small-scale tea production from multinational companies (Government of Kenya, 2010). Small-scale tea farmers are predominantly located in high-altitude regions in Kenya, particularly at elevations between 1,500 and 2,700 metres above sea level. Small-scale tea farmers are concentrated in major tea-growing areas, including Nakuru, Narok, Kericho, Bomet, Nyamira, Kisii, Kakamega, Bungoma, Vihiga, Nandi, Elgeyo-Marakwet, Trans Nzoia, Kiambu, Murang'a, Nyeri, Kirinyaga, Embu, and Tharaka-Nithi (Kenya Tea Development Authority, 2023; Ahring et al., 2020). The contribution of these small-scale tea farmers to Kenya's socio-economic development is thus substantial. The farmers account for 40% of tea agricultural production, contribute approximately 4% of GDP, and 25%

of the country's foreign exchange (Kenya National Bureau of Statistics, 2021; KIPPRA, 2021). These statistics underscore the pivotal role of small-scale tea farmers in driving the economic growth and sustainability of the Republic of Kenya.

3.2.2 Small-scale tea farmers in Murang'a County

Murang'a County stands out as a region with vast potential for tea farming, with tea farms concentrated in the highland agroecological zones of Kigumo, Kangema, Mathioya, Kandara, and Gatanga. According to Karuri (2020), tea farming in the county is predominantly practised by small-scale farmers, who are organised under tea-growing and buying associations. These associations facilitate the purchase, processing, marketing, and sale of tea on behalf of the farmers. According to the Kenya Tea Development Authority (2023), Murang'a County is home to several tea processing factories, including Kiru, Ngere, Makomboki, and Nduti factories. However, a large number of these farmers continue to face challenges, including poverty, unemployment, and low literacy levels (Kenya National Bureau of Statistics, 2021).

Recognising the importance of this sector, the Murang'a County Government has developed strategies to support small-scale tea farmers and improve their economic well-being (Murang'a County Government, 2021). The county's Fiscal Strategy Paper for 2021 outlines key areas of focus, including improving market access and information, expanding local and international markets for agricultural products, developing an agribusiness knowledge portal, promoting the adoption of innovative technologies, enhancing information dissemination, and strengthening farmer training, education, and awareness (KIPPRA 2021; Murang'a County Government 2021). Within this framework, mobilising agribusiness knowledge emerges as a critical driver in ensuring that small-scale tea farmers in Murang'a County can access, utilise, and benefit from high-quality research knowledge products, thereby bolstering their productivity and sustainability.

3.3 Concepts of knowledge management (KM)

A comprehensive understanding of various KM concepts is crucial when discussing KMb for small-scale tea farmers, as they constitute a primary process within knowledge management. The study provides a brief exploration of the key KM concepts, including knowledge, knowledge management, and KMb. Furthermore, the study delves into exploring other KM processes that are closely associated with KMb, such as knowledge generation, sharing, transfer, storage, retrieval, and utilisation. The discussions on these KM concepts aid in

appreciating and grasping the interconnectedness between KMb and its application to the context of small-scale tea farmers.

3.3.1 Defining knowledge

According to Nonaka, Toyama and Konno (2000), knowledge is a dynamic and context-driven phenomenon that constantly evolves, making it challenging to define and control precisely. Two literary works provide captivating definitions of knowledge. Gamble and Blackwell (2001) describe knowledge as a fluid amalgamation of framed experience, values, contextual information, expert insight, and grounded intuition that provides an environment and framework for evaluating and integrating new experiences and information. On the other hand, Davenport and Prusak (2000) emphasise that knowledge is a product of individual experience and encompasses the norms through which an individual evaluates new information.

Data and information are concepts closely intertwined with knowledge, yet they are often mistakenly conflated with it. Frost (2018) describes data as unorganised facts and figures that lack symbolic significance. In contrast, information goes beyond data, since it undergoes contextualisation, classification, computation, and condensation, as articulated by Davenport and Prusak (2000). Nonaka and Takeuchi (2007) further define knowledge as information within the context of an individual's position, learning behaviour, or experience. As pertains to this study, it is important to recognise the distinctions between data, information, and knowledge to gain a comprehensive understanding of the multifaceted nature of knowledge. Analysing these diverse literary viewpoints provides valuable insights into the complex nature of knowledge and its multifaceted dimensions. In the specific context of this study, knowledge is defined by North and Kumta (2018) as the culmination of individual and collective learning, manifesting itself in various forms such as products, services, and systems. This perspective aligns closely with the concept of agribusiness knowledge, which can be effectively mobilised and shared with small-scale tea farmers through active learning and practical application.

3.3.1.1 Types of knowledge

The concept of knowledge has garnered considerable attention and reviews among scholars. Sari and Kurnianda (2018) describe knowledge as organised information that encompasses frameworks, models, worldviews, concepts, principles, theories, hypotheses, or actionable insights aimed at enhancing understanding of problem situations. In line with this perspective, the literature categorises knowledge into three distinct types: tacit knowledge (Nonaka & Takeuchi, 2007), explicit knowledge (Hislop, Bosua, & Helms, 2018), and embedded

knowledge (Mohajan, 2016). These classifications find support in Tiwana's (2000) assertion, highlighting the diverse perspectives they offer on the nature, manifestations, and multifaceted dimensions of knowledge.

According to Nonaka and Takeuchi (2009), **tacit knowledge** is highly valued and holds the potential for breakthroughs in any organisational setting. It is characterised as a collection of implicit beliefs, skills, and understandings that reside within individuals and are rooted in practice and experience (Hirose Nishihara, 2018). This type of knowledge, often referred to as know-how, encompasses intuitive and hard-to-define knowledge that is primarily based on personal experience (Hirose Nishihara, 2018). Whyte and Classen (2012) further highlight tacit knowledge as the knowledge embedded in individuals' minds, making it challenging to express explicitly. In consensus, Duguid (2005) states that tacit knowledge is generated in individuals' minds as practical know-how and can manifest as innovation. It represents the unwritten, unspoken, and concealed wealth of knowledge that individuals possess. Due to its nature, tacit knowledge is highly context-dependent and personal, making it challenging to communicate and deeply rooted in action, commitment, and involvement (Nonaka, 2009). Despite tacit knowledge being challenging to articulate by its nature, it can be effectively shared through the process of socialisation.

Managing tacit knowledge proves to be complex, as emphasised by Chuang, Jackson and Jiang (2016). The scholars note that it possesses personal traits that make it difficult to formalise and communicate, encompassing technical expertise and an intellectual perspective consisting of schemes, ideas, mental models, beliefs, and perspectives (Chuang, Jackson, & Jiang, 2016). Despite its complexity, ambiguity, and subjectivity, tacit knowledge is highly sought after in organisational settings as individuals acquire it through observation, imitation, and repeated interactions (Nonaka & Takeuchi, 2007). However, mobilising tacit knowledge presents a complex endeavour. Predominantly in the agribusiness domain, mobilising, sharing, and accessing tacit knowledge among small-scale farmers requires deliberate efforts. Creating opportunities for small-scale farmers to acquire, share, and externalise their tacit knowledge, therefore, becomes crucial to improving farming practices. This necessitates a clear trajectory for KMb, with communication playing a crucial role in this process.

Brown and Duguid (2000) define **explicit knowledge** as formalised and codified knowledge, often referred to as "know-what" knowledge. Nadason, Saad and Ahmi (2017) further describe tacit knowledge as knowledge that is documented, systematically recorded, and typically

retained in the form of procedures, rules, principles, organisational documents, and scientific formulas. As noted by Gamble (2020), explicit knowledge is relatively easy to recognise, store, and retrieve. Scholars pinpointed several characteristics attributed to explicit knowledge: It is considered simpler, lacking the experiential know-how that can generate a lasting competitive advantage; It can be easily integrated and automated through KM Systems; It predominantly resides in database servers, documents, and textual formats; and it can be procedural and automated through practice, allowing for its spontaneous application (Sanders, 2016; Ellis & Roever, 2021; Cook & Brown, 1999; Bukowitz & Williams, 1999). From the KMb perspective, explicit knowledge is viewed as a blend involving various knowledge participants, including researchers, mobilisers, and consumers, who collaborate to bridge the gap between research and practice. Given that explicit knowledge is not overly individualised, as proposed by Nadason, Saad and Ahmi (2017), stakeholders have little difficulty mobilising and sharing knowledge.

Embedded knowledge refers to knowledge that becomes deeply entrenched within an organisation's processes, products, culture, routines, artefacts, and structures (Horváth & Szerb, 2018). Frost (2014) further suggests that this knowledge can be embedded formally, through management initiatives that seek to codify and formalise beneficial practices, or informally through the practical application of other types of knowledge. Additionally, Joy (2018) argues that embedded knowledge can also take explicit forms, such as written manuals and instructions, even though the knowledge itself remains implicit. Effective management of embedded knowledge presents challenges, but organisations that successfully navigate these complexities can gain a significant competitive advantage.

Mobilising embedded knowledge for research purposes aims to enhance the impact of research by translating expertise into practical applications. Wye et al. (2019) highlight the importance of utilising embedded knowledge brokering as a strategy for fostering collaboration between academia, policymakers, and practitioners. These knowledge brokers play a vital role in facilitating close collaborations among these different communities, which in turn can yield valuable benefits for the organisation. According to Nugroho, Carden, and Antlov (2018), it is crucial to incorporate local knowledge through practice and action to establish a vital role in social interactions, reciprocity, and cohesion among people. As a result, utilising embedded knowledge and fostering collaborative relationships among stakeholders can propel research-based initiatives with tangible, immediate benefits.

3.3.2 Knowledge Management

KM has emerged as a vital field of study, offering valuable insights for scholars and practitioners on how to harness and leverage knowledge resources effectively. The concept of KM is defined in various ways by different scholars. Frost (2014) characterises it as the systematic management of an organisation's knowledge resources, aiming to create value and fulfil tactical and strategic requirements. According to Hussinki, Kianto and Adibe (2018), KM encompasses processes involved in discovering and developing knowledge, including capturing, sharing, and utilising knowledge to enhance organisational goals. Laforge and McLachlan (2018) further describe KM as the collection, storage, dissemination, and application of both tacit and explicit information within an organisation to achieve corporate objectives efficiently. O'Dell and Grayson (1998) define KM as a deliberate strategy to deliver the right knowledge to the right people at the right time, facilitating information sharing and action to improve organisational performance. In essence, KM is about effectively delivering knowledge to the appropriate individuals at the opportune moment, as underlined by Sanders (2016). It involves initiatives, processes, strategies, and systems that foster the creation, storage, sharing, mobilisation, and utilisation of knowledge. By embracing KM principles, organisations can optimise their knowledge resources and improve overall performance.

Effective KM practices play a crucial role in organisational setups, as they facilitate the strategic implementation of initiatives that support enhanced decision-making, innovation, and sustainable value creation. In the specific context of this study, KM can significantly benefit small-scale tea farmers by facilitating how they acquire, share, and utilise relevant agribusiness knowledge, which directly and indirectly impacts their tea farming activities. Scholars have identified several key components of KM that can apply to small-scale farmers, including: Strategies that facilitate the creation, sharing and overall management of relevant knowledge assets that align with their tactical and strategic requirements; organisational culture, which influences how people create, interact, and share knowledge; processes that enable the implementation of knowledge management; competent and experienced leadership to drive KM efforts; appropriate technology, systems, and tools tailored to the users' KM needs; and support for implementing and sustaining initiatives. (Lwoga, Ngulube, & Stilwell, 2010; Zecca, 2017). Through this, small-scale tea farmers can enhance their agricultural practices and drive positive outcomes in their farming activities.

3.3.2.1 Knowledge management processes

This section explores KM processes and their relevance to KMb for small-scale farmers. KM processes have been defined and described in various ways. Shahzad et al. (2021) define a KM process as a collection of activities encompassing all aspects of knowledge management. According to Mahdi, Nassar and Almsafir (2019), KM processes encompass knowledge creation, knowledge capture, knowledge sharing, knowledge transfer, and knowledge utilisation. Moreover, KM relies on other supportive factors, including individuals and their roles in facilitating KM processes, technology that provides the infrastructure for knowledge management, and organisational culture that shapes norms and traditions related to knowledge creation and sharing (Laforge & McLachlan, 2018; Quarchioni, Paternostro, & Trovarelli, 2022). In the context of this study, the KM processes deliberated are knowledge creation, knowledge acquisition, knowledge sharing, knowledge transfer and knowledge utilisation. These pinpointed processes for the study form the foundation for effectively managing and mobilising knowledge to benefit small-scale farmers.

Mehralian, Nazari and Ghasemzadeh (2018) define **knowledge creation (KC)** as an ongoing process of managing knowledge within an organisational context, where individuals and groups actively exchange both tacit and explicit knowledge. This process plays a crucial role in enhancing productivity by enabling individuals to generate new ideas, concepts, and experiences related to various aspects of their work. Extensive literature has examined the intricate relationship between knowledge creation and social pecuniary sustainability, as well as the key factors that contribute to successful knowledge creation. According to Abbas and Sağsan (2019), one crucial factor for the successful creation of knowledge is the willingness and ability of the knowledge source to engage in the knowledge-creation process. Moreover, scholars contend that the willingness of the knowledge source to generate knowledge significantly influences the effectiveness of its mobilisation and sharing. In a nutshell, the knowledge source plays a crucial role in the overall success of knowledge creation exertions (Abbas & Sağsan, 2019; Johnson et al., 2019).

The study identifies several key determinants that contribute to successful knowledge creation. The first determinant focuses on individual factors, including the attitudes of the knowledge sources toward knowledge creation and the perceived costs and benefits associated with knowledge creation, mobilisation, and sharing. The second determinant encompasses contextual factors such as subjective norms and the organisational climate. The final set of determinants relates to knowledge itself, including the perceived value of knowledge (Amber

et al., 2019; Rusland, Jaafar, & Sumintono, 2020). Nonaka, Takeuchi and Umemoto (1996) emphasise the significance of the SECI model in facilitating the creation of new knowledge and the detection of existing knowledge through interactive and collaborative efforts. The SECI model focuses on the processes by which knowledge is generated and shared within social and organisational contexts. They further highlight four key stages within the SECI model, which involve the conversion of tacit knowledge into explicit knowledge, its subsequent sharing, and its integration into social and organisational operations (Nonaka, Takeuchi, & Umemoto, 1996; Nonaka & Takeuchi, 2007). AhmadYousefi et al. (2022) further assert that KMb aligns with knowledge creation, among other KM processes, and the SECI model provides a valuable framework for understanding how this can be effectively achieved.

Knowledge acquisition is closely interlinked with knowledge creation, as it involves the systematic gathering of knowledge from diverse sources and its organisation to enhance accessibility and readability (Huang & Liu, 2019). Laforge and McLachlan (2018) further elaborate that knowledge acquisition encompasses the process of continuously developing competencies, insights, and relationships through both internal and external channels. Knowledge acquisition plays a crucial role in empowering individuals to enhance their actions and decision-making by providing them with valuable information and insights. According to Laforge and McLachlan (2018), knowledge acquisition can be achieved through both internal and external means. Internally, individuals can tap into the expertise and experiences of knowledgeable colleagues, leveraging the collective wisdom of the organisation. On the other hand, external knowledge can be sourced from various avenues, such as attending training seminars, seeking consultation, and cultivating relationships with diverse individuals, organisations, and groups. Laudon and Laudon (2020) also argue that organisations can amass knowledge by establishing online expert networks. These networks facilitate the identification of experts within the organisation who possess specific knowledge about topics, making it easier for knowledge consumers to access relevant expertise.

Duffy et al. (2021) highlight that knowledge acquisition hinges on the willingness of both the knowledge source and the recipient to actively create, acquire, and share knowledge. Wang et al. (2019) argue that the motivation and perceived value of knowledge content, as well as its source, are key factors determining whether the knowledge recipient will actively seek to acquire it. The recipient's assessment of the value attached to the knowledge source and content significantly influences their decision to utilise the knowledge. The recipient's assessment of the value provided by the knowledge source and content, therefore, plays a significant role in

their decision-making regarding whether they acquire and utilise the knowledge. Consequently, KMb is inherently interconnected with knowledge acquisition and sharing, forming a cohesive and dynamic relationship, as explored in the subsequent section.

The concept of **knowledge sharing** holds diverse interpretations among scholars and is closely associated with knowledge transfer. Knowledge sharing is defined as the process by which individuals exchange their knowledge, information, instruction, and expertise (both implicit and explicit) and collaboratively develop new knowledge (Lee, 2001; Ahmad & Karim, 2019). Knowledge sharing is also defined by Prins et al. (2015) as the practice of transmitting or disseminating knowledge from one person, group, or organisation to another. Conversely, Knowledge transfer encompasses various activities that facilitate the utilisation of knowledge within an organisational context (De Wit-de Vries et al., 2019). In an ideal scenario, knowledge sharing occurs organically during induction, wherein information, skills, and expertise are openly exchanged among individuals. Understanding the distinctions between knowledge sharing and its association with knowledge transfer provides valuable insights into fostering a collaborative and knowledge-driven environment within an organisation.

In the context of small-scale tea farmers, knowledge sharing encompasses a wide array of knowledge, including expertise on best tea farming practices, market needs and trends, tea prices, and innovative farming techniques, among other pertinent knowledge. This study aims to conceptualise knowledge sharing as the practices and activities facilitating the dissemination of knowledge to small-scale tea farmers. Numerous scholars have emphasised the effectiveness of various tools, platforms, and strategies in achieving knowledge sharing, including knowledge repositories and databases, communities of practice, tutoring and mentoring programs, and expert location, among others (Cruz et al., 2022; Dernat et al., 2022). These instruments enable knowledge consumers to connect and interact, thereby fostering the exchange of knowledge. Moreover, a direct relationship exists between knowledge sharing and KMb, as the implementation of mobilisation strategies becomes crucial in establishing connections between knowledge experts.

Knowledge utilisation comprises a set of vital processes related to knowledge activities, such as searching, processing, and applying knowledge (Lee, Bock, & Suh, 2021). According to Bilginoğlu (2019), knowledge utilisation ensures the seamless integration of acquired knowledge into products, processes, and services, fostering competitive advantage and value addition. Existing literature underscores that the effectiveness of knowledge utilisation depends

on the capabilities of knowledge seekers to search for, acquire, access, process, and apply knowledge to gain a competitive edge (Bilginoğlu, 2019). Various scholars agree that knowledge utilisation involves various knowledge-related events, including searching for information, accessing knowledge repositories, assessing the reliability of acquired knowledge, and applying knowledge to practical work (Zaim, Muhammed, & Tarim, 2019; Lee, Bock, & Suh, 2021).

In the context of this study, the utilisation of knowledge by small-scale tea farmers hinges on social collaborations between knowledge creators (researchers) and knowledge seekers (small-scale tea farmers). As highlighted by Lee, Bock and Suh (2021), social collaborations play a pivotal role in enabling individuals, in this case, small-scale tea farmers, to recognise and harness the knowledge of others for the betterment of their core business. In this regard, KMb and brokering emerge as promising approaches to foster social collaborations among knowledge creators and seekers. Knowledge mobilisers develop strategies and a conducive environment that enables researchers and practitioners to create and utilise knowledge within the agricultural sector effectively.

3.4 Concept of knowledge mobilisation (KMb)

KMb has emerged as an essential driving force propelling progress across diverse sectors of the economy. However, the concept of KMb has been defined in various ways by different advocates and scholars. Abma et al. (2017), for instance, define KMb as a dynamic process that empowers individuals to create, learn, and share knowledge as an integral part of their daily pursuits. Briggs et al. (2015) note that KMb encompasses four key aspects: knowledge creation, knowledge exchange, knowledge dissemination, and knowledge brokering. Similarly, Ivcovici et al. (2022) view KMb as a transformative process in which individuals seeking specific expertise learn from those who already possess the required knowledge. The significance of KMb is further underscored by Hudson, Krogman and Beckie (2016), who identify a multitude of benefits associated with this practice, including: promoting a collaborative learning environment where participants can freely create, access, and share knowledge; enabling KMb stakeholders to strategically leverage knowledge in tackling everyday challenges; and fostering the generation of innovative solutions essential for adaptation and transformation in the face of ever-evolving circumstances.

Numerous studies have showcased the diverse and impactful role of KMb across countless sectors. Liu, Teng and Han (2020) reveal that KMb facilitates the efficient utilisation of

environmental knowledge, leading to positive changes in the attitudes and behavioural intentions of the Chinese population towards the environment. In the health sector, scholars emphasise the significant contributions of KMb to improving capacity building, enhancing public health policies, decentralising health resources, and delivering high-quality health services (Haynes et al., 2020; Das, 2022; Zon, Pavlova, & Groot, 2023). Similarly, in the education sector, research has shown that KMb fosters scholarly research engagement, knowledge sharing, and collaboration among academics, experts, policymakers, and other educational stakeholders (Zuiker et al., 2019; Malik, 2020). In the context of the corporate sector, Veit et al. (2017) proposed a transdisciplinary approach that incorporates knowledge production, mediation, and practical application to drive business processes for organisations. Moreover, KMb has had a profound impact on research and policy. Bayley et al. (2018) explored the essential competencies required for mobilising research outcomes beyond academia, introducing a comprehensive knowledge brokering framework that encompasses extraction, categorisation, cleaning, and re-categorisation processes. Younie et al. (2018) created a repository of knowledge as part of a KMb strategy, offering teachers access to research summaries that build up knowledge over time.

In the current study, the concept of KMb is viewed as the practices and activities that enable efficient mobilisation of knowledge in the agricultural sector, for small-scale tea farmers. However, the existing literature on KMb in agriculture has not fully elucidated the extent to which the adoption of knowledge produced by researchers in higher education institutions has impacted the activities of small-scale tea farmers. Despite this gap, the literature does offer valuable insights on areas that knowledge mobilisers and brokers should prioritise when developing a KMb framework and strategy. Ochago, Dentoni and Trienekens (2024) emphasise the critical role of family resources in facilitating the experiential learning process for small-scale farmers, particularly in addressing challenges within the value chain. Phuong et al. (2018), on the other hand, identify social learning as an ideal strategy to enhance the adaptive learning capacity of small-holder farmers, leading to improvements in both their economic and environmental sustainability.

3.5 Concepts of KMb for small-scale tea farmers

This section presents a comprehensive review of the literature about mobilising knowledge for small-scale tea farmers. It delves into crucial aspects that play a central role in this study's focus and context, including knowledge types, knowledge collaborators, KMb strategies, KMb indicators, KMb factors, and KMb frameworks. It is critical to examine the literature on these

topics, as they constitute the primary focus and context for the overall discussion in this study. Each issue is extensively discussed, highlighting research gaps and providing insight into areas that require additional attention. These identified areas and issues form the basis for soliciting views from respondents and guide the investigation into their applicability in mobilising knowledge to empower small-scale tea farmers in Murang'a County, enabling them to benefit from agribusiness knowledge generated by researchers in higher education institutions.

3.5.1 Knowledge types for small-scale tea farmers

The concept of knowledge, as explored, exhibits a spectrum of definitions influenced by its role, nature, disciplinary origins, message content, and sharing intent. The empirical literature has predominantly classified knowledge into three broad categories: tacit knowledge, explicit knowledge, and embedded or procedural knowledge (Yerushalmi, 2014; Lynd, 2015). The knowledge types identified by the studies are relevant and applicable, particularly the knowledge generated by researchers and disseminated among agribusiness stakeholders, including small-scale tea farmers. To shed light on the multifaceted nature of knowledge, the identified categories are discussed below.

3.5.1.1 Tacit knowledge (TK)

As previously discussed, tacit knowledge (TK) is characterised by its presence within individuals' minds and its acquisition through practical experience, as defined by Curry and Kirwan (2014). This form of knowledge holds a pivotal role as a strategic intangible resource, empowering farmers to foster innovation, cultivate networks, and secure a competitive advantage (Maye & Chan, 2020). The agricultural sector exhibits specific characteristics of tacit knowledge, encompassing its alignment with personal individual knowledge, foundation in education, ideals, values, and emotions, embodiment in subjective insights and intuition, deep integration within an individual's actions and experiences, and its intricate nature, which complicates definition, formulation, and sharing (Nishihara, 2018; North & Kumta, 2018). Chuang, Jackson and Jiang (2016) contend that the distinctive attributes of tacit knowledge may hinder its rapid mobilisation, sharing, and consumption, setting it apart from other knowledge forms. Conversely, Pérez-Luño, Alegre and Valle-Cabrera (2019) posit that tacit knowledge gains an advantageous edge due to its expert composition, which is inherently competitive. Cruz et al. (2022) further emphasise that the personalised and individualistic nature of tacit knowledge aligns seamlessly with platforms such as communities of practice, facilitating an ideal environment for members to possess, exchange, and cultivate their tacit knowledge.

Farming, particularly at the small-scale level, is inherently communal, making it an ideal context for the mobilisation and sharing of tacit knowledge. Diverse perspectives exist among scholars regarding how to effectively mobilise and share tacit agribusiness knowledge from academics to small-scale farming communities. According to Cruz et al. (2022), fostering a dialogue between researchers and farmers concerning tacit agribusiness knowledge is imperative for jointly seeking effective solutions to agricultural, economic, social, and environmental challenges. However, differing viewpoints emerge on the roles of researchers and small-scale farmers as knowledge stakeholders and how these dynamics influence the mobilisation and exchange of tacit knowledge. Flynn and Ford (2020) argue that due to the marginalised status of small-scale farmers, the tacit knowledge they generate is sometimes perceived as inferior, leading to frustration when sharing their insights and innovations.

Consequently, a perception emerges that farmers primarily consume knowledge rather than actively contribute to its creation, relying on more academically endowed stakeholders. Abreu, Domit and Zappes (2017) also argue that a lack of communication between researchers and farmers may foster disagreements and hinder productive dialogue, thereby impeding the exchange of knowledge. In a similar vein, Sutherland et al. (2017) identify several challenges that small-scale farmers encounter while striving to share and exchange tacit knowledge. These challenges encompass the cost associated with advisory services, the utilisation of social capital to access tacit knowledge, the potential distance from knowledge sources, concerns about the credibility of agribusiness knowledge, and limited avenues for accessing formal knowledge. These viewpoints, therefore, bring forth the complexities inherent in mobilising and sharing tacit agribusiness knowledge for small-scale farmers.

3.5.1.2 Explicit knowledge (EK)

Johnson et al. (2019) describes explicit knowledge as a concrete form of knowledge that is readily describable, aggregated, codified, and catalogued, rendering it apt for formal learning purposes. In contrast to its counterpart, tacit knowledge, which possesses a more intangible essence, explicit knowledge finds substance in tangible formats. This tangibility allows it to be encapsulated within records, databases, websites, and charts and to be effectively conveyed through words, numbers, and symbols (Janowicz et al., 2020). Importantly, due to its palpable nature, explicit knowledge can be seamlessly integrated, shared, and exchanged using information technology (IT) enabled systems (Janowicz et al., 2020). Countless scholars identify distinct criteria associated with explicit knowledge. First, it is characterised by its procedural nature, becoming automated through recurrent practice. Secondly, it is often

perceived as simplistic, lacking the experiential depth that imparts a sustained competitive advantage. Third, explicit knowledge seamlessly integrates with and leverages information technology systems, making it amenable to automation. Fourth, its predominant abode is within databases, electronic resources, and written formats. Ultimately, it exhibits both computational attributes and computerised functionalities, facilitating spontaneous and pragmatic application (Ellis & Roever, 2021).

Within the agricultural realm, explicit knowledge is utilised through platforms such as communities of practice, providing farmers with a domain for collaborative knowledge creation and sharing in sustainable agriculture (Taylor & Bhasme, 2018). As asserted by Triste et al. (2018), an optimal community of practice encompasses a diverse group of actors, including practising farmers, domain-expert researchers, and skilled advisors acting as intermediaries between researchers and farmers. Furthermore, explicit farming knowledge is disseminated through various modes, including emails, intranets, short message services (SMS), and knowledge portals. Notably, agricultural extension services have emerged as an effective avenue for sharing innovative farming technologies and practices, a particularly potent approach for reaching small-scale farmers (Franzel, Sinja, & Simpson, 2014). This perspective highlights that explicit knowledge, with its tangible and structured nature, serves as a vital conduit for efficient KMb, fostering effective sharing and facilitating productive and value-added agricultural practices.

3.5.1.3 Embedded knowledge

Embedded knowledge refers to the type of knowledge that permeates processes, products, cultural norms, routines, artefacts, and overarching structures, becoming an integral component of their very fabric (Horváth & Szerb, 2018). Grippingly, as Joy (2018) underscores, embedded knowledge can assume explicit formats, such as written guides and instructions, despite the underlying knowledge retaining its implicit nature. Effective management of embedded knowledge is challenging, but organisations that adeptly navigate these complexities can gain a considerable competitive advantage.

Within the agricultural domain, Ouafiq, Saadane, and Chehri (2022) argue that information and communication technologies (ICTs), including the Internet of Things (IoT), big data technologies, and knowledge-based systems, can serve as potential repositories for embedded knowledge. These technologies facilitate seamless sharing and transfer of knowledge, ensuring that farmers can access and utilise knowledge regardless of their geographical location. In

concurrence, Wye et al. (2019) emphasise the pivotal role of knowledge brokering as a strategic tool for not only facilitating the sharing and utilisation of embedded knowledge but also for fostering synergistic collaborations between diverse stakeholders, including researchers and practitioners such as small-scale tea farmers. Vik and Stræte (2017) dichotomise the various types of farmers: self-confident farmers, knowledge-seeking farmers, knowledge-purchasing farmers, experienced farmers, collective-knowledge farmers, and well-educated farmers. In this setting, they discuss embedding knowledge as an extension service that may improve communication, knowledge services, and knowledge networks among farmers (Vik & Stræte, 2017).

3.5.2 Knowledge collaborators for small-scale tea farmers

The concept of collaboration, as revealed through several works of literature, takes on various definitions. Abubakar et al. (2019) define collaboration as the degree of support and assistance individuals extend to one another within a group dynamic. Kalir (2020) further treats collaboration as a set of activities that foster the co-creation of interdependent meanings, emphasising the intricate web of connections that individuals and groups establish with their experiences and one another. This collaborative process necessitates resilience, as it transforms the focus from individual actions to collective efforts aimed at achieving common objectives. Emich (2018) further explains that collaboration extends beyond mere communication to encompass elements such as sharing, teamwork, and mutual respect. In the domain of knowledge management, the significance of collaboration becomes even more pronounced, offering a conducive environment for individuals to share and exchange their knowledge openly (Abubakar et al., 2019).

Cheng and Chang (2020) present a broad perspective on knowledge collaboration, defining it as a dynamic and cumulative process that encompasses the sharing, transfer, accumulation, transformation, and co-creation of knowledge. This process involves not only individual acts of sharing knowledge but also cocreating, recombining, modifying, and integrating knowledge that others have contributed. This perspective positions knowledge collaboration as a pivotal avenue for enhancing the efficacy of knowledge transfer and sharing, thus serving as a potent way to generate value-added knowledge. Furthermore, Cheng and Chang (2020) assert that several factors shape knowledge collaboration, including a willingness to cooperate, aptitude for learning, attributes inherent in the knowledge itself, and the spectrum of knowledge-related activities. Through knowledge collaboration, stakeholders such as farmers can fortify their competitive edge by synergistically melding, adapting, and innovatively reconfiguring

resources in collaboration with other partners (Banal-Estañol, Macho-Stadler, & Pérez-Castrillo, 2018). This reviewed literature, therefore, amplifies the significance of collaboration as a pertinent enabler of KM processes, including creation, mobilisation, sharing, and exchange.

One of the study's objectives was to determine the knowledge that collaborators engaged in KMb for small-scale tea farmers. To achieve this objective, the study examines the roles and significance of distinct categories of knowledge collaborators, knowledge mobilisers, knowledge champions, knowledge promoters, and knowledge beneficiaries/target groups involved in KMb. Knowledge collaborators are among the most pivotal stakeholders within the domain of KMb. Their pivotal role resides in their capacity to adeptly create, share, exchange, and utilise knowledge, leading to value addition, competitive advantages, and customer satisfaction. When exploring the concept of knowledge collaborators, it is essential to recognise that their composition varies according to the specific organisational or industrial context in which they are situated.

Alexander and Childe (2013) define knowledge collaborators or partners as entities that play a pivotal role in facilitating and ensuring the seamless application and exchange of knowledge. Knowledge collaborators are, therefore, individuals or partners who facilitate the mobilisation, sharing, and exchange of knowledge within an organisational context. Building upon this contextual framework, Bayley et al. (2018) emphasise that knowledge partnerships materialise through two primary avenues: the first being collaborative affiliations or relationships, and the second involving transactional partnerships or contractual agreements. To elaborate further, Miller, McAdam and McAdam (2018) expound that proficient knowledge partnerships significantly enhance the likelihood of unrestricted knowledge dissemination and exchange, particularly within an ecosystem characterised by commitment and mutual trust. In the subsequent section, we engage in a comprehensive discussion about knowledge collaborators, drawing from the extensive literature surveyed for this study.

As itemised by Wang et al. (2019), the effectiveness of knowledge collaboration hinges on the types of partners engaged, including higher education institutions, knowledge consumers, suppliers, consultants, government bodies, and competitors. Cheng and Chang (2020) assert that knowledge collaboration is also dependent on the willingness of the knowledge collaborators to cooperate, the learning capacities of the collaborators, the attributes of the knowledge, and the activities associated with knowledge. This study reviews the literature on various categories of knowledge collaborators involved in the KMb process in the agricultural

domain, drawing on insights from a variety of literary sources. These knowledge collaborator categories encompass knowledge creators, knowledge mobilisers, knowledge champions, and knowledge beneficiaries. Each of these knowledge collaborators and their pertinent roles and significance are comprehensively examined in the subsequent subsections of this study.

3.5.2.1 Knowledge creators

KM is an essential process whose main role is delivering the precise knowledge to the correct person at the precise time. This process involves several sub-processes such as creation, acquisition, organisation, sharing, exchange, use and reuse. Grounding on the SECI model, Farnese et al. (2019) define knowledge creation as the continuous transfer, combination, and conversion of the different types of knowledge, as users practice, interact, and learn. For this study, the knowledge creators comprise researchers affiliated with higher education institutions. These researchers play a pivotal role as producers and developers of knowledge and innovation. These researchers are actively engaged in creating, sharing, and utilising research-informed and other knowledge forms for practitioners.

As highlighted by McGonigle et al. (2020), researchers face increasing pressure from industry and decision-makers to provide evidence of the quality, adoption, and impact resulting from their work. In response to this demand, Perkmann et al. (2013) argue that these researchers and their respective higher education institutions must foster academic collaborations and establish partnerships with industry to facilitate research, innovation, and the seamless transfer of knowledge. However, De Wit-de Vries et al. (2019) draw attention to the challenges inherent in these knowledge partnerships. These challenges include disparities between the knowledge generated by researchers and that required by the industry, divergent objectives stemming from institutional cultural differences, as well as issues related to trust and communication. To overcome these barriers, scholars recommend the deployment of intermediaries such as knowledge mobilisers (De Wit-de Vries et al., 2019).

3.5.2.2 Knowledge mobilisers

The second group of collaborators encompasses knowledge mobilisers, who act as intermediaries who bridge the gap between researchers and knowledge consumers, particularly small-scale tea farmers in this context. These knowledge mobilisers are associated with various titles, including "researchers-in-residence," "diffusion fellows," "knowledge brokers," and "community of practice facilitators," as documented by Malin and Paralkar (2017) and McGonigle et al. (2020). According to Ward (2017), knowledge mobilisers are individuals who

drive knowledge into actionable practice. The primary role of a knowledge mobiliser, as outlined by Maag et al. (2018), is to facilitate processes that encourage mutual learning and knowledge exchange among researchers, policymakers, and practitioners. However, in the execution of their noble responsibilities, knowledge mobilisers encounter an array of challenges.

These challenges include difficulties in reconciling diverse knowledge definitions, navigating through fragmented literature, identifying effective tools for monitoring and assessing knowledge projects and programs, and grappling with the task of comprehending, interpreting, and translating academic knowledge for non-academic audiences (Harvey et al., 2021; Maag et al., 2018; Ward, 2017). To overcome these barriers, knowledge mobilisers need to implement the guidelines outlined in the Ward model. These guidelines involve understanding why knowledge is being mobilised, whose knowledge is being mobilised, what type of knowledge is being mobilised, and how knowledge is being mobilised. In the context of this study, implementing these guidelines can assist knowledge mobilisers in understanding the requirements of knowledge users (small-scale tea farmers), effectively communicating these requirements to knowledge creators (agribusiness researchers), and linking the right knowledge to the right users.

3.5.2.3 Knowledge champions

The third crucial category in KMb comprises knowledge champions. Shea (2021) defines a champion as an individual who dedicates their time and effort to support, market, and drive the implementation of an agenda, project, or innovation. In the context of this study, knowledge champions are seen as advocates of KM who influence the uptake of new knowledge and innovations. Within the agricultural sector, knowledge champions may encompass selected experts in agribusiness, including scholars, practitioners, farmers, and knowledge managers. This group plays a critical role in facilitating farmers to acquire and exchange knowledge that is relevant and beneficial to them and other farmers. Additionally, knowledge champions aid in managing knowledge in physical and automated repositories, making it easily accessible. Scholars have identified several ways in which top management can support knowledge champions: establishing a robust network of KM champions tasked with managing quality content, information, and knowledge within the knowledge platform; sponsoring and facilitating training and coaching opportunities for individuals serving as knowledge champions; encouraging an organisational culture and behaviour that promotes knowledge creation, exchange, uptake, and learning; and promoting and providing support to individuals

who possess the right attitudes and aptitudes to serve as knowledge champions (Corfield & Paton, 2016; Ahmed & Elhag, 2017; Veeravalli, Venkatraman & Hariharan, 2020).

3.5.2.4 Knowledge consumers

The final category comprises knowledge beneficiaries or consumers, who serve as the ultimate recipients of knowledge. Their primary role revolves around the uptake, dissemination, and integration of knowledge into their daily practices. In the context of this study, knowledge consumers are exemplified by small-scale tea farmers. These consumers hold a critical role for farmers who require access to, share, and exchange agricultural knowledge with other farmers, particularly knowledge about tea. Agricultural knowledge, as defined by Mtega, Ngoepe and Dube (2016), encompasses knowledge allied with and conducive to improving agricultural practices, sustaining the environment, and enhancing production value. For small-scale tea farmers to sustain and improve their tea farming endeavours, timely and pertinent knowledge access is imperative.

Consequently, knowledge creators and mobilisers must facilitate the uptake, exchange, sharing, and dissemination of both tacit and explicit knowledge among these farmers and their colleagues. As noted by Šūmane et al. (2018), the agricultural sector is in a transformative phase, shifting toward sustainability. This transition necessitates the development of a novel knowledge base, the creation of fresh content, innovative knowledge forms, and the establishment of new learning processes. To meet these evolving requirements, Opitz et al. (2017) argue for the establishment of a symbiotic collaboration between knowledge consumers and knowledge producers. This significant endeavour predominantly falls within the purview of knowledge mobilisers, who serve as vital intermediaries connecting these two distinct cohorts of knowledge stakeholders.

3.5.3 KMb strategies for small-scale tea farmers

This section performs a thorough evaluation of empirical literature on the topic of 'KMb strategies for small-scale tea farmers.' Its goal is to identify the most effective methods for communicating agricultural information and knowledge. These tactics are critical in making sure that scholarly agricultural knowledge reaches its intended audience, which in this case is small-scale tea farmers. The section begins by reviewing prior research to identify these techniques and evaluate their efficacy for mobilising agricultural knowledge. It also seeks to identify any research shortfalls in this area of study.

Several KMb scholars, including Wamundila and Ngulube (2011), Naidorf (2014), Powell, Davies and Nutley (2017), Sales et al. (2024) and Onyancha et al (2025), concur on the value of strategy when implementing KMb practices in academic research. They contend that such implementation yields a myriad of benefits, including: enhancing customer services and continuous product innovation; improving reliability and better corporate practices; elevating the quality of research products and services; facilitating the development of communication, networks, and collaboration between researchers and practitioners; promoting knowledge exchange, sharing, mobilisation, and usage; increasing productivity, value addition, and competitive advantage; and empowering practitioners to develop their skills, performance, and experience. In the context of this study, four strategies are discussed, namely: products, networks, events, and technologies. These strategies are elaborated upon below:

3.5.3.1 Knowledge products

KMb is a broad concept encompassing a spectrum of interconnected activities, including knowledge production, integration, dissemination, sharing, exchange, and utilisation. Successful KMb necessitates the presence of two crucial facilitating environments. The first is a collaborative setting that empowers knowledge creators within the context of this study, referring to agribusiness scholars in higher education institutions to generate, exchange, and disseminate knowledge. The second environment focuses on enabling knowledge consumers, in this study represented by small-scale tea farmers, to effectively utilise and exchange knowledge to enhance their agricultural practices. This aligns with Park and Moon (2003), who emphasise that consumers require two interconnected categories of knowledge: understanding the product and knowledge of how to best utilise the product.

As emphasised by Phipps et al. (2016), research can only attain meaningful impact when scholars within higher education institutions collaborate closely with non-academic counterparts, collectively generating knowledge products, policies, and services that directly affect the everyday lives of end beneficiaries. Therefore, researchers must engage in collaboration with knowledge consumers, allowing them to discern specific needs and enabling the development of products tailored to meet these requirements. Additionally, researchers can harness the expertise of knowledge mobilisers or brokers, individuals possessing a specialised skill set for bridging the gap between researchers' knowledge products and end users' needs.

In an organisational context, Bigdali, Dalvi, Esfahan, and Aghasi (2023) categorise various types of knowledge, including consumer knowledge, process knowledge, product and service

knowledge, people knowledge, and organisational memory knowledge. It is therefore imperative for organisations to proactively identify and subsequently capture, synthesise, and disseminate this knowledge type. The focus of this section revolves around knowledge products in the agricultural sector. In the context of KMb in agriculture, a knowledge product pertains to an entity that houses or conveys knowledge, facilitating effective action by agribusiness stakeholders Antle et al. (2017). Regarding the mobilisation of research knowledge for small-scale tea farmers, the following knowledge products have been identified and are succinctly summarised in the table below:

Table 3.1: The knowledge products for KMb for small-scale tea farmers

Knowledge products	**Description of the knowledge product**
Blogs	Blogs, in this context, act as platforms for disseminating agribusiness expert knowledge and insights from scholars regarding farming practices and innovations. The content in blogs can be presented in a format that is easily comprehensible for small-scale farmers, aiding in better understanding, uptake, and practical application.
Case study	A case study can focus on either implicit or explicit knowledge derived from an individual, a group, an organisation, or an event. It can serve as a valuable tool for teaching, imparting knowledge to farmers, and fostering knowledge exchange.
Scholarly journal articles	Scholarly journal articles are technical and conveyed in academic language. They are particularly suitable for agribusiness researchers to read, synthesise, and cultivate new knowledge.
Magazine articles	Magazine articles are generally less technical and use language that is easily comprehensible for non-experts. They can be suitable for knowledge champions, knowledge mobilisers, and knowledge consumers (small-scale tea producers) who possess a certain level of academic acumen.
Newspaper articles	Newspaper articles are concise and employ simple language, making them easily accessible to non-academic readers. They are particularly appropriate for knowledge champions and consumers, such as small-scale tea farmers

Handbook	A handbook can offer guidance and instructions about a particular subject, tool, or piece of equipment. In the context of this study, a handbook could provide small-scale farmers with step-by-step instructions on performing a process or operating a farm tool or machine.
Frequently asked questions (FAQ)	Frequently Asked Questions (FAQs) can be presented online or in paper format, comprising a series of questions accompanied by their respective answers. These FAQs offer foundational information about agribusiness to knowledge stakeholders.
Podcast	Researchers and knowledge mobilisers can produce podcasts on agribusiness topics and disseminate them to small-scale tea farmers.
Press release	A press release can aid in disseminating information about agribusiness projects and activities to a broad audience of small-scale tea farmers.
Promotional literature	Researchers and knowledge mobilisers can create promotional materials to enhance the adoption and dissemination of knowledge products or services.
Reports	A report tends to be analytical and is tailored for stakeholders with specialised knowledge or a keen interest in a particular topic (such as agribusiness).
Lessons learned	Lessons learned, also referred to as after-action reviews, can assist knowledge consumers (specifically small-scale tea farmers) in identifying, sharing, exchanging, and adopting new knowledge. This process involves reviewing their past activities and integrating newly acquired knowledge into their future tea farming practices.
Stories	Stories can play a pivotal role for knowledge stakeholders in sharing, exchanging, and collaborating by narrating their success stories, posing questions, and drawing insights from these success stories.

Source: Author

3.5.3.2 Knowledge events

Knowledge events are another crucial KMb strategy that offers knowledge stakeholders the opportunity to share knowledge and knowledge products, often leading to the generation of new knowledge. Within the context of tea farming, these events can facilitate the growth and impact of tea agribusiness stakeholders by bringing them together to collaboratively create new knowledge, share existing knowledge products, and provide valuable feedback. The feedback collected from these events is of equal importance, and it falls upon knowledge mobilisers to assess the effectiveness of such events using tools such as feedback forms, interview questions, and other interactive tools. Below is a discussion of some of the knowledge events that have been found relevant to the context of this section, which focuses on strategies for mobilising knowledge for small-scale tea farmers. These events are outlined in the table, along with an exploration of how they can benefit agribusiness knowledge stakeholders.

Table 3.2: The knowledge events for KMb for small-scale tea farmers

Knowledge events	**Description of the knowledge events**
Workshops	Workshops offer an excellent platform for tea agribusiness stakeholders to gather farmers' perspectives, collect feedback, and promote engagement in tea agribusiness activities, discussions, and knowledge exchange.
Seminars	A seminar typically entails a gathering of a small group of participants. In this context, a seminar may involve small-scale tea farmers, guided by researchers and knowledge experts, collaboratively exchanging information, sharing knowledge, and recounting success stories.
Conferences	A conference is a more formal meeting that can span several days. Tea agribusiness stakeholders can convene a conference for consultation, in-depth discussions, and the sharing and exchange of information and knowledge.
Knowledge fairs	Knowledge fairs provide valuable opportunities for agribusiness researchers to showcase their accomplishments, display research products, and market new knowledge products to various stakeholders, such as donors, policymakers, and small-scale tea farmers.

Talk shows	Talk shows involve informal discussions where a host invites a panel to delve into specific topics. In the context of this study, a talk show can be a valuable tool where researchers, experts, and knowledge champions engage with tea farmers to share and exchange knowledge.
Forum	A forum provides a platform for agribusiness knowledge stakeholders to convene and engage in open dialogues about various topics related to tea farming.
Storytelling events	A storytelling event offers researchers, knowledge champions and tea farmers a platform to share and exchange tacit knowledge that might otherwise be challenging to communicate.
Project reviews	Project reviews can be utilised by researchers and knowledge mobilisers to facilitate team-based assessments of KMb projects. These reviews help in evaluating project progress, gathering customer feedback, and extracting valuable lessons learned.
Peer assist	Peer assist events facilitate researchers in actively sharing and exchanging their knowledge and experiences with both experienced and less experienced peers, fostering a culture of participatory learning and collaboration.

Source: Author

3.5.3.3 Knowledge networks

One of the most critical KMb strategies that can significantly impact the creation, exchange, dissemination, and adoption of agribusiness knowledge is the establishment of knowledge networks. As suggested by Simeonov, Kobayashi, and Grenier (2021), the central objective of KMb revolves around delivering the right knowledge to the right individuals in the right format, precisely when it is needed to influence their decision-making. Therefore, knowledge networks play a pivotal role in fostering long-term, robust relationships among knowledge stakeholders, ultimately contributing to the success of the KMb process.

In the context of this study and the tea agribusiness sector, knowledge networks play a crucial role in establishing strong relationships among agribusiness researchers in higher education institutions, knowledge champions, and small-scale tea farmers. These robust connections among stakeholders are instrumental in mitigating conflicts and fostering trust, which are essential for the creation, sharing, exchange, dissemination, uptake, and utilisation of

knowledge. Various platforms and approaches facilitate the development of such knowledge networks, including chatrooms, media, communities of practice, discussion boards, Listservs, online forums, social media, and expert blogs (Šūmane et al., 2018; Fielke, Taylor, & Jakku, 2020; Shepherd & Cooper, 2020; Khamali & Thairu, 2018; Phillips, Klerkx, & McEntee, 2018). The strategies for knowledge networking are elaborated upon in the following table.

Table 3.3: The knowledge networks for KMb for small-scale tea farmers

Knowledge networks	**Description of the knowledge networks**
Chatroom	In the context of this study, a chatroom can facilitate agribusiness knowledge collaborators in posting, sharing, exchanging, and disseminating information and messages over the internet or intranet.
Media (Newspapers, Radio, TV, Podcasts	KMb stakeholders can utilise media to effectively reach a broad audience of farmers to disseminate information about agribusiness projects, activities, and products.
Community of practice	A community of practice (CoP) can, for example, enable agribusiness knowledge collaborators to form groups of people who work or have an interest in a specific agribusiness theme, where they can voluntarily develop and share knowledge, ask questions, or find experts.
Discussion board	A discussion board or forum is a platform that can enable knowledge collaborators to engage in in-depth and meaningful discussions.
Listserv	Knowledge collaborators can utilise a listserv to facilitate communication and collaboration by sending messages to a large group simultaneously via a list of names and emails.
Online forum	In the context of this study, online forums enable knowledge collaborators to exchange experiences and knowledge, assisting their peers in promoting good agribusiness practices.
Social media	Knowledge collaborators can enhance their online visibility and significantly extend their reach by leveraging social media platforms such as websites, Twitter, Facebook, LinkedIn, blogs, wikis, and YouTube.

Expert blogs	A blog is a continuously updated online platform that provides fresh and valuable information. Within the scope of this study, expert blogs serve as a means for agribusiness researchers and knowledge brokers to effectively share and disseminate agribusiness information through online channels.

Source: Author

3.5.3.4 Knowledge technologies

Information technology (IT) assumes a pivotal role as a fundamental enabler necessary for facilitating the creation, sharing, transfer, exchange, dissemination, and adoption of knowledge. These processes are indispensable catalysts for KMb, making it imperative for organisations to adopt appropriate IT infrastructure and develop the necessary skills to automate these procedures. Such measures can significantly enhance an organisation's capabilities, value addition, and competitive advantage (Carlson et al., 2018; Jabeen & Al Dari, 2023).

According to Laudon and Laudon (2020), an IT infrastructure comprises a collection of physical devices and software applications essential for operational functionalities. To provide further clarity, these IT scholars argue that an optimal IT infrastructure should offer a diverse array of tools and services. These tools and services include:

1. Computing platforms for rendering computing services that integrate employees, customers, and suppliers into a cohesive digital environment.
2. Communication services for providing connectivity for data, voice, and video among stakeholders;
3. Data management services handle data storage and management, with capabilities for analysis and transformation into actionable information.
4. Data management services that facilitate the storage, organisation, and analysis of data, converting it into actionable information.
5. Application software services, such as enterprise resource planning and KM systems, which provide comprehensive organisational support.
6. Physical facilities management services that handle the development and maintenance of physical installations for computing and information management.
7. IT standards services that define policies guiding the use, timing, and methodology of information technology within an organisation.

8. IT education services deliver a system that offers user training for clients and managerial training on effective IT planning and management.
9. IT research and development services, which include researching potential future IT projects and investments that could provide a competitive advantage to an organisation.

As previously mentioned, KMb is facilitated by a number of KM processes, encompassing knowledge creation, exchange, sharing, dissemination, and adoption. It is incumbent upon knowledge collaborators in the agribusiness sector to ensure the implementation of suitable IT-enabled tools and systems to propel these KM processes. The essential tools and systems are delineated in Table 3.4 below.

Table 3.4: The knowledge technology for KMb for small-scale tea farmers

Knowledge technology (tools and systems)	**Description of the Knowledge Technology**
Groupware systems	These are IT-based KM tools that can assist agribusiness knowledge collaborators in creating, sharing, and exchanging knowledge while fostering collaboration and communication. Groupware tools can be categorised into three main categories: communication tools, including email, web publishing, wikis, and file-sharing; conferencing tools encompassing video/audio conferencing, chat, and forums; and collaborative management tools, which comprise project management systems, workflow systems, and information management systems (Nabben, 2019; Uwasomba *et al.*, 2022).
The intranet and extranet	The intranet utilises network technologies such as Transmission Control Protocol/Internet Protocol (TCP/IP) to establish connectivity to various systems and networks within an organisation; Conversely, the extranet extends the functionality of the intranet by granting connectivity to authorised users external to the organisation (Laudon & Laudon, 2004). Intranets and extranets can be valuable tools for agribusiness knowledge collaborators, not only in enhancing productivity, collaboration, communication, and socialisation but also in shaping a culture of knowledge sharing

	and serving as repositories for both explicit and embedded knowledge (Kommey & Fombad, 2024).
Data warehousing and mining	Data warehousing entails extracting, distributing, and storing data within a dedicated warehouse database. Data mining tools and techniques, on the other hand, can aid one in sifting through this stored data, identifying patterns, and gaining new insights (Cheng *et al.*, 2018). For agribusiness knowledge collaborators, employing data warehousing and mining tools is a powerful means to transform raw data into usable knowledge and actionable information.
Decision Support Systems	Decision-support systems (DSS) are information systems that use data analysis tools to integrate data and models to facilitate semi-structured and unstructured processes of decision-making. DSS may support knowledge collaborators in systematically achieving semi-structured and unstructured agriculture decisions (Zhai *et al.*, 2020).
Content management systems	Content management systems empower knowledge collaborators with the capacity to effectively oversee both information and knowledge by facilitating the capture, storage, retrieval, dissemination, and utilisation of these assets. This, in turn, contributes to the enhancement of their processes and decision-making abilities (Laudon & Laudon, 2020).
Document management systems	Document management systems (DMS) assist knowledge collaborators in collecting, digitising, indexing, and tagging documents within a structured framework (Rosa *et al*., 2019). These systems facilitate the storage of these documents in databases and portals for efficient access and retrieval.
Artificial intelligence tools	Laudon and Laudon (2020) distinguish numerous types of artificial intelligence (AI): expert systems, machine learning, neural networks, deep learning, genetic algorithms, natural language processing, computer vision systems, robotics, and intelligent agents. These AI technologies can help knowledge

	collaborators capture, codify, and communicate agricultural information, as well as learn from and improve on it.

Source: Author

3.5.4 KMb indicators for small-scale tea farmers

This section explores the indicators that agribusiness researchers and knowledge mobilisers can employ to assess the impact of their KMb initiatives. According to the Social Sciences and Humanities Research Council (2023), KMb encompasses a wide range of activities related to the production and exploitation of research results, including knowledge synthesis, dissemination, sharing, co-creation, and co-production by researchers and knowledge users. Per the Collins English Dictionary (2024), an indicator is a measure of value that provides insight into the characteristics of something. Sales et al. (2024) have further expounded on the concept of KMb indicators, which can also be relevant in the agribusiness context. They contend that KMb indicators assess the outputs and implications of many activities related to the production and usage of research results, including knowledge synthesis, dissemination, transfer, and exchange, as well as collaboration or co-production involving researchers and knowledge users.

The scope of knowledge indicators encompasses several facets, including agribusiness, finance, operations, production, management, growth, marketing, insurance, and international business, among others. The description of knowledge indicators aids in understanding the concept of KMb indicators. It further provides agribusiness researchers and practitioners with an ideal tool to assess the products, outcomes, and impact of KMb, with an emphasis on a farmer-centred and collaborative approach. The products or outputs are the first set of indicators that agribusiness researchers use to assess. The pertinent measurable outputs, according to the Social Sciences and Humanities Research Council (2023), include the number of publications, presentations, event attendees, new datasets, new collaborators or stakeholders added to a team, and research knowledge users recruited to the network. On the other hand, outcomes in agribusiness refer to both foreseen and unforeseen activities that are undertaken due to new perceptions. These activities, as noted by the Social Sciences and Humanities Research Council (2023), may include the number of consumers of the research findings, the number of users trained, the creation of new capacities, the development of new policies, and the formulation of new business strategies.

The third measurable indicator is impact. Impact, as per Kabisch et al. (2016), refers to longstanding effects that influence and transform thinking and behaviours. Impact indicators

may include performance, competitiveness, effectiveness, introduction of new products and services, enhanced learning, improved quality of life, and increased cohesion and collaboration. Knowledge indicators encompass a diverse range of fields, including agribusiness, finance, operations, manufacturing, administration, development, marketing, and global commerce, among others. This expansive demarcation of knowledge indicators explains the basis of KMb indicators, presenting agribusiness researchers and practitioners with an invaluable instrument for evaluating the products, outcomes, and impact of KMb, with a particular emphasis on a farmer-centric and collaborative approach. Within this setting, the first category of indicators pertains to products or outputs that agribusiness researchers use for assessment.

Agribusiness researchers utilise a myriad of measurable outputs, as outlined by the Social Sciences and Humanities Research Council (2023), including the number of publications, presentations, event attendees, new datasets, additions of new collaborators or stakeholders to a team, and the recruitment of research knowledge users into networks. The second distinctive indicator is outcome. Outcomes in agribusiness imply anticipated or unanticipated actions taken due to new perspectives. These activities, according to the Social Sciences and Humanities Research Council (2023), may encompass metrics such as the number of consumers of research findings, the number of individuals trained, newly developed capacities, policies formulated, and business strategies devised. Finally, the third category of measurable indicators relates to impact, which, as per Kabisch et al. (2016), denotes enduring effects that shape and transform viewpoints and behaviours. Impact indicators may encompass aspects like performance, competitiveness, effectiveness, innovation in products and services, enhanced learning, improved quality of life, and fostering cohesion and collaboration. Four factors were deliberated in this study to assess the mobilisation, exchange, and adoption of agribusiness knowledge for small-scale farmers. These indicators include dissemination indicators, use indicators, usefulness indicators, and collaboration or partnership indicators, all of which are presented in Table 3.5 below.

Table 3.5: The indicators for KMb for small-scale tea farmers

KMb indicators for small-scale tea farmers	**Description of KMb indicators**
Dissemination or reach indicator	The reach indicator is instrumental in assessing the impact of KMb by quantifying various aspects, including the number of knowledge requests, the dissemination of

	knowledge, downloads or hits, the extent of media and social media exposure, and the total number of beneficiaries who have accessed and benefited from the knowledge.
Use indicator	Usage indicator can be evaluated by assessing various factors, including consumers who demonstrate intent to use the knowledge, those who have actively adapted and implemented the knowledge, the influence of knowledge use on policies, programs, training, education, or research, as well as its tangible impact on improving overall practices and performance.
Usefulness indicator	Usefulness indicators can be assessed by analysing various metrics, including the quantity of documents read or browsed, the degree of satisfaction expressed by knowledge users, the perceived utility of the information, the acquisition of new knowledge, and any shifts in perspective resulting from the application of the knowledge.
Collaboration/partnership indicator	The evaluation of usefulness indicators entails analysing the range of knowledge products or services that have been created or shared in collaboration with partners. Additionally, it involves assessing the various types of capacity-building efforts undertaken, the expansion of social networks, the enhancement of influence capacity, and the degree of collaborativeness achieved in the KMb process.

Source: Author

3.5.5 KMb factors for small-scale tea farmers

This section explores the pivotal factors that influence the creation, mobilisation, exchange, and uptake of knowledge. These factors are critical as they serve as determinants of the success or failure of KMb initiatives. Moreover, they provide researchers with a yardstick to measure the impact of research knowledge products while aiding knowledge consumers in assessing the value of the knowledge for their practices. A factor, as defined by the Collins English Dictionary (2024), denotes a thing or things that exert influence on an event, decision, or

situation. In the context of KMb, knowledge aspects dictate whether knowledge is acquired, transferred, adopted into practice, re-evaluated, looped back to knowledge producers, or absorbed and transferred but not adopted (Nguyen, Young, & Cooke, 2017). Therefore, within the context of this study, the exploration of factors impacting KMb practices for small-scale tea farmers has been categorised into four key aspects: resources, knowledge users, knowledge complexity, and management support. Each of these factors is discussed in the subsequent subsections.

3.5.5.1 Knowledge resources

Resources, particularly knowledge resources, play a pivotal role within an organisational framework. As highlighted in Frost (2014), these resources bestow uniqueness upon organisations while concurrently providing a means to attain a competitive advantage. Within the scope of this study, knowledge assumes paramount significance in the agribusiness sector, particularly in the context of the 21st century, where knowledge-based economies have emerged as primary drivers of development. Within these knowledge-driven economies, knowledge stands as a linchpin in determining the success of various economic endeavours, agriculture included. KMb, as previously indicated, offers an optimal approach for delivering precise information and knowledge in a suitable format and timing to the right individuals, thereby significantly influencing decision-making processes (Taylor & Bhasme, 2018).

For KMb to thrive, it needs to be interdependent on several other integral processes, encompassing knowledge brokering, exchange, translation, sharing, dissemination, and uptake. Within the same context, the resources required for mobilising agribusiness knowledge include budget allocations for KMb initiatives, stipends for knowledge collaborators, and the necessary information technology support, materials, meeting or seminar expenditures, human resources, time-related travel logistics, and volunteer contributions. Thus, researchers should carefully assess the resources required for their KMb activities, as well as how these resources can aid in the generation and dissemination of academic knowledge. Knowledge collaborators across multiple strata, such as knowledge mobilisers, brokers, practitioners, managers, and consumers, on the other hand, carry the collective responsibility of effectively completing their tasks along the KMb continuum.

Numerous studies underscored the pivotal role of knowledge resources and their potential impact on KMb within sustainable organisational frameworks, particularly within the realms of agriculture and agribusiness. Šūmane et al. (2018) emphasised knowledge networking and

collaborative knowledge networks as instrumental resources fostering knowledge exchanges, collaborative learning, and the genesis of innovative, integrated solutions in agribusiness that enhanced sustainability. Concurrently, Taylor and Bhasme (2018) advocated for farmers as valuable resources, pivotal in facilitating knowledge production and transfer through collaborations with researchers, research institutions, experts, knowledge brokers, and various community stakeholders. In Kenya, Langat and Kimutai (2023) found that effective KM practices at the Kericho County Tea Research Institute improved project implementation, organisational learning, and farmer training, ultimately enhancing the quality of tea production and prices; a 2025 study on tea warehouses in Mombasa County reported that KM had a positive impact, underscoring the crucial role KMb played in operational efficiency (Muriuki et al., 2025). In Tanzania, collaborations among tea stakeholders enhanced incomes via shared platforms (USAID, 2024). Hence, it was imperative for researchers not only to possess resources for knowledge creation but also to facilitate the exchange, sharing, dissemination, and uptake of knowledge.

3.5.5.2 Knowledge users

This section digs into the diverse set of knowledge users as a critical resource in the KMb process. It guides academics and KMb practitioners in developing knowledge, acclimating KMb to users, aiding users, and fostering knowledge transfer, sharing, dissemination, and uptake. According to Crosschild et al. (2021), a 'knowledge user' is a person who can use research findings to make informed decisions about policies, programs, and practices. According to Sibbald, Kang, and Graham (2019), knowledge brokers bear a significant degree of responsibility for connecting researchers and knowledge users within research initiatives. Their role further extends to fostering collaborations and partnerships between researchers and knowledge users. This underscores the significance of engaging experts with diverse skill sets to translate research findings into practical knowledge.

KMb hinges not only on the capacity and willingness of knowledge producers to create and share knowledge but also on the enthusiasm and motivation of knowledge users to acquire and apply this knowledge effectively. Therefore, motivating knowledge users is a crucial endeavour. Empirical literature from global, regional, and Kenyan contexts reveals that, to motivate knowledge users, several factors require attention from knowledge mobilisers. These include users' attitudes towards KMb, a careful assessment of the costs and benefits associated with KMb, consideration of their standards and the prevailing organisational climate, and an understanding of how they perceive the value embedded in knowledge (Wasko & Faraj, 2005;

Ford & Sandy Staples, 2006; Crosschild et al., 2021). In the specific context of the agribusiness sector, establishing effective partnerships between researchers and knowledge users aligns with the principles outlined by Sibbald, Kang, and Graham (2019) and Crosschild et al. (2021). This alignment necessitates strategic interventions, such as ensuring that knowledge users have access to highly qualified experts, fostering a collaborative environment that encourages active participation from both researchers and knowledge users, promoting fruitful partnerships, aligning research and knowledge user agendas, and guaranteeing the substantial involvement of proficient researchers in KMb initiatives.

3.5.5.3 Knowledge complexity

Prusak and Davenport (1998) offer a comprehensive definition of knowledge as information inherent to an individual, moulded by their experiences, and inclusive of the norms guiding the assessment of new inputs from their environment. This depiction underscores the multifaceted nature of knowledge, characterised by its intricacy, which, in turn, presents challenges in its creation, sharing, preservation, dissemination, and adoption. As further expounded by Balland et al. (2019), knowledge complexity pertains to the attributes of knowledge that render it difficult to manage. This complexity is intrinsically tied to the number of components comprising the knowledge and the interrelationships between these components (Simon, 2012).

Previous studies have shed light on the distinct attributes defining complex knowledge, portraying it as being concentrated in specific origins, conferring a competitive edge to organisations, resistant to imitation, challenging to relocate, contextual, and heavily reliant on ICT technology, comprising a plethora of informational elements, and being adaptive and emergent (Kim & Anand, 2018; Preiser et al., 2018; Hernaus et al., 2019). The complexity inherent in knowledge and user awareness levels exerts a profound influence on its exchange and adoption by small-scale tea farmers (John et al., 2023). Consequently, researchers and knowledge mobilisers shoulder the responsibility of establishing systems, processes, and functions that facilitate the seamless generation, storage, sharing, and uptake of agribusiness knowledge, ultimately benefiting small-scale tea farmers. These processes should be underpinned by effective leadership, a culture of continuous learning, and apt technological support. Only through such holistic approaches can knowledge collaborators harness the full potential of KMb to effectively realise their shared vision.

3.5.5.4 Management support

Management support stands out in this study as a paramount catalyst for enabling KMb practices for small-scale tea farmers. Therefore, senior management must proactively furnish leadership, commitment, well-defined strategies, policies, comprehensive programs, and a conducive operational environment to foster knowledge generation, mobilisation, transfer, exchange, sharing, and uptake. The absence of dedicated support and unwavering commitment from top management can significantly impede the successful execution of KMb practices. As articulated by Nichols et al. (2013), it is imperative to emphasise that practical KMb demands sustained dedication from all stakeholders in the knowledge ecosystem, a readiness to adapt to both internal and external changes, and leadership that wholeheartedly endorses a culture of continuous improvement.

In the specific context of small-scale agribusiness, the various phases of KMb, including knowledge sharing, exchange, and uptake, significantly depended on resolute backing from top leadership. This vital support network encompassed the management of higher education institutions crafting policies for knowledge generation, and tea farming association leaders encouraging member engagement. Similar studies in Kenya affirmed this: Muriu and Kiumbe (2025) found that Nyeri small-scale tea farmers lacked financial literacy and extension support, which hindered knowledge uptake, and make informed agribusiness decisions; Onyancha et al. (2026) reported that support from management through inclusive policies, infrastructure investment, and training enhanced the resilience and productivity of small-scale farmers across sub-Saharan Africa. In Ghana's cocoa sector (closely related to tea), Cadger et al. (2016) showed that leadership gaps impeded 65% of knowledge transfer. Waidayanatha et al. (2015) noted that poor communication from management reduced knowledge adoption by 40%. Without implementation, effective leadership, or clear communication of KMb benefits, efficient mobilisation among farmers remained impeded.

3.5.6 KMb framework for small-scale tea farmers

The primary objective of this study is to develop an effective framework that amplifies KMb within the realm of agribusiness, specifically targeting researchers and small-scale tea farmers in Murang'a County. To construct this framework, the study integrates five fundamental KMb constructs previously discussed, encompassing products, collaborators, strategies, indicators, and timeliness. Given the historical inadequacies of past agribusiness studies in establishing a coherent KMb framework, this research underscores the urgent necessity for a comprehensive

KMb framework, functioning as a guiding blueprint for mobilising agribusiness knowledge with a focused lens on the small-scale tea farming sector.

As explained by Phipps et al. (2016) and Van Biljon (2020), the development of a robust KMb framework necessitates the inclusion of essential components: a collaborative approach for generating knowledge products, policies, and services that align with the practices of knowledge users; guidelines to foster meaningful collaborations between researchers and non-academic partners; strategies for empowering researchers to effectively reach their intended knowledge users; key indicators for quantifying KMb activities; and a strategic timeline for executing the KMb plan. Empirical studies in Kenya and other tea-growing regions highlighted that weak connections between research institutions, extension services, and farmers often hindered the effective transfer and implementation of agricultural knowledge (Zaehringer et al., 2018). Similarly, studies of small-scale farming systems demonstrated that participatory and collaborative approaches enhanced knowledge adoption and improved agronomic performance (Tsan et al., 2019). The proposed framework for KMb assimilated contextually specific knowledge into KMb and served as a compass for a deeper understanding of knowledge exchange and mobilisation, crucial in propelling agribusiness, particularly in the domain of small-scale tea farming. Consequently, this framework was anticipated to significantly assist agribusiness researchers and knowledge collaborators in Kenya in championing KMb practices tailored for the benefit of small-scale tea farmers.

3.6 Synthesis of literature review

The literature review in this study revealed a growing, though limited, body of research focusing on KMb practices among researchers and small-scale tea farmers. These studies (Ahmad-Yousefi et al., 2022; Farnese et al., 2019; Zhang et al., 2023; Flores Torres et al., 2021; Moallemi et al., 2021; Gerke, Uude, & Kliewe, 2023; Durrant et al., 2024; West et al., 2021; Jacobi et al., 2020) collectively emphasise the crucial role of KMb in enhancing the sustainability of tea production, particularly for small-scale tea farmers in Kenya and other developing countries. These farmers predominantly rely on non-mechanised farming systems and can greatly benefit from the knowledge generated by agribusiness research. However, there exists a need for a more comprehensive understanding of the complex dynamics of KMb for smallholder farmers across various agricultural sectors, with particular emphasis on tea farming in developing nations.

Another significant gap identified in the existing literature is the lack of in-depth examination of the methods and factors that facilitate or hinder KMb practices for small-scale tea farmers. As a result, there is little understanding of which KMb methods contribute to higher production and which can have negative consequences in the context of tea farming. Furthermore, most of the available literature stems from studies of commercialised tea production in affluent nations, leaving Africa and the rest of the developing world with few scholarly resources. While several studies have examined smallholder farmers in general, tea farmers have received relatively little attention. Following a synopsis of the reviewed literature, this section will provide a concise summary of the chapter.

3.7 Summary of the chapter

This chapter provided a comprehensive review of the literature on the theme of KMb within the context of small-scale tea farming. The study was structured around key thematic areas that form the foundation of its objectives: knowledge types, knowledge collaborators, KMb strategies, KMb indicators, KMb influencing factors, and the KMb framework. The review also incorporated a detailed examination of related studies conducted at the global, regional, and national levels. Overall, the chapter served as a critical guide for determining suitable methodologies, sampling procedures, and research strategies, and further justified the relevance and contextual focus of the study. Section 3.1 discussed the purpose and significance of a literature review, emphasising its importance in establishing a conceptual framework through a structured mapping of existing research. Section 3.2 examined the conceptual literature on agriculture, the agricultural sector, tea farming, and small-scale tea farming, thereby establishing a clear linkage between KMb and agribusiness.

Section 3.3 explored the literature on knowledge management, focusing on related sub-concepts such as knowledge, knowledge management, and correlated processes. Section 3.4 focused on a review of the literature concerning KMb, specifically highlighting the dimensions of KMb in the agribusiness sector. This literature review offers valuable insights into areas, processes, strategies, and frameworks that researchers and knowledge mobilisers should prioritise in their KMb efforts. Section 3.5 presented a comprehensive overview of the literature on the role, importance, and application of KMb for small-scale tea producers and the small-scale tea farming sector. Section 3.6 then summarised empirical research on several aspects of KMb for small-scale tea farmers. Finally, section 3.7 summarised the literature under consideration and discussed its consequences. The next chapter describes the research methodology framework used to collect data from agribusiness knowledge stakeholders.

CHAPTER FOUR
RESEARCH METHODOLOGY

4.1 Introduction

This chapter provides an in-depth description of the research techniques and methods employed in this study. The methodology was rigorously designed to align with the study's multiple objectives, which include examining the nature of knowledge generated and applied within the context of small-scale tea farming, and identifying the stakeholders involved in KMb for small-scale tea farmers in Murang'a County. Additionally, the study sought to review the strategies employed in KMb, identify relevant KMb indicators, analyse the factors influencing KMb, and propose a framework to enhance KMb practices for small-scale tea farmers. The chapter also outlines the data collection procedures adopted in the study.

According to Newhart and Patten (2023), research methodology refers to a systematic and scientific process for collecting and analysing data to draw conclusions and address research questions. This study examines the influence of mobilising agribusiness researchers' knowledge on the productivity and practices of small-scale tea farmers in Murang'a County, Kenya. This chapter provides a detailed account of the research paradigm, approach, and design, as well as the target population, sampling techniques, data collection tools, procedures, and methods. It also addresses the study's validity, reliability, and trustworthiness. Table 1.1 in Chapter One illustrates the methodological components essential for addressing the research objectives and the corresponding instruments. Anchored on this, Figure 4.1 below provides a comprehensive roadmap that outlines the research methodology and its sub-components, including the paradigms, approaches, design, and methods applied in this study.

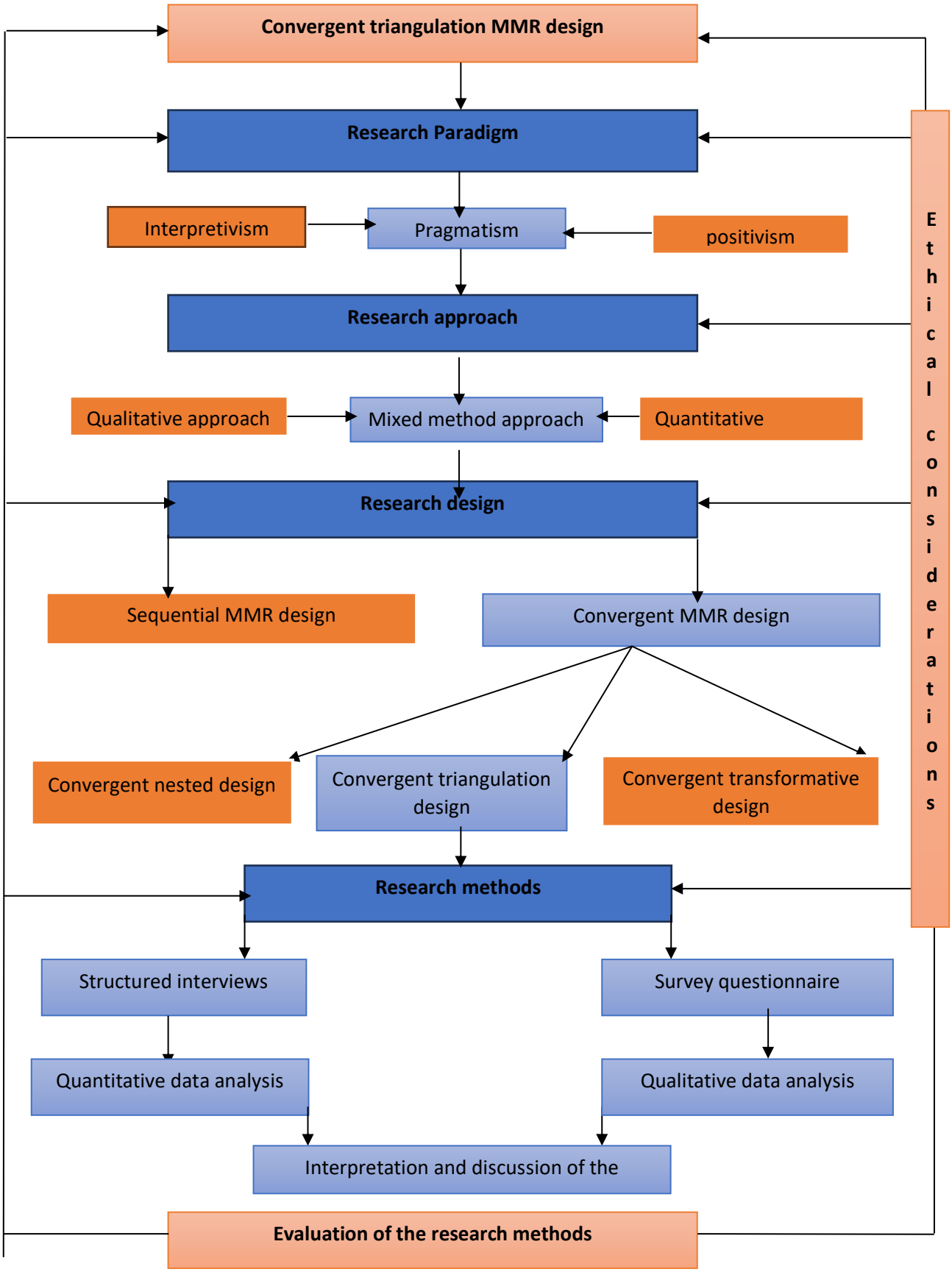


Figure 4.1: A road map of the research methodology for the current study

(Adapted from Ngulube 2019)

4.2 Research paradigm

In the field of social research, the term "paradigm," also referred to as a "worldview," has a wide range of definitions and interpretations. For example, Creswell and Creswell (2023) define a paradigm as "the researcher's broad philosophical viewpoint on the universe and the purposes of their research." A paradigm, according to Kaushik and Walsh (2019), is a forum for addressing the common assumptions, perceptions, and values of a community of experts about the real world and the nature of knowledge. Davies and Fisher (2018) agree that research paradigms comprise a set of assumptions about the nature of reality, the processes of knowledge creation, and the value of what is worthwhile to learn. According to Ngulube (2020), paradigms serve as the foundation for the researcher's philosophical assumptions, which include beliefs and values about reality, as well as the processes by which knowledge is developed.

Creswell and Creswell (2023) identified three prominent paradigms that anchor social science research, namely, positivism, constructivism, and pragmatism. These dominant paradigms have their foundation in several ontological and epistemological philosophical premises (Kankam, 2019). The ontological foundation, in this context, probes into the researcher's preconceptions about the concept of reality, whether it is perceived as unique or numerous, thereby shaping the basis around which their investigations are based (Creswell & Plano Clark, 2023). Epistemology, on the other hand, investigates the role of evidence in forming one's assertions, hence delineating the complex interaction between the researcher and their topic of inquiry (Creswell & Creswell, 2017). In the subsequent section, the study delves into providing a concise overview of the aforementioned fundamental worldviews, as opined by Creswell and Plano (2023) and Creswell and Creswell (2017). These three worldviews are significantly critical, as they provide the intellectual underpinnings for qualitative, quantitative, and mixed-methods research, each offering researchers pathways to navigate their studies.

4.2.1 Positivism (quantitative) paradigm

Positivism remains one of the most widely adopted research paradigms. Dawadi, Shrestha and Giri (2021) emphasised that positivism embodies objectivity, asserting that in this paradigm, knowledge is obtained through the empirical verification of facts, primarily using quantitative methods. Advocates of positivism, often referred to as positivists, further contend that research aims to uncover and examine the underlying causes of observed phenomena through discoverable experimental methods, factual evidence, and scientific laws (Ben-Haim, 2018; Creswell & Plano Clark, 2023). Kelly, Dowling and Millar (2018) further observed that

positivism is grounded in the belief that logic, measurement, and deductive reasoning can be applied to establish definitive facts in the analysis of various phenomena.

The primary objective of the positivist paradigm is to translate abstract concepts into a measurable and testable set of variables, often expressed through hypotheses and research questions, and to reflect a reductionist perspective (Bonache, 2021; Creswell & Creswell, 2023). According to Creswell (2021), positivism typically applies the scientific research method, whereby a researcher begins with a theory, collects data to confirm or refute it, and subsequently refines the theory through further testing. Scholars have outlined several defining characteristics of this paradigm. Primarily, it involves developing empirically verifiable statements that explain or establish relationships among variables in the form of research questions or hypotheses (Park, Konge, & Artino Jr., 2020).

Moreover, positivism focuses on identifying explanatory or causal associations through quantitative approaches (Creswell, 2021). In quantitative research, positivism enables scholars to interpret findings based on data, evidence, and logical reasoning, reflecting a strong commitment to empiricism, where knowledge emerges from observed experience (Park, Konge, & Artino Jr., 2020; Ugwu, Ekere, & Onoh, 2021). An associated paradigm, closely aligned with positivism, is post-positivism. As described by Kelly, Dowling and Millar (2018), post-positivism is a methodological paradigm that integrates "multiple methods" drawn from both quantitative and qualitative data sources in the quest for truths that transcend what was once perceived as dichotomous positions. Despite their differences, both the positivist and post-positivist paradigms share a common alignment with quantitative methods for data collection and analysis.

4.2.2 Constructivism (qualitative) paradigm

According to Bogna, Raineri, and Dell (2020), the constructivist paradigm posits that knowledge and reality are socially constructed phenomena that emerge from interactions between individuals and the contexts in which they exist. Furthermore, Kamal (2019) elucidates that the constructivist paradigm seeks to understand the sociological context of the phenomena under investigation. It achieves this by enabling interpretation of the world through the perspectives of those who experience it. Constructivism, also referred to as interpretivism, is grounded in the analysis of qualitative data gathered through methods such as observations and interviews (Ngulube, 2021). Through this analytical process, the constructivist paradigm seeks to uncover worldviews, subjective meanings, and viewpoints within specific social contexts.

It therefore relies on the beliefs and perspectives of the participants to guide the researcher in identifying discernible patterns and emerging themes (Creswell & Creswell, 2017; Creswell & Plano Clark, 2023). The primary aim of research using constructivism is not to test a hypothesis or confirm a theory but to inductively derive patterns of meaning that may lead to the development of a grounded theory. Consequently, constructivist researchers primarily utilise qualitative methods for data collection, including observations, interviews, conversation analysis, content analysis, focus group discussions, and the examination of documents and artefacts.

4.2.3 Pragmatism (qualitative and quantitative) paradigm

Researchers are increasingly blending constructivist or qualitative approaches with positivist or quantitative methods, resulting in a hybrid and integrated approach known as mixed-method research (MMR). Pragmatism, as articulated by Creswell (2021), is a research philosophy that prioritises the outcomes of research, the problem under investigation, and the practical effectiveness of research in real-world application. It reconciles positivism's single reality ontology with constructivism's multiple realities, allowing the research problem to dictate the philosophy employed (Creswell, 2021). This study adopted a pragmatic paradigm underpinning MMR, which is ideal for integrating naturalistic and scientific perspectives (Kaushik & Walsh, 2019; Creswell & Creswell, 2017). Ontologically, it accommodates multiple realities; epistemologically, it emphasises practicality by selecting methods that yielded actionable insights (Creswell & Plano Clark, 2023).

Pragmatism profoundly shaped the design of this study by prioritising methodological flexibility over paradigmatic purity. The research problem “examining KMb practices for small-scale tea farmers”, demanded both objective metrics (such as survey data) and subjective insights (such as interviews), which pragmatism enabled through sequential explanatory design. Quantitative surveys first identified patterns, followed by qualitative interviews for depth and validation. This avoided positivism's rigidity, which overlooks farmers' lived experiences, and constructivism's subjectivity, which might lack generalisability. Consequently, triangulation enhanced validity, yielding a robust KMb framework tailored to practical needs of the small-scale tea farmers (Creswell, 2021).

During implementation, pragmatism guided ethical and logistical decisions, such as adaptive sampling to access hard-to-reach small-scale tea farmers in Murang’a County, ensuring feasibility amid time constraints. It justified convergent data analysis, merging statistical

correlations with thematic narratives, to directly inform recommendations. Critically, this paradigm mitigated potential biases by prioritising what works in enhancing the farmers' uptake of knowledge. However, it also risked methodological eclecticism if applied without sufficient reflexivity and coherence. To address this limitation, the study upheld transparency and justification in the selection and integration of methods throughout the study, ensuring methodological rigour and alignment with the research objectives, as guided by Kaushik and Walsh (2019). Consequently, pragmatism was leveraged to investigate KMb practices and develop a framework to enhance these practices, benefiting small-scale tea farmers. The following section provides a detailed discussion of the research approach employed in this study.

4.3 Research approach

The research approach plays a crucial role in guiding researchers to effectively address the questions under study (Brown & Opie, 2019). According to Leavy (2022), a research approach refers to the methodological procedures used in collecting data for a study. Plonsky (2017) further explains that the research approach represents the overall strategy selected to integrate various components of a study and to ensure a specific research question is addressed. Similarly, Brown and Opie (2019) note that the approach outlines the methodologies, processes, and techniques applied in both data collection and analysis. As observed by Creswell and Creswell (2017), social research typically employs one of three primary approaches: qualitative, quantitative, or mixed methods.

4.3.1 Qualitative research approach

Mishra and Alok (2022) define qualitative research as an exploratory inquiry that seeks to understand the underlying motivations, thoughts and actions that influence human behaviour. This approach employs diverse techniques for collecting qualitative data, including interviews, observation, ethnography, and projective testing, to generate an understanding of social and cultural phenomena (Mishra & Alok, 2022). Despite its intrinsic value, Kumar (2019) observes that qualitative research can be time-consuming and complex to implement, often necessitating additional guidance and methodological support for researchers.

4.3.2 Quantitative research approach

Creswell and Creswell (2023) describe quantitative research as a structured and formal approach that measures beliefs, attitudes, intentions, and behaviours through tools such as questionnaires and systematic behavioural observation, followed by statistical analysis.

Scholars have identified several defining characteristics of this approach. Quantitative research emphasises the quantification of data during the data collection and analysis stages. The data is produced as numerical expressions such as figures, percentages, and tables. It focuses on exploring relationships among measurable variables to explain, predict, and control phenomena. Its core objective is to establish associations between independent and dependent variables within a given population, often by testing objective theories through the examination of these relationships. Additionally, quantitative research employs descriptive or experimental designs, enables statistical testing of hypotheses, and allows for the analysis of large and complex datasets. It is more structured and controlled than qualitative research, presenting findings in graphical or numerical formats (Mehrad & Zangeneh, 2019; Mohajan, 2020; Ngulube, 2022).

4.3.3 Mixed methods research approach

Mixed Methods Research (MMR) integrates qualitative and quantitative methods into a single study. Creswell and Creswell (2023) assert that this approach involves the collection, analysis, and integration of both types of data within a single study. MMR, therefore, occupies a space between quantitative and qualitative spectrums, allowing researchers to leverage the advantages of both fields. MMR integrates the objectivity, efficiency, and predictive ability of quantitative research with the depth, contextual awareness, and natural intuitions of qualitative research. Creswell and Creswell (2023) also cited the primary advantages of MMR, including the ability to gather diverse data sets, merge them using mixed-methods approaches, evaluate the integrated findings, and obtain thorough interpretations supported by both empirical data and theoretical frameworks. The MMR approach takes on various designs, including convergent and sequential designs, which are discussed in the following section. In this study, the mixed methods approach served as the anchoring methodological framework.

4.3.4 Justification for using a mixed method approach

This study employed a Mixed Methods Research (MMR) approach, which entails the collection, analysis, and integration of both quantitative and qualitative data within a single research framework, guided by distinct designs, philosophical assumptions, and theoretical perspectives (Creswell & Creswell, 2023). According to Ngulube (2022), the choice of an MMR approach is mainly informed by the research paradigm, the nature of the research problem, and the specific research questions. In line with this reasoning, the present study employed the MMR approach due to its compatibility with the pragmatic paradigm, which acknowledges that qualitative and quantitative methods can coexist and complement one

another within a single inquiry (Ngulube, 2022). The study sought to investigate KMb practices and develop a framework suitable for small-scale tea farmers. Thus, the adoption of the MMR approach was justified by its ability to examine the research problem from multiple perspectives, integrating the depth of qualitative insights with the breadth of quantitative evidence, as opined by Creswell and Creswell (2023).

4.4 Research design

A research design, as defined by Creswell and Creswell (2023), incorporates the methodologies employed in qualitative, quantitative, and mixed-methods research approaches and further outlines the specific procedures for conducting a research study. An effective research design should consider multiple factors: ensure the sample design yields a representative sample with minimal sampling error; be practical within the study's setting; be structured to mitigate systematic bias; offer flexibility, adaptability, efficiency, and cost-effectiveness; provide comprehensive details for a thorough analysis of the research problem; offer specific responses to research questions; and delineate the methods for sample selection and data gathering, among other critical aspects (Romm & Ngulube, 2015; Cohen, Manion, & Morrison, 2018; Dubey & Kothari, 2022).

In this study, the mixed methods research (MMR) approach was chosen. This methodology integrates both qualitative and quantitative research approaches to explain various realities. Kandel (2020) argues that researchers may opt to use MMR designs after identifying a research problem and confirming that it necessitates the concurrent or phased collection of both quantitative and qualitative data. Creswell and Creswell (2023) outlined three primary research designs within the mixed-method approach: sequential, convergent, and complex mixed-method designs. The sequential MMR approach includes three dimensions: explanatory sequential design, exploratory sequential design, and transformative sequential design (Creswell & Creswell, 2023; Creswell & Plano Clark, 2023). Conversely, the concurrent mixed-method design involves the simultaneous collection and analysis of both qualitative and quantitative data in one phase (Creswell & Plano Clark, 2023). It comprises three dimensions: convergent triangulation design, convergent transformative design, and convergent nested design. The third design is the complex MMR design (Creswell & Hirose, 2019). These MMR designs are briefly described in the following table.

Table 4.1: Mixed method research (MMR) design

MMR design dimension	MMR design	Description

Explanatory sequential	Sequential MMR	Quantitative data is gathered and assessed first, followed by the qualitative data.
Exploratory sequential	Sequential MMR	Qualitative data is collected and assessed first, followed by the quantitative data.
Transformative sequential	Sequential MMR	The sequence of data collection is dependent upon the researcher's theoretical perspective.
Convergent triangulation	Convergent MMR	Qualitative and quantitative data are concurrently collected, analysed, and subsequently compared or integrated.
Convergent nested	Convergent MMR	It encompasses the concurrent collection and analysis of both qualitative and quantitative data, with one being prioritised over the other.
Convergent transformative	Convergent MMR	The gathering of both quantitative and qualitative data is guided by the theoretical perspective informing the study's objectives and research questions.
Complex MMR design	Complex MMR	One or more mixed-method research (MMR) designs are integrated into a framework or a research process.

Source: Creswell and Hirose (2019), Creswell and Creswell (2023), Creswell and Plano Clark (2023)

4.4.1 Justification for using convergent triangulation design

The current study utilised a mixed-methods approach. This decision stems from the recognition that neither the qualitative nor the quantitative approach alone can fully address the study's inquiries. The choice of the mixed-methods research (MMR) approach was guided by Creswell and Creswell (2023), who assert that it fosters a comprehensive understanding of research problems by amalgamating both quantitative and qualitative findings. More specifically, this study utilised a convergent triangulation MMR design, as previously mentioned. The convergent triangulation MMR design created a conducive framework for the researcher to collect and analyse both quantitative and qualitative data simultaneously, enabling subsequent comparison, integration, and synthesis of the findings during the results interpretation and

discussion phase. This approach contributed to a holistic comprehension of the research questions.

The researcher's perspective, as guided by Creswell and Creswell (2023), views both quantitative and qualitative approaches as similar due to their shared processes, including problem identification, literature review, and data collection and analysis. Consequently, the amalgamation of these two approaches through the convergent triangulation MMR design aims to compare and merge results derived from qualitative and quantitative datasets. In this study, the quantitative datasets played a pivotal role in exploring most aspects concerning small-scale tea farmers and agribusiness researchers, while the qualitative data provided detailed descriptions and diverse perspectives of agricultural extension offices and managers on the study's phenomena.

4.5 Study area

This study was conducted in Murang'a County, located in the central region of the Republic of Kenya. The county was formerly known as Fort Hall during the British colonial era and was renamed Murang'a after Kenya gained independence. According to the 2019 population census, Murang'a County had a population of 1,056,000, with a population density of 450 persons per square kilometre (Kenya National Bureau of Statistics, 2019). The county It covers a total area of 2,558 square kilometres, and is divided into seven sub-counties, namely Kigumo, Kandara, Gatanga, Kangema, Mathioya, Kiharu, and Maragwa, which also serve as electoral constituencies (KIPPRA, 2021; Murang'a County Government, 2021). The justification for purposively selecting Murang'a County was due to its prominence in small-scale tea farming, which was the scope of this study. The researcher was therefore able to examine the suitability practices to small-scale tea. The county also exhibits favourable agroecological conditions, including fertile soils, reliable rainfall, and suitable topography, which support agricultural practices. Agriculture accounts for approximately 80% of livelihoods in the county, with tea as the principal cash crop, alongside coffee, maize, beans, and horticultural produce. This agrarian context provides an appropriate setting to explore how agribusiness knowledge is created, shared, and applied among small-scale tea farmers (KIPPRA, 2021; Murang'a County Government, 2021).

Two tea processing factories in Kigumo and Kangema subcounties were purposively sampled; both operate under the Kenya Tea Development Authority and are namely Kiru Tea Factory and Makomboki Tea Factory. These factories were selected due to their high membership

among small-scale tea farmers. As of 2022, Makomboki Tea Factory operated 163 tea-leaf buying centres and contracted approximately 7,120 small-scale tea farmers, while Kiru Tea Factory managed 73 tea-leaf buying centres with about 8,400 contracted farmers (Kenya Tea Development Authority, 2022). Murang'a University of Technology (MUT), Mariira Campus of Agriculture and Environmental Sciences, was chosen for the study due to its pivotal role in conducting tea agribusiness research and farmer outreach programmes in Murang'a County.

The target population for this study comprised all individuals and entities directly involved in the generation, dissemination, and utilisation of agribusiness knowledge within the small-scale tea sector in Murang'a County. Specifically, this population included chairpersons of small-scale tea farmers, agribusiness researchers from Murang'a University of Technology, agricultural extension officers, and factory managers. These groups were selected based on their distinct yet complementary roles: chairpersons represented organised farmer structures and decision-making units; researchers contributed to agribusiness research output, knowledge creation, and innovation; agricultural extension officers facilitated knowledge transfer, training, and practical application; while managers fulfilled policy and management functions. Collectively, these characteristics rendered the target population appropriate for examining KMb practices for small-scale tea farmers in Murang'a County, as the study findings were intended to be applicable to similar actors within the small-scale tea value chain in Kenya.

4.6 Target population

A target population forms the foundation of any scholarly inquiry, as it represents the principal focus of research. As outlined by Pandey and Pandey (2021), a target population, also referred to as a universe, encompasses an entire group of individuals or objects from which a sample is drawn. Similarly, Plonsky (2017) defines a target population as a specific group of individuals selected from the larger population based on their shared characteristics and relevance to a given research question. In this study, the focus centred on agribusiness stakeholders (small-scale tea farmers, agribusiness researchers, agricultural extension officers and managers) in the Kangema and Kigumo sub-counties of Murang'a County. These two sub-counties were purposively selected as they represent the leading tea-producing regions within Murang'a County (Murang'a County Government, 2021). The study population was therefore organised into four distinct categories, each described in detail in the subsequent sections.

4.6.1 Chairpersons of small-scale tea farmers in Murang'a County

The first target group in this study comprised small-scale tea farmers in Murang'a County, selected from two leading tea factories: Kiru Tea Factory in Kangema Sub-County and Makomboki Tea Factory in Kigumo Sub-County. According to the Kenya Tea Development Authority (2022), Makomboki Tea Factory operates 163 tea-leaf buying centres and engages approximately 7,120 contracted small-scale tea farmers. Conversely, Kiru Tea Factory manages 73 tea-leaf buying centres with about 8,400 contracted farmers (Kenya Tea Development Authority, 2022). Within this group, the target population consisted of one representative (the chairperson) from each tea-leaf buying centre affiliated with the two factories. These chairpersons, elected by the farmers, serve as key representatives of the small-scale tea farmers. The chairpersons are responsible for linking the farmers to the tea factories, as well as articulating the farmers' interests, concerns, and decisions. They perform these roles through organised farmer structures and decision-making units. Accordingly, the total target population for this category comprised 236 farmer chairpersons drawn from both tea factories.

It is apparent that the study excluded ordinary small-scale tea farmers from the target population and respondent category. This exclusion was methodological rather than conceptual, as the chairpersons were directly elected from among the farmers and held formal leadership positions through which information, knowledge, and key decisions were routinely channelled within the tea farming structures. Consequently, the researcher considered the chairpersons appropriate proxies for the broader small-scale tea farmer groups. Given the complexity of the subject under study, the researcher sought to examine the KMB processes that enhance knowledge uptake among tea farmers, rather than focusing solely on individual farming practices. Furthermore, the chairpersons were better positioned to report on collective experiences, common challenges, and factory-level interactions affecting their respective members across tea buying centres. To strengthen the quantitative component of the mixed-methods study, the chairpersons were treated as one component of the overall sample rather than the sole respondent group. The broader sample was complemented by other relevant participant categories, such as agribusiness researchers, to ensure the study remained robust, balanced, and reflective of the KMb theme under investigation.

4.6.2 Agribusiness researchers from Murang'a University of Technology (MUT)

The second target group comprised agribusiness researchers affiliated with Murang'a University of Technology (MUT) and the Mariira Campus of Agriculture and Environmental Sciences. This group included sixteen (16) faculty members who are specifically engaged in

teaching, training, research, and innovation within the field of agribusiness at the university. The target population of 16 agribusiness researchers was deliberately selected from the academic staff database of the MUT Mariira Campus. The selection of these researchers was purposeful for several reasons: they are key contributors to agribusiness knowledge creation and innovation; they collectively represent the entire faculty of the Mariirra campus; each researcher possesses specialised knowledge pertinent to this study; and they maintain established linkages and collaborations with tea farming stakeholders in Murang'a County (Murang'a University of Technology, 2023).

4.6.3 Agricultural extension officers

The third target group comprised agricultural extension officers who were purposefully selected from the two tea factories. This group consisted of six (6) agricultural extension officers contracted by the two factories to provide technical support and guidance to the small-scale tea farmers across the twelve regions under their jurisdiction. Agricultural extension officers were selected for several reasons: they are directly involved with small-scale tea farmers in facilitating the dissemination of agribusiness knowledge; they have contractual agreements with the factories as staff responsible for providing extension services; they possess extensive knowledge of tea farming activities within Murang'a County; and they maintain close interactions with small-scale tea farmers to facilitate knowledge transfer, training, and the practical application of agribusiness knowledge. These factors positioned agricultural extension officers as key facilitators of KMB.

4.6.4 Management

The fourth target group comprised members of management drawn from the leadership (directors) of the two tea factories and Murang'a University of Technology (MUT). This group was purposively selected due to its strategic role in policy formulation, resource allocation, and oversight of knowledge generation and dissemination within the tea value chain. These actors were critical in shaping the design and implementation of KMb practices for small-scale tea farmers in Murang'a County. The study specifically targeted policymakers from the two selected tea factories in Murang'a County. Each of the two tea factories is governed by a board of 6 directors, totalling 12 directors (Kenya Tea Development Authority, 2023). These directors were included because they provide strategic leadership, formulate policies, and influence the adoption of innovations and knowledge dissemination practices within the sector.

The Director of Research, Innovation, and Consultancy at MUT was deliberately selected. The director was eligible for inclusion due to his involvement in managing research processes, coordinating knowledge production, and establishing connections with external stakeholders, such as the tea industry. This enabled the research to explore how scholarly knowledge is generated and mobilised to be applied in farming communities. In total, the management category comprised thirteen (13) participants. These individuals were deemed appropriate as they possessed the authority and strategic perspectives necessary to examine the institutional and policy dimensions of KMb. Purposive sampling was employed across the target groups, consistent with Etikan, Musa, and Alkassim (2016), who emphasise that this method is most effective when recruiting informed participants. The target population is summarised in Table 4.2.

Table 4.2: Target population of the study

Target Population	**Population Size**
Chairpersons of small-scale tea farmers	236
MUT agribusiness researchers	16
Agricultural extension officers	6
Management	13
Total population	271

Source: Kenya Tea Development Authority, 2023

4.7 Sampling procedures and methods

Sampling, as defined by Gravetter, Forzano and Rakow (2021), refers to the procedure of selecting a subset of individuals or elements from a target population for inclusion in a study. In social research, two primary categories of sampling techniques exist: probability sampling and non-probability sampling. In probability sampling, every element within the population has an equal opportunity to be included in the sample, a principle not applicable in non-probability sampling. The various types of probability sampling encompass simple random sampling, systematic sampling, cluster sampling, and stratified sampling (Kothari, 2004; Pandey & Pandey, 2021). Non-probability sampling methods include convenience, purposive, quota, and snowball sampling (Kothari, 2004; Newhart & Patten, 2023).

A closely related concept, sample design, is described by Mishra and Alok (2022) as a detailed plan established before data collection to ensure that the selected sample accurately represents the target population. According to Pandey and Pandey (2021), an effective sample design minimises bias and experimental error, maximises data reliability, enhances representativeness,

and strengthens the generality of findings. In this study, stratified random sampling was utilised to select respondents from the overall target population, ensuring proportional representation across distinct stakeholder groups. This study utilised stratified random sampling to select a sample from the entire target population, cluster sampling for the chairpersons of tea leaf buying centres, and census sampling for the MUT agribusiness researchers and six extension officers.

4.7.1 Cluster sampling

Cluster sampling, as explained by Dubey and Kothari (2022), involves dividing the study population into groups with heterogeneous characteristics (clusters) and randomly selecting some of these clusters for inclusion in the study. According to Pandey and Pandey (2021), this approach allows the researcher to select a specific percentage of groups from the target population and include all elements within the selected clusters as part of the sample. In this study, the sampling frame for chairpersons was constructed from official online records obtained from the Kenya Tea Development Authority (2022), which listed all the tea leaf buying centres under the two factories and their respective chairpersons. In the case of Makomboki Tea Factory, the researcher classified the 163 tea leaf buying centres into six administrative regions under the supervision of a director. These areas were deemed to be suitable clusters since they were natural groupings in terms of geographical clustering and administrative coordination. Since each cluster comprised 27 chairpersons, a simple random sampling method was then applied to select one cluster. All 27 chairpersons within the selected cluster were included in the study using census sampling, ensuring full coverage given the small cluster sizes and minimising bias.

Similarly, for Kiru Tea Factory, the sampling frame comprised 73 tea leaf buying centres, grouped into six administrative regions. Each region constituted a cluster, with 12 chairpersons per cluster. Simple random sampling was then used to select one cluster and census sampling was applied to that cluster to select all the 12 chairpersons. Consequently, the total sample size for chairpersons was 39 respondents (27 from Makomboki and 12 from Kiru). This step-by-step approach ensured transparency and replicability in the cluster selection process.

The rationale for selecting a single cluster was based on both methodological and practical considerations. Firstly, as noted by Simkus and Simkus (2022), cluster sampling is appropriate when the population is naturally grouped and geographically dispersed. This was the case for chairpersons of tea leaf buying centres. By selecting one cluster, the researcher was able to obtain a manageable subset of chairpersons while minimising logistical constraints (such as time, cost, and accessibility). Secondly, each cluster was relatively homogeneous in terms of

operational characteristics (such as roles of chairpersons and operational context). This was also because all the tea-buying centres operated under the same factory management framework and policies. This homogeneity justified the selection of a single cluster as sufficiently representative of the broader population. Additionally, including all elements within the selected cluster through census sampling enhanced the depth and completeness of the data, which compensated for the reduced number of the selected clusters. The use of a single randomly selected cluster therefore ensures both feasibility and methodological rigour. It also enabled maintaining representativeness and enabling comprehensive data collection within the chosen group.

4.7.2 Purposive sampling

Purposive sampling is appropriate in studies where it is necessary to select respondents who possess specific characteristics, knowledge, or experiences relevant to the research objectives. According to Staller (2021), purposive sampling enables researchers to deliberately select participants with a comprehensive understanding of the phenomenon under investigation. Etikan, Musa, and Alkassim (2016) also argue that purposive sampling is particularly suitable for qualitative and mixed-methods research, where the focus is on acquiring specific knowledge about a particular context rather than on generalisation.

Purposive sampling was employed in this study to identify stakeholders with experience in research and policy formulation within agribusiness, such as policymakers from tea factories and Murang'a University of Technology (MUT). The sampling frame was constructed by identifying all individuals holding these specific roles, and selection criteria ensured that only participants with relevant experience in implementing tea agribusiness research and involvement in higher education institutions were included. Creswell and Plano Clark (2023) also support the use of purposive sampling, stating that informed participants enhance the depth, credibility, and relevance of research. Consequently, this approach enabled the study to access rich, meaningful insights into knowledge-management practices within the small-scale tea farming sector.

4.7.3 Census sampling

Census sampling is primarily appropriate for small populations, as it involves collecting data from every unit within the population. According to Singh and Masuku (2014), the sample size in census sampling typically equals the population size, offering several advantages: it ensures comprehensive data collection, enhances accuracy and precision by including every unit,

eliminates sampling errors, reduces costs associated with tool development, and supports a desirable level of precision. In this study, the relatively small size of the target population, which comprised 16 MUT agribusiness researchers, 6 extension officers, and 13 managers, justified the use of a census sampling method, whereby all individuals were included in the sample. The sampling frame consisted of all the aforementioned individuals, and every member was surveyed without random selection. This approach aligns with the recommendations of Nardi (2018) and Gravetter, Forzano, and Rakow (2021), who suggest that when the target population is less than or equal to 100, it is advisable to include the entire population as a sample. Consequently, the sample size comprised 16 MUT researchers, 6 extension officers, and 13 managers.

4.7.4 Stratified random sampling

According to Dubey and Kothari (2022), stratified sampling is an ideal sampling design that involves dividing the population into mutually exclusive and collectively exhaustive groups, or strata. Using this design, the researcher segmented the population into homogeneous strata based on specific characteristics, namely chairpersons of small-scale tea farmers, agribusiness researchers from MUT Mariira Campus, managers, and agricultural extension officers. The researcher then randomly selected a predetermined number of units from each stratum, as guided by Mishra and Alok (2022). Subsequently, simple random sampling was applied within each stratum to select the elements that constitute the final sample. The strata were formed according to these four distinct occupational categories to ensure proportional representation reflecting their distribution in the target population. The sample size of 74 was determined using Taro Yamane's formula for finite populations (Adam, 2020), and participants were randomly selected from each stratum using random number tables. As previously indicated, this study employed a stratified random sampling method to select a representative sample from the entire target population. The sample was therefore drawn from the following strata: 39 chairpersons of small-scale tea farmers, 16 agribusiness researchers from the MUT Mariira Campus for Agriculture and Environmental Sciences, 13 managers, and 6 extension officers, totalling 74 respondents. A summary of the sample size is presented in Table 4.3 below.

4.7.5 Simple random sampling

Simple random sampling was used in this study to select the elements from each stratum derived from the stratified random sampling method. This approach was appropriate because it ensured that every member within the four categories (strata) had an equal chance of being included in the study. The strata were established according to the distinct roles represented by the

participants and the homogeneous nature of the target population, which according to scholarly literature enables proportional representation and reduces selection bias (Bhardwaj, 2019; Stratton, 2021). This procedure enabled the researcher to enhance the fairness, transparency, and statistical integrity of the sampling process. Moreover, the technique helped to create a sample that was more representative and reflected the composition of the wider population under investigation.

Table 4.3: Sample size

Categories	**Target Population**	**Sample Size**
Chairpersons of tea leaf buying Centres	236	39
MUT agribusiness researchers	16	16
Extension officers	6	6
Management	13	13
Total Sample Size	271	74

Source: The researcher, 2023

4.8 Data collection procedures and methods

This section elaborates on the various tools, procedures, and methods applied for data collection. As articulated by Dubey and Kothari (2022), these tools serve as essential instruments for gathering both primary and secondary data to address research objectives. Newhart and Patten (2023) further identified surveys, interviews, observation, and focus group discussions (FGDs) as the principal conventional data collection techniques in social research. In the present study, data were collected using structured questionnaires and semi-structured interviews. The subsequent section provides a detailed discussion of the specific data collection tools applied in this study.

4.8.1 Semi-structured interviews

In this study, semi-structured interviews were used to collect qualitative data from both the extension officers and management. According to Frey and Oishi (1995), interviews are purposeful conversations in which one participant poses prepared questions while the other provides detailed and contextualised responses. Billups (2019) emphasised that interviews capture individuals' perspectives, experiences, emotions, and narratives under the facilitation of an interviewer. Moreover, Billups (2019) highlighted several advantages of interviews in qualitative research, including their capacity to generate rich, in-depth information on a given

phenomenon; enable data collection within the participant's natural environment; provide diverse viewpoints; allow immediate probing during interaction; facilitate observation throughout the process; and foster a comprehensive understanding when integrated with other data collection techniques. In qualitative research, three principal interview formats are recognised: unstructured, semi-structured, and structured.

As indicated earlier, this study employed a semi-structured interview format to collect qualitative data. According to Magaldi and Berler (2020), semi-structured interviews are exploratory methods widely used in the social sciences for qualitative data collection. In this approach, the researcher outlines key topics or issues to be explored while retaining the flexibility to adjust the phrasing and sequence of questions, thereby guiding and customising the flow of interaction (Bernard, Wutich, & Ryan, 2016). The interviews were conducted systematically to ensure clarity, replicability, rigour, and ethical compliance. First, an interview guide was developed, aligned with the study objectives and key variables. The guide included 13 key questions that were aimed at bring out in-depth responses and to allow probing for further clarification where necessary. The instruments were reviewed to ensure content validity and alignment with the research objectives. Secondly, the participants were informed about the study in advance using formal communication channels (email and telephone) to seek their permission and arrange appointments at a time and place convenient for them. Before each interview, the objectives were explained, and informed consent was obtained, including consent for recording the interview. Confidentiality and anonymity were also assured to the participants.

Third, the interviews were conducted in a flexible and conversational manner, in accordance with the interview protocol. The researcher employed core thematic questions and introductory questions to establish rapport with the respondents. Probing techniques were also utilised to gain deeper insights and clarify responses when necessary. Each interview lasted approximately 30 to 60 minutes, depending on the participant’s availability and the depth of their responses. Fourth, the interviews were recorded using an audio recorder and supplemented with field notes to capture non-verbal cues and other observations. Transcription was then carried out verbatim to ensure accuracy and completeness of the data. Finally, the transcribed data were re-read and organised for analysis, in alignment with the study’s objectives. These step-by-step procedures enhanced the reliability, transparency, and rigour of the qualitative data collection process.

4.8.2 Structured questionnaires

In this study, a questionnaire was utilised to collect quantitative data from two specific respondent clusters: the chairpersons of tea leaf buying centres and the MUT agribusiness researchers. According to Newhart and Patten (2023), a questionnaire is a research instrument comprising a series of question items designed to elicit information or data from respondents. Similarly, Roopa and Rani (2012) define a questionnaire as a list of written questions completed by or for a respondent to convey their views or opinions. The primary purpose of a questionnaire in social research is to facilitate the collection of quantitative data in a standardised manner, hence ensuring consistent and coherent analysis. Questionnaires can be classified into two categories: structured and unstructured. As noted by Roopa and Rani (2012), unstructured questionnaires use open-ended questions that allow respondents to express their thoughts freely in their own words. Conversely, structured questionnaires employ a closed-ended question design, limiting respondents to provide fixed answers, such as yes/no questions, multiple-choice queries, and scaled questions.

In the present study, structured questionnaires were administered to collect quantitative data from the chairpersons of tea leaf buying centres and MUT agribusiness researchers. The questionnaire comprised a variety of question types, including Likert scales, multiple-choice questions, and yes/no questions. The yes/no and multiple-choice questions were designed to examine the types of knowledge generated and utilised, identify key knowledge collaborators, and explore factors influencing KMb practices for small-scale tea farmers. A "somewhat" option was included to accommodate respondents who were uncertain about their answers. The 5-point Likert scale was employed to assess KMb techniques, indicators, and framework aimed at enhancing KMb practices for small-scale tea farmers. The response options were structured as follows: 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), and 5 = Strongly Agree (SA). In addition, multiple-choice items were interspersed throughout the questionnaire to integrate both dichotomous and scaled questions for diversity and engagement. Weighted mean scores were applied to the Likert scale items to facilitate deeper interpretation of the results. To interpret these weighted means, a class interval scale was utilised, allowing for systematic categorisation and comparison of responses.

4.9 Data analysis and presentation

According to Pandey and Pandey (2021), data analysis encompasses various quantitative and qualitative processes aimed at transforming primary and secondary data into meaningful knowledge. An effective method of data analysis requires the researcher to do the following:

choose an unknown issue for data collection, construct a measurement scale, establish empirical ties among the findings, and present underlying explanations or reliable predictions (Pandey & Pandey, 2021). Creswell and Clark (2017) further emphasised that data analysis can aid researchers in producing high-quality research findings, advancing theoretical and empirical knowledge, and informing policy and practice. In the present study, a mixed-methods research (MMR) approach was used to collect, analyse, and present the data. Specifically, a convergent triangulation design was employed, where quantitative and qualitative data were analysed independently and subsequently merged to provide comprehensive and corroborative insights. The following section details the analytical procedures applied to each data type.

4.9.1 Analysis of quantitative data

The Statistical Package for the Social Sciences (SPSS), version 27, was utilised to analyse the quantitative data in this study. The analysis process commenced with coding the questionnaire responses in SPSS, in which each response was assigned a specific number or code and converted into a machine-readable format compatible with the software. This coding process provided the researcher with a meaningful representation of variables, enabling effective data processing. Variables were defined and labelled in accordance with the study constructs, namely knowledge types, knowledge collaborators, KMb strategies, KMb indicators, KMb factors, and the KMb framework. Prior to analysis, the quantitative data was subsequently cleaned to address missing values, inconsistencies, and outliers.

Subsequently, both descriptive and inferential statistical analyses were conducted on the responses. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarise respondents' characteristics and key study variables. These measures provided an overview of patterns and their distribution within the data, consistent with the study objectives. The study also employed Exploratory Factor Analysis (EFA) to facilitate comparisons and draw conclusions aligned with the study objectives. EFA was deemed appropriate as it enabled the researcher to identify underlying latent constructs within a set of observed variables related to KMb practices and to reduce these variables into meaningful factors. EFA was particularly relevant in developing a framework to enhance KMb practices for small-scale tea farmers. Prior to conducting EFA, several key assumptions were tested to ensure the suitability of the data. These tests included assessing sampling adequacy using the Kaiser-Meyer-Olkin (KMO) measure and testing the factorability of the correlation matrix using Bartlett's Test of Sphericity. The EFA process also involved factor extraction, rotation, and interpretation. Principal Component Analysis (PCA) was used to obtain a clearer

factor structure and increased interpretability. Variables whose eigenvalues were above one were kept and those items with high factor loadings were then utilised to represent each construct. These analyses played a vital role in coming up with meaningful insights, supporting interpretation, and framing evidence-based recommendations.

For inferential analysis, the study used Confirmatory Factor Analysis (CFA) to test the measurement model and to confirm whether the observed variables adequately represented the pre-specified latent constructs for the proposed KMb framework. This technique, which is concept-driven, was used to assess the extent to which the conjectured factor structure fitted the empirical data. Consequently, CFA was an appropriate tool for validating constructs developed from prior theory or empirical literature. Variables with sufficiently high factor loadings were retained to represent each construct, while established indices were used to determine whether the proposed measurement model was supported by the data. These analyses played a vital role in generating meaningful insights, supporting interpretation, and framing evidence-based recommendations.

4.9.2 Analysis of qualitative data

As previously mentioned, qualitative data were collected and analysed using semi-structured interviews and thematic analysis derived from these discussions. Thematic analysis was particularly suitable for this study due to its adaptability and user-friendly approach to interpreting qualitative data obtained from research interviews (Castleberry & Nolen, 2018). In this regard, the interviews were audio-recorded with the participants' consent, after which the recordings were transcribed verbatim to ensure that the analysis was grounded in the exact words and meanings of the respondents. Where participants responded in Swahili or Kikuyu vernacular language, the recordings were first transcribed in the original language and then translated into English to preserve meaning and ensure consistency during analysis. To enhance accuracy, the translated transcripts were cross-checked against the audio recordings during transcription, and any unclear expressions were clarified immediately after the interview where necessary.

The qualitative findings were then presented using themes, codes, and quotations extracted from the participants' narratives. The analysis process began with the researcher repeatedly reading the transcripts to become familiar with the data. After that, a systematic coding process was used to find meaningful units of text and give them initial codes. Notably, the analysis of qualitative data was conducted manually, and no specialised qualitative data analysis software

was utilised. Instead, a rigorous and iterative process of manual coding and categorisation was employed to identify and refine the themes presented in this chapter. This allowed for a comprehensive and detail-orientated interpretation of the qualitative evidence.

According to Cohen, Manion, and Morrison (2018), coding is the process of assigning descriptive tags to pieces of data, which allows a researcher to identify, recall, and analyse similar data based on their respective codes. The initial codes were then manually compared, grouped, and refined into overarching themes that represented the patterns within the interviews. These themes were checked against the raw data to ensure they were coherent, internally consistent, and directly aligned with the study objectives. The analytical choices were guided by the need to capture participants' experiences with knowledge mobilisation in a clear and credible manner, while trustworthiness was enhanced through careful transcription, constant comparison of codes and themes, maintenance of an audit trail, and reflective checking by the researcher to minimise bias. In accordance with ethical research practices, permission was obtained from participants to record the interviews, as audio recordings constituted an essential component of the qualitative data analysis process.

4.9.3 Presentation of quantitative and qualitative data

As previously discussed, this study adopted a mixed methods research (MMR) approach to collect, analyse, and present data. A convergent triangulation MMR design was employed, enabling the simultaneous collection and examination of both quantitative and qualitative data from chairpersons of small-scale tea farmers, agribusiness researchers, agricultural extension officers, and management. For the quantitative analysis, the Statistical Package for the Social Sciences (SPSS), version twenty-seven (27) was utilised to analyse the quantitative results. The findings were further presented using frequencies, percentages, tables, charts, and diagrams. In contrast, qualitative data obtained from interviews and discussions were analysed thematically. As noted by Castleberry and Nolen (2018), thematic analysis is well-suited for interpreting qualitative data from research interviews due to its flexibility and ease of application. The qualitative findings were presented through themes, codes, and illustrative quotations derived from the participants' narratives.

Table 4.4 presents the class intervals used by the researcher to present, interpret, and discuss the findings from the Likert scale data. The use of this rating ensured that the percentages and weighted means were not only numerically analysed but also qualitatively interpreted, thereby offering a clearer understanding of the relative strength of the responses. Furthermore, the

application of class intervals enhanced the reliability of ranking by standardising the interpretation of mean values across the various constructs examined in the study.

Table 4.4: Ratings for interpretation of Likert-scale data

Percentage Range (%)	Mean range	Interpretation Category	Denotation
81 – 100	4.20–5.00	Very High	Indicates a very strong level of agreement, significance, or effectiveness.
61 – 80	3.40–4.19	High	Reflects a strong positive agreement, significance or effectiveness.
41 – 60	2.60–3.39	Moderate	Shows an average or neutral level of agreement, significance, or effectiveness.
21 – 40	1.80–2.59	Low	Suggests a weak or limited level of agreement, significance, or effectiveness.
0 – 20	1.00–1.79	Very Low	Represents minimal or no agreement, significance, or effectiveness.

Source: The researcher, 2023

4.10 Trustworthiness, validity, and reliability

This section discusses the trustworthiness, validity, and dependability of this research. These elements are important in any study, particularly in mixed-methods research that incorporates both qualitative and quantitative research elements. Consequently, the researcher had to demonstrate the dependability and validity of the quantitative data collection instruments and further establish the trustworthiness of the qualitative instruments. The following section provides a detailed discussion of these critical aspects.

4.10.1 Trustworthiness in the qualitative data collection instruments

Pratt, Kaplan, and Whittington (2020) define trustworthiness as the reader's ability to judge whether researchers are truthful in their methods and reasonable in their conclusions. In qualitative research, measures of trustworthiness aim to determine whether comparable outcomes would emerge if a different study were conducted using the same participants, interviewees, and conditions (Rose & Johnson, 2020). Qualitative scholars emphasise four key

criteria for establishing trustworthiness: dependability (often referred to as reliability), confirmability, credibility and applicability (Gunawan, 2015; Creswell & Clark, 2017). Dependability, akin to reliability, reflects the consistency with which findings can be replicated in qualitative research (Gunawan, 2015). Confirmability assesses the objectivity of result evaluation and the degree to which findings correspond to the actual data collected (Stahl & King, 2020). Credibility concerns the trustworthiness and believability of findings, commonly associated with internal validity (Creswell & Creswell, 2023). Applicability evaluates the extent to which qualitative research findings can be shared in similar contexts (Stahl & King, 2020).

In mixed-methods research employing a convergent design, trustworthiness is maintained through two central dimensions: inference quality and inference applicability. Inference quality concerns the rigour of conclusions drawn from both quantitative (QUAN) and qualitative (QUAL) findings, encompassing internal validity and the overall credibility of the research process (Vedel et al., 2019). In contrast, inference applicability focuses on the extent to which conclusions from a mixed-methods study can be generalised or applied across different contexts, populations, timeframes, and settings (Vedel et al., 2019). This study adopted a convergent triangulation mixed-methods design, where qualitative data were collected and analysed concurrently with quantitative data. Semi-structured interviews with agricultural extension officers and managers in the tea agribusiness sector were used to ensure that the data accurately reflected social realities, aligning with the perspectives of Creswell and Creswell, (2023).

4.10.2 Validity and reliability in quantitative studies

As previously stated, this study employed a mixed-methods research design, integrating quantitative and qualitative approaches for data collection and analysis. To ensure methodological rigour and enhance the credibility of the findings, the researcher was required to establish the reliability and validity of the quantitative instruments. The following sections elaborate on these two essential aspects of quantitative research.

4.10.2.1 Validity

Validity, as stated by Creswell and Creswell (2023), represents the extent to which a researcher can draw accurate and appropriate conclusions from various components of a study. In quantitative research, validity can be established through various methods, including face validity, content validity, construct validity, and criterion validity. Face validity determines whether a quantitative data collection tool, such as a questionnaire, appears to effectively

measure the intended concept at a surface level (Roopa & Rani, 2012). It involves assessing whether the responses align with the intended measurement. Content validity evaluates how well a tool covers all aspects of a given social concept (Hayashi, Abib, & Hoppen, 2019). According to Heale and Twycross (2015), construct validity evaluates how accurately a measurement tool captures the theoretical construct it intends to measure, while criterion validity examines the tool's ability to predict outcomes consistent with the variable being measured (Roopa & Rani, 2012). In this study, all four types of validity were applied to confirm the accuracy and appropriateness of the primary quantitative data collection instrument (structured questionnaire). The researcher ensured that all questionnaire items were derived from the reviewed literature and aligned with the study's objectives, thereby enhancing both content and construct validity.

4.10.2.2 Reliability

Reliability, according to Creswell and Creswell (2023), refers to the consistency of measurements obtained from a research instrument when applied under identical conditions to the same participants. In quantitative research, reliability is evaluated through three core criteria: test-retest reliability, internal consistency reliability, and inter-interviewer reliability (Creswell & Clark, 2017; Creswell & Creswell, 2023). Test-retest reliability examines the consistency of responses over time, evaluating whether a quantitative data collection instrument yields consistent scores when administered to the same respondents at different points (Roopa & Rani, 2012). Internal consistency assesses the reliability of a quantitative data collection tool (such as a structured questionnaire) by measuring the consistency of results among different items measuring the same construct (Hayashi, Abib, & Hoppen, 2019). Inter-interviewer reliability evaluates the extent to which different interviewers provide consistent interpretations of the same phenomenon, particularly in the case of interview-administered questionnaires (Roopa & Rani, 2012).

4.11 Ethical consideration

Ethical considerations such as informed consent, confidentiality, protection from harm, and participants, must be rigorously observed in any research, regardless of whether a qualitative, quantitative, or mixed-methods approach is adopted (Mutisya, 2017; Phaladi, 2021). The term ethics, in the context of scientific research, refers to the moral principles that guide the researchers' conduct regarding the rights and welfare of participants (Allen & Wiles, 2016). Saunders, Kitzinger and Kitzinger (2015) emphasise that access to research locations should be formally negotiated with relevant authorities or gatekeepers. Researchers are also expected to

be subtle in the research setting and to demonstrate respect and care toward the participants throughout the study period (Hasan et al., 2021). According to Ngulube (2022), ethical research practice requires integrity, impartiality, and respect at every stage of the scientific inquiry process.

For this study, access to the research areas was formally requested from the relevant authorities. Consistent with Saunders, Kitzinger and Kitzinger (2015) and Phaladi (2021), the researcher adhered to the core ethical principles of social and scientific research, namely: maintaining integrity and objectivity; respecting the rights and welfare of participants; disclosing study objectives transparently; preventing harm; ensuring privacy and confidentiality; obtaining informed consent; exercising responsibility in data analysis and reporting; upholding proper data management and storage protocols; and ensuring the researcher's safety and protection. Since social research inherently involves human interaction, researchers are obliged to uphold the highest ethical standards. As Hasan (2023) observes, ethical considerations relevant to both qualitative and quantitative research equally extend to mixed-methods designs, as these approaches integrate elements of both paradigms. Guided by the ethical principles articulated by Saunders, Kitzinger and Kitzinger (2015), Ngulube (2022) and Hasan (2023), this study ensured that all participants were treated with dignity and respect, were fully informed of the study's objectives and potential benefits, and were assured of the confidentiality of their responses.

In line with the University of South Africa (UNISA) Policy on Research Ethics (2024), which prohibits unethical research practices, participants were informed of their right to decline participation or withdraw from the study at any point without consequence. Owing to the sensitivity surrounding KMb and agribusiness practices, all data were handled with strict confidentiality and anonymity. Identifiable information was removed from the final reports, and all collected data were securely stored. Ethical clearance for the study was obtained from the College of Human Sciences Research Ethics Committee at UNISA and the Department of Information Science (Reference: Rec-240816-052; see Appendix E). Additionally, the researcher obtained a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI), Kenya (Ref. No.: 803308; see Appendix F), to conduct fieldwork in the study area. Informed consent was obtained from all participants prior to data collection. The study, therefore fully complied with institutional and professional standards governing ethical and responsible research conduct. The subsequent section provides a summary of Chapter Four.

4.12 Summary of the chapter

This chapter presented the key methodological issues that underpin the study. The chapter commenced by elaborating on the philosophical foundations that guided the adoption of pragmatism as the suitable research paradigm. As noted in the literature, three main paradigms have been identified: positivism, interpretivism, and pragmatism. The reviewed literature revealed that these paradigms differ ontologically, epistemologically, methodologically, and axiologically in their approach to enable researchers to understand research realities (Creswell & Creswell, 2017; Creswell & Plano Clark, 2023). Epistemologically, this research combined both subjective and objective aspects of investigation to achieve a comprehensive understanding of the KMb phenomenon. The qualitative strand explored and developed theoretical insights into KMb practices, while the quantitative component empirically tested and validated these insights. From a methodological standpoint, this chapter selected the mixed methods research (MMR) approach as the most suitable strategy for undertaking the research objectives and questions. The researcher believed that mixed methods research enhances methodological rigour by combining the advantages of qualitative and quantitative approaches, while also addressing their specific shortcomings, thereby providing a thorough and reliable insight into the research issue.

This chapter also detailed the application of a convergent mixed methods design, which allowed for the simultaneous collection and analysis of both qualitative and quantitative data. The research techniques employed included semi-structured interviews and survey questionnaires, which were designed using multiple choice questions and Likert scale. The sampling techniques employed in the study included cluster sampling, census sampling, and stratified random sampling, which ensured representativeness across the different groups of respondents, namely small-scale tea farmers, agribusiness researchers, managers, and agricultural extension officers. The benefits and drawbacks of each approach were evaluated to support their inclusion in the study. Finally, the chapter addressed issues related to validity, reliability, and ethical considerations. These issues were considered integral to ensuring that the study findings are credible and trustworthy. The subsequent chapter presents and analyses the findings derived from the questionnaire responses and conducted interviews, thereby implementing the research strategy and methods outlined in this chapter.

CHAPTER FIVE
PRESENTATION AND ANALYSIS OF RESULTS

5.1 Introduction

The previous chapter discussed the research methodology adopted in this study. This chapter presents findings from a structured research approach that used questionnaires for quantitative data and semi-structured interviews for qualitative data. As previously stated, this study used a mixed-methods research (MMR) methodology, which, according to multiple scholars, comprises collecting and combining quantitative and qualitative data within one study concurrently or in phases (Creswell & Clark, 2017; Kandel, 2020; Ngulube, 2021). In particular, the current study used a concurrent mixed method design, an MMR variant that involves collecting and analysing quantitative and qualitative data together within a single phase (Creswell & Clark, 2017). More specifically, the contemporary study employed a convergent triangulation MMR design that enabled simultaneous collection and analysis of quantitative and qualitative data (Creswell & Clark, 2017). The findings were then compared, integrated, and synthesised during the interpretation phase.

In this context, the researcher began by presenting empirical evidence using the convergent triangulation MMR design, where quantitative data from surveys and qualitative data from interviews were analysed concurrently. The data collected through questionnaires distributed to the chairpersons of small-scale tea farmers and agribusiness researchers formed the core of this study. Meanwhile, qualitative responses from interviews with agricultural extension officers and managers supported the quantitative findings. The questionnaire contained a mixture of questions, such as a Likert scale and multiple-choice questions. The quantitative findings were presented using tables and figures, and analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 27. Descriptive and inferential statistics were examined via means, percentages, and frequencies. The objectives stated in chapter one have been restated below:

1. To establish the nature of knowledge produced and mobilised for small-scale tea farmers in Murang'a County.
2. To identify the knowledge collaborators involved in KMb for small-scale tea farmers in Murang'a County.
3. To explore the strategies used for KMb for small-scale tea farmers in Murang'a County.
4. To assess the indicators of KMb for small-scale tea farmers in Murang'a County.

5. To examine the factors influencing KMb for small-scale tea farmers in Murang'a County.
6. To propose a framework to enhance KMb for small-scale tea farmers in Murang'a County.

The following sections contextualised the approach used in presenting the research findings.

5.2 Presentation of the quantitative findings from the survey questionnaire

This section of the study is devoted to examining the quantitative data gathered. The researcher used descriptive and inferential statistics to analyse the data and answer research questions. The data was collected using survey tools. Participants were provided with illustrative statements related to each variable in the study and were instructed to show their level of agreement or disagreement on a 5-point Likert scale or by selecting the variable that applies to them.

5.2.1 Response rate

As mentioned earlier, this section presents the analysis of the quantitative data collected. The researcher applied both descriptive and inferential statistics to address the research questions. Data were obtained through survey instruments, where participants responded to illustrative statements for each study variable by indicating their level of agreement on a 5-point Likert scale or by selecting the applicable option. Questionnaires were administered to the chairpersons of small-scale tea farmers and agribusiness researchers. For the cluster of chairpersons small-scale tea farmers, the researcher engaged chairpersons of tea leaf buying centres, who acted as key informants. The researcher also used a self-administered approach to accommodate varied literacy levels, explaining questions in a familiar language and recording responses to enhance accuracy and inclusivity. All questionnaires were delivered personally, and any lost copies were promptly replaced. In total, 43 of the 55 questionnaires were fully completed and returned, reflecting a 78.2% response rate (see Table 5.1).

Table 5.1: Response rate

Sample (n)	**Questionnaires distributed**	**Response retrieved**	**Response percent**
Chairpersons of small-scale tea farmers	39	29	74.4%
Agribusiness researchers	16	14	87.5%
Total response rate	55	43	78.2%

Source: Field data, (2024)

Agribusiness researchers recorded the highest response rate among the two categories at 87.5% (14 out of 16 persons), while chairpersons of small-scale tea farmers followed with a 74.4% response rate (29 out of 39 persons). In general, 43 out of the 55 distributed questionnaires were completed and returned. This yielded a response rate of 78.2%, which was deemed adequate for this study and further aligns with comparable studies.

5.2.2 Biographical data of the respondents

As noted earlier, 43 of the 55 distributed questionnaires were fully completed, resulting in a 78.2% response rate. Of these, 29 respondents were chairpersons of small-scale tea farmers (74.4%) and 14 were agribusiness researchers (87.5%). The researcher further analysed participants' cluster, gender, age, education level, and experience in the tea farming sector. The subsequent sections present these findings.

Table 5.2: Biographical data of the respondents (N=43)

	Respondent attributes	Frequency(f)	Percent (%)
Category of respondents	Chairpersons of small-scale tea farmers	29	67.4%
	Researchers	14	32.6%
Gender of respondents	Female	15	34.9%
	Male	28	65.1%
Age of respondents	21-30	2	4.7%
	31-40	11	25.6%
	41-50	19	44.2%
	51-60	10	23.3%
	61 and above	1	2.3%
Number of years in tea farming	1-5	3	7.0%
	6-10	8	18.6%
	11-15	14	32.6%
	16-20	14	32.6%
	Over 20	4	9.3%
Qualification of respondents	Secondary	11	25.6%
	College	12	27.9%
	Bachelors	11	25.6%

	Masters	7	16.3 %
	PhD	2	4.7%

Source: Field data (2024)

5.2.2.1 Respondents grouping

The quantitative study sample comprised two primary respondent clusters, each representing key actors in the KMb ecosystem. As shown in Table 5.1, most of the respondents (29 or 67.4%) were chairpersons of small-scale tea farmers, while the remaining 32.6% (14 respondents) were agribusiness researchers. The total number of valid responses was therefore 43.

5.2.2.2 Gender distribution of respondents

Table 5.2 shows a clear gender imbalance among the survey respondents. The data reveals that men were the majority, comprising 28 out of 43 (65.1%) compared to 15 out of 43 (34.9%) for women. These statistics indicate that men were more actively involved in small-scale tea farming activities.

5.2.2.3 Age distribution of respondents

The next question sought to determine the age distribution of small-scale tea farming stakeholders, specifically small-scale tea farmers and agribusiness researchers. The findings, as presented in Table 5.2, show that 19 respondents (44.2%) were aged between 41 and 50 years. This group was followed by those aged 31–40 years at 25.6% (11 respondents), 51–60 years at 23.3% (10 respondents), 21–30 years at 4.7% (2 respondents), and those aged over 61 years at 2.3% (1 respondent).

5.2.2.4 Experience of respondents

The next question sought to establish the number of years that the respondents had been involved in tea farming or agribusiness. The respondents were required to tick the duration that best categorised their experience in the small-scale tea farming sector, either as farmers or researchers. From the findings given in Table 5.2, 14 respondents (32.6%) indicated that they had been involved in tea farming for 11 to 15 years. Another 14 respondents (32.6%) also possessed experience of 16 to 20 years. Together, these two groups constituted 28 respondents (65.1%) of the sample. This shows that the respondents are very experienced and knowledgeable in the tea agribusiness industry. The data also shows that 8 respondents (18.6%) possessed experience of 6–10 years. Likewise, 3 respondents (7.0%) reported having experience of 1–5 years in the small-scale tea farming sector. Lastly, the most experienced

category of respondents was represented by only 4 respondents (9.3%), who indicated having 20 or more years of experience.

5.2.2.5 Qualifications of respondents

The study also examined the level of education of the respondents. As shown in Table 5.2, the findings indicate that the level of education of the surveyed respondents was relatively high. The largest group had attained post-secondary qualifications, with 12 respondents (27.9%) holding college level education and 11 respondents (25.6%) possessing a bachelor's degree. A further 7 respondents (16.3%) had master's level qualifications, while 2 respondents (4.7%) had completed doctoral studies. In addition, 11 respondents (25.6%) indicated secondary school as their highest level of formal education.

5.2.3 Types of knowledge produced and utilised for small-scale tea farmers

The nature of knowledge is the first variable as per the conceptual framework. It pertains to the first objective of the study, which is to establish the type of knowledge produced and mobilised for small-scale tea farmers in Murang'a County. As discussed in Chapter Two, this variable refers to the resources essential for KMb, highlighting the specific knowledge types developed for small-scale tea farmers. It also reveals the reasons behind their creation, sharing, mobilisation and application. In this study, the nature of knowledge variable was examined through the perspectives of Torres and Steponavičius (2022) and Smith (2020), who explored the application of various knowledge types in agriculture, particularly using the SECI and Ward models. The findings are presented under the following knowledge types: tacit, explicit, and embedded, as shown in the subsequent sub-sections.

5.2.3.1 Tacit knowledge

The first question in this sub-section of the survey sought to identify the types of tacit knowledge relevant to small-scale tea farmers and how this knowledge could be created, shared, mobilised, or applied. Respondents were provided with statements about tacit knowledge and asked to indicate their agreement by selecting the tacit knowledge types that applied to them. The results are presented in Table 5.3 as frequencies and percentages of the different types of tacit knowledge identified.

Table 5.3: Types of tacit knowledge (N = 43)

Types of tacit knowledge (N=43)	Frequency (f)	Percentage (%)

Knowledge of land preparation and management	43	100.0%
Knowledge of seeds and seedlings	20	46.5%
Knowledge of tea leaf harvesting, processing, and marketing	43	100.0%
Knowledge of tea farming technology, innovation, and value addition	38	88.4%
Knowledge of weed and pest management	43	100.0%
Knowledge of environmental management	42	97.7%
Other types of knowledge	0	0.0%
Which of this tacit knowledge is created, shared, or applied (N=43)	**Frequency (f)**	**Percentage (%)**
Land preparation and management	43	100.0%
Tea seeds and seedlings	34	79.1%
Tea leaf harvesting, processing, and marketing.	43	100.0%
Tea farming technology, innovation, and value addition	27	62.8%
Weed and pest control and management.	38	88.4%
Environmental management	37	86.0%
Frequently asked questions (FAQ)	34	79.1%
Other	0	0.0%
How the tacit knowledge is accessed (N=43)	**Frequency (f)**	**Percentage (%)**
Via experience and lessons learned	43	100.0%
Via storytelling events	30	69.8%
Via podcasts, forums and talk shows	43	100.0%
Via communities of practice	14	32.6%
Via tutoring and mentoring	43	100.0%
Any other	3	7.0%

Source: Field data (2024)

The findings in Table 5.3 reveal a strong presence and application of tacit knowledge across key domains of small-scale tea farming. All 43 respondents (100%) agreed that tacit knowledge on land preparation and management, tea leaf harvesting, processing, and marketing, as well as

weed and pest control, applied to their tea farming and agribusiness practices. This suggests that these knowledge types were widely recognised, generated, and applied by the small-scale tea farmers. Following closely, tacit knowledge on environmental management was very highly acknowledged, with 42 respondents (97.7%) affirming its relevance. Similarly, 38 respondents (88.4%) indicated that they were familiar with tea farming technology, innovation, and value addition. When respondents were asked about which forms of tacit knowledge they actively created, shared, or applied, all 43 respondents (100%) indicated that tacit knowledge on land preparation and management, and tea leaf harvesting, processing, and marketing were essential for their small-scale tea farming practices.

The survey results further indicate that 38 respondents (88.4%) acknowledged the role of tacit knowledge related to weed and pest management. Not far behind, 37 respondents (86.0%) recognised the importance of tacit knowledge on environmental management. Moreover, 34 respondents (79.1%) highlighted the relevance of tacit knowledge on tea seeds and seedlings. An equal number of 34 respondents (79.1%) pointed out that tacit knowledge is often manifests as frequently asked questions (FAQs). A total number of 27 respondents (62.8%) selected tacit knowledge related to technology, innovation, and value addition. In terms of platforms for accessing tacit knowledge, all 43 respondents (100%) affirmed that tacit knowledge was primarily accessed through personal experiences and lessons learned, podcasts, forums, and talk shows, besides tutoring and mentoring. Moreover, other platforms for accessing tacit knowledge showed varying levels of responses. For example, storytelling events were reported by 30 respondents (69.8%), communities of practice by 14 respondents (32.6%), and other informal approaches by 3 respondents (7.0%). While these figures are comparatively modest, they indicate that such platforms are beginning to gain traction among small-scale tea farmers.

5.2.3.2 Explicit knowledge

The next type of knowledge examined in this study was explicit knowledge, which, according to Johnson et al. (2019), refers to formal, tangible knowledge stored in documents, databases, websites, and portals. Respondents were asked to identify the sources they use to access explicit knowledge related to tea farming, how they access this knowledge, and how they integrate tacit and explicit knowledge into their daily farming practices. The findings are presented in Table 5.4 below.

Table 5.4: Sources of explicit knowledge relevant to small-scale tea farmers (N = 43)

Sources of explicit knowledge (N=43)	Frequency (f)	Percentage (%)

Research reports	43	100.0%
Scholarly journal articles	38	88.4%
Handbooks and manuals	43	100.0%
Newspaper and magazine articles	14	32.6%
Online platforms such as Blogs, websites and portals	43	100.0%
Any other, please specify	0	0.0%
How the explicit knowledge is accessed (N=43)	**Frequency (f)**	**Percentage (%)**
Through workshops, seminars and conferences	43	100.0%
Through intranets and extranets	25	58.1%
Through knowledge fairs and exhibitions	42	97.7%
Through project reviews	14	32.6%
Through online platforms such as Blogs, websites and portals	37	86.0%
Through other sources	0	0.0%
Integrating tacit and explicit knowledge into tea farming practices (N=43)	**Frequency (f)**	**Percentage (%)**
Through entrenching them in processes and routines.	42	97.7
Through integrating them using information technologies (IT) tools	43	100.0
Through entrenching them in products.	31	72.1%
Through integrating the culture of developing, sharing and utilisation of both types of knowledge	16	37.2%
Other	4	9.3%

Source: Field data (2024)

Responses regarding explicit knowledge sources varied across categories. As presented in Table 5.4, the study found that all 43 respondents (100%) identified research reports, handbooks and manuals, and online platforms (such as blogs, websites, and portals) as key sources of

explicit knowledge. Similarly, scholarly journal articles are equally frequently consulted, with 38 respondents (88.4%) identifying them as important. Traditional media channels, such as newspaper articles and magazine articles, are less used, as indicated by only 14 respondents (32.6%). No other sources of explicit knowledge are identified beyond the listed categories.

With respect to how explicit knowledge is accessed, the findings indicate that workshops, seminars, and conferences are the most preferred avenues for engaging with explicit knowledge, as they were selected by all 43 respondents (100%). Similarly, 42 respondents (97.7%) identified knowledge fairs and exhibitions as the second most widely accessed explicit knowledge, highlighting the value of face-to-face knowledge dissemination forums. Another equally substantial proportion of 37 respondents (86.0%) also accessed explicit knowledge through online platforms such as blogs, websites, and portals. These three prominent methods are favoured due to their interactive nature, enabling the small-scale tea farmers to engage directly with experts, pose questions, and participate in practical demonstrations. Only 25 respondents (58.1%) and 14 respondents (32.6%) reported accessing explicit knowledge using intranets and extranets, and project reviews.

Finally, on examining how tacit and explicit knowledge were integrated into tea farming practices, several structured approaches emerge from the findings. All 43 respondents (100%) reported integrating knowledge through information technology (IT) tools as an ideal approach for enhancing KMb practices. A significant number of 42 respondents (97.7%) and 31 respondents (72.1%) reported integrating both tacit and explicit knowledge into their tea farming practices through processes and routines, and products. These findings reflect efforts to institutionalise tacit and explicit knowledge into tea farming daily operations and enhance value addition and innovation in the tea farming sector. However, 16 respondents (37.2%) reported fostering a culture of developing, sharing, and utilising both tacit and explicit knowledge, suggesting that while technical and process integration is well established, the cultural and behavioural dimensions of KMb may require further strengthening. Only 4 respondents (9.3%) reported using other alternative integration methods, indicating limited diversity in the strategies currently employed for integrating both tacit and explicit knowledge.

5.2.3.3 Embedded knowledge

This subsection presents findings on the sources through which embedded knowledge relevant to tea farming practices is accessed. The survey results are summarised in Table 5.5, listed by frequency and percentage.

Table 5.5: Embedded knowledge relevant to small-scale tea farmers (N = 43)

Embedded knowledge relevant to small-scale tea farmers (N=43	Frequency (f)	Percentage (%)
Processes	43	100.0%
Products	43	100.0%
Cultural norms	17	39.5%
Routines	16	37.2%
Artefacts	40	93.0%
Structures	19	44.2%
Other	0	0.0%

Source: Field data (2024)

The study, as shown in Table 5.5, finds that small-scale tea farmers rely on a wide range of embedded knowledge products. All 43 respondents (100%) identified processes and products as their primary sources of embedded knowledge, which indicates that they are central to the daily operations of the small-scale tea farmers. Additionally, 40 respondents (93.0%) acknowledged accessing embedded knowledge through artefacts, such as tools, equipment, and physical documentation. Furthermore, 19 respondents (44.2%) identified organisational structures, 17 (39.5%) cultural norms, and 16 (37.2%) routines as the primary sources through which embedded knowledge is accessed. No additional forms of embedded knowledge are reported beyond those listed.

5.2.3.4 Other knowledge aspects

The following subsection aims to explore additional factors influencing the creation, sharing, transfer, and mobilisation of various knowledge types for small-scale tea farmers. The researcher examined three key areas: first, the role of information technology (IT) in supporting knowledge management; second, the respondents' participation in knowledge-sharing activities; and third, the methods or platforms they use to disseminate knowledge. These aspects are summarised in Table 5.6 below.

Table 5.6: Other knowledge aspects (N = 43)

The role of information technology (IT) in aiding KM (N=43)	Frequency (f)	Percentage (%)

They aid in mapping the diverse knowledge domains within an organisation	30	69.8%
They serve as a supportive platform for facilitating and enhancing organisational processes and cultures	42	97.7%
They support the reverse engineering of products to unveil concealed embedded knowledge	11	25.6%
They integrate both tacit and explicit knowledge to form embedded knowledge	19	44.2%
Other, please specify	0	0.0%
Participation in knowledge-sharing activities (N=43)	**Frequency (f)**	**Percentage (%)**
Do you actively participate in knowledge-sharing activities within your local tea-farming community	17	39.5%
Methods or platforms utilised to disseminate knowledge among small-scale tea farmers (N=43)	**Frequency (f)**	**Percentage (%)**
Intranet and extranets	16	37.2%
Online platforms such as Blogs, websites, portals and repositories	43	100.0%
Communities of practice (CoP)	25	58.1%
Storytelling and mentoring	16	37.2%
Training and learning platforms	43	100.0%
Other	0	0.0%

Source: Field data (2024)

On the role of information technology (IT) in knowledge management, the study reveals that IT plays a critical role in supporting KM practices within the small-scale tea farming sector. Forty-two respondents (97.7%) specified that IT supports organisational processes and cultures, which underscores its critical role in developing platforms that facilitate effective KM and enable smoother integration of knowledge into routine activities in the tea farming sector. The survey results further indicate that 30 respondents (69.8%) acknowledged that IT is

instrumental in mapping the diverse knowledge areas within organisations. They pointed out that IT provides a solid framework for accessing and sharing knowledge and expertise. However, only 19 respondents (44.2%) felt that IT successfully integrates tacit and explicit knowledge. Furthermore, just 11 respondents (25.6%) agreed that IT aids in reverse processes to uncover embedded knowledge. When asked whether they had ever participated in knowledge-sharing activities, 17 respondents (39.5%) indicated that they are actively involved in local knowledge-sharing activities with other small-scale tea farmers.

The study also examined the methods and platforms utilised to share, disseminate, and apply knowledge for small-scale tea farmers. The findings show that training and learning platforms, as well as online tools (such as blogs, websites, and portals), are used widely, as indicated by all 43 respondents (100%). The respondents agreed that IT tools facilitate continuous learning, communication, and knowledge sharing, and provide instant access to invaluable knowledge resources. These platforms are followed by communities of practice (CoPs), which were selected by 25 respondents (58.1%), indicating a moderate uptake of collaborative learning platforms in the small-scale tea farming sector. However, only 16 respondents (37.2%) reported using intranets and extranets, and stories and mentoring as their preferred platforms for sharing tea farming knowledge.

5.2.4 Collaborators involved in KMb for small-scale tea farmers

Participants in the questionnaire survey were asked to identify the knowledge collaborators involved in the KMb process for small-scale tea farmers. The researcher outlined the categories of knowledge collaborators relevant to this study to assist respondents, and asked them to select all they recognised or were familiar with. These categories, derived from the study's objectives and conceptual framework discussed in earlier chapters, include knowledge creators, knowledge mobilisers, knowledge champions, and knowledge consumers. Each of these categories is elaborated upon in the following sections.

5.2.4.1 Knowledge creators

Table 5.7 presents the participants' responses, showing how frequently they selected the various knowledge creators and their contributions to knowledge creation.

Table 5.7: Knowledge creators (N = 43)

Persons or entities that play an active role in generating new knowledge	Frequency (f)	Percentage (%)

Agribusiness researchers and scholars	39	90.7%
Small-scale tea farmers	32	74.4%
Agricultural extension officers	34	79.1%
Managers of institutions of higher learning	4	9.3%
Tea Research and Development Institutes	42	97.7%
Other persons or entities	0	0.0%
Knowledge creators' contribution to generating new knowledge for the benefit of small-scale tea farmers	**Frequency (f)**	**Percentage (%)**
Creating or generating new knowledge	41	95.3%
Sharing and exchanging knowledge	41	95.3%
Combining and converting various knowledge types.	37	86.0%
Establishing collaborations and partnerships with farmers.	35	81.4%
Utilising knowledge and user feedback to generate new knowledge	40	93.0%
Other	0	0.0%

Source: Field data (2024)

Table 5.7 presents the following findings: The data indicate that 42 respondents (97.7%) identified Tea Research and Development Institutes as key contributors to generating new knowledge for small-scale tea farmers. The survey further reveals that 39 respondents (90.7%) acknowledged the significant role of agribusiness researchers and scholars in knowledge creation. These two groups were viewed as essential units for advancing agricultural expertise through their research and innovative practices. Additionally, 34 respondents (79.1%) credited agricultural extension officers for their active contribution to knowledge generation and close interactions with both researchers and farmers. Similarly, 32 respondents (74.4%) stated that small-scale tea farmers play a considerable role in creating new knowledge, especially through their practical experiences and local knowledge-sharing. Only 4 respondents (9.3%) indicated that managers of institutions of higher learning contribute meaningfully to generating new

knowledge. This result could reflect the perception that these managers focus more on administrative roles than direct involvement in research or agricultural practices.

In the context of how knowledge creators contribute to generating new knowledge, 41 respondents (95.3%) noted that creating or generating new knowledge and sharing or exchanging knowledge are critical activities undertaken by knowledge creators. The data indicate that these two activities form the backbone of effective KMb in the small-scale tea farming sector. Another relatively high share of 40 respondents (93.0%) acknowledged the role of farmer feedback in shaping new knowledge. They noted that this iterative process helps ensure relevance and continuous improvement. This finding further suggests that the process ensures that the knowledge remains relevant and keeps improving according to the farmers' needs. Another 37 respondents (86.0%) cited that combining and converting various types of knowledge is equally important. A noticeable share of 35 respondents (81.4%) stated that building collaborations and partnerships with small-scale tea farmers is a key part of the knowledge-generation process. The respondents felt that these collaborations enable knowledge creators to receive real-time feedback from farmers, which drives innovation that directly supports small-scale tea farming processes. No additional knowledge creators were identified beyond those already listed.

5.2.4.2 Knowledge disseminators

In the context of knowledge disseminators and their interface with small-scale tea farmers, two key aspects were highlighted: identifying the leading implementers responsible for disseminating knowledge and understanding how these mobilisers engaged with small-scale tea farmers to share and disseminate knowledge. Table 5.8 presents the survey responses.

Table 5.8: Knowledge disseminators (N = 43)

Key knowledge disseminators	**Frequency (f)**	**Percentage (%)**
Knowledge creators	33	76.7%
Knowledge mobilisers	33	76.7%
Knowledge champions	37	86.0%
Knowledge consumers	43	100.0%
Other knowledge disseminators	0	0.0%
How these knowledge disseminators engage with the small-scale tea farmers	**Frequency (f)**	**Percentage (%)**
They drive knowledge into actionable practice.	38	88.4%

They promote knowledge exchange among researchers, policymakers, and farmers.	40	93.0%
They bridge the gap between researchers and small-scale tea farmers	25	58.1%
They develop guidelines for agribusiness researchers and small-scale tea farmers to create, exchange, and use knowledge.	36	83.7%
Other engagement methods	0	0.0%

Source: Field data (2024)

The study identified various actors responsible for disseminating knowledge to the small-scale tea farmers. Table 5.8 shows that knowledge consumers emerged as the most dominant category of knowledge disseminators, since all 43 respondents (100.0%) selected the option. Respondents acknowledged the primary role of knowledge consumers as the recipients and disseminators of the knowledge they acquire. Knowledge champions were closely followed, with 37 respondents (86.0%) indicating their important role in knowledge sharing and dissemination. Both knowledge creators and knowledge mobilisers received 33 responses (76.7%), which asserts how crucial the disseminators are in the processes of creating, transferring, and sharing knowledge. By comparison, no respondents identified other knowledge mobilisers as key.

Regarding how knowledge disseminators engage with small-scale tea farmers, 40 respondents (93.0%) indicated that promoting knowledge exchange among researchers, policymakers, and farmers was the most effective method. Turning knowledge into actionable practices was also prominent, with 38 responses (88.4%), which reflects the structured nature of knowledge dissemination. Additionally, 36 respondents (83.7%) chose developing guidelines for knowledge creation, exchange, and use. However, 25 respondents (58.1%) identified the option of bridging the gap between researchers and small-scale farmers as effective, which indicates an area for potential improvement in connecting research to practice.

5.2.4.3 Knowledge champions

This subsection presents the findings on the role of knowledge champions in promoting knowledge creation, mobilisation, sharing, and exchange for small-scale tea farmers. The study examined the activities and initiatives implemented by these knowledge champions to encourage knowledge sharing and uptake. The survey results are presented in Table 5.9.

Table 5.9: Knowledge champions (N = 43)

Knowledge champions	Frequency (f)	Percentage (%)
Have any persons been acknowledged for advocating or promoting KMb practices within the tea farming community	7	16.3%
Initiatives that the knowledge champions implement to encourage knowledge sharing and uptake	**Frequency (f)**	**Percentage (%)**
They facilitate small-scale tea farmers to acquire and exchange knowledge	42	97.7%
They promote knowledge creation, exchange and uptake	42	97.7%
They facilitate training, coaching and learning initiatives for the farmers	40	93.0%
They manage knowledge (physical and automated)	33	76.7%
Other initiatives	3	7.0%

Source: Field data (2024)

The findings in Table 5.9 reveal that 7 respondents (16.3%) acknowledged knowing individuals recognised for advocating KMb practices. This implies that, although the contribution of knowledge champions is worth appreciating, their impact is less acknowledged in the small-scale tea farming sector. Regarding the initiatives that facilitate knowledge uptake and sharing, 42 respondents (97.7%) concurred that knowledge champions play a crucial role in assisting small-scale tea farmers to acquire and exchange knowledge. A similar number of 42 respondents (97.7%) mentioned that knowledge champions facilitate knowledge creation and adoption, which results in the development of a learning culture and continuous improvement for the farmers. Furthermore, 40 respondents (93.0%) reported that knowledge champions play instrumental roles as champions of training and education programmes, which highlights their pivotal role in enabling capacity building. A slightly lower but considerable number of 33 respondents (76.7%) noted that these champions are involved in managing both physical and digital knowledge systems. In contrast, only 3 respondents (7.0%) identified alternative knowledge-sharing initiatives, such as responding to team members' inquiries and addressing farmers' needs.

5.2.4.4 Knowledge consumers

This subsection presents the findings on the role of small-scale tea farmers as knowledge consumers in the KMb process. The survey results are presented in Table 5.10.

Table 5.10: Knowledge consumers (N = 43)

The role of small-scale tea farmers in the process of mobilising knowledge	Frequency (f)	Percentage (%)
Partaking and utilising knowledge	43	100.0%
Accessing, sharing, and exchanging knowledge	40	93.0%
Integration of knowledge into their daily tea farming practices	41	95.3%
Acquiring and learning new knowledge and innovations	42	97.7%
Other role	5	11.6%

Source: Field data (2024)

The findings indicate that small-scale tea farmers play a multifaceted role in the KMb process within the tea farming sector. All 43 respondents (100%) reported that the farmers are the central end-users of agribusiness knowledge and are directly involved in partaking and utilising knowledge. A significant proportion of the respondents recognised the active role of small-scale tea farmers in KMb. In particular, 42 respondents (97.7%) acknowledged the role of the farmers in acquiring and learning from new knowledge and innovations; 41 respondents (95.3%) indicated that the farmers integrate knowledge into their daily farming practices; and 40 respondents (93.0%) specified that the farmers participate in accessing, sharing, and exchanging knowledge. In contrast, a smaller number of 5 respondents (11.6%) cited other unspecified roles.

5.2.5 KMb strategies for small-scale tea farmers

This section presents the statistical analysis of the responses linked to the third objective of this study, which was to explore the strategies used for KMb for small-scale tea farmers. KMb strategies encompass a range of activities, including the creation, dissemination, transfer, sharing, and adoption of knowledge (Sales et al., 2024). To assess these strategies, participants were requested to provide their input on several issues: the knowledge products, networks, and events developed or utilised to support small-scale tea farmers; how these elements facilitate knowledge dissemination, sharing, and transfer; and the effectiveness of technology in enhancing KMb. The findings are presented in the subsequent sections.

5.2.5.1 Knowledge products

Respondents were asked to identify the knowledge products developed or utilised to support small-scale tea farmers by selecting all applicable options. The responses were analysed using percentages. Figure 5.1 presents the results of this analysis.

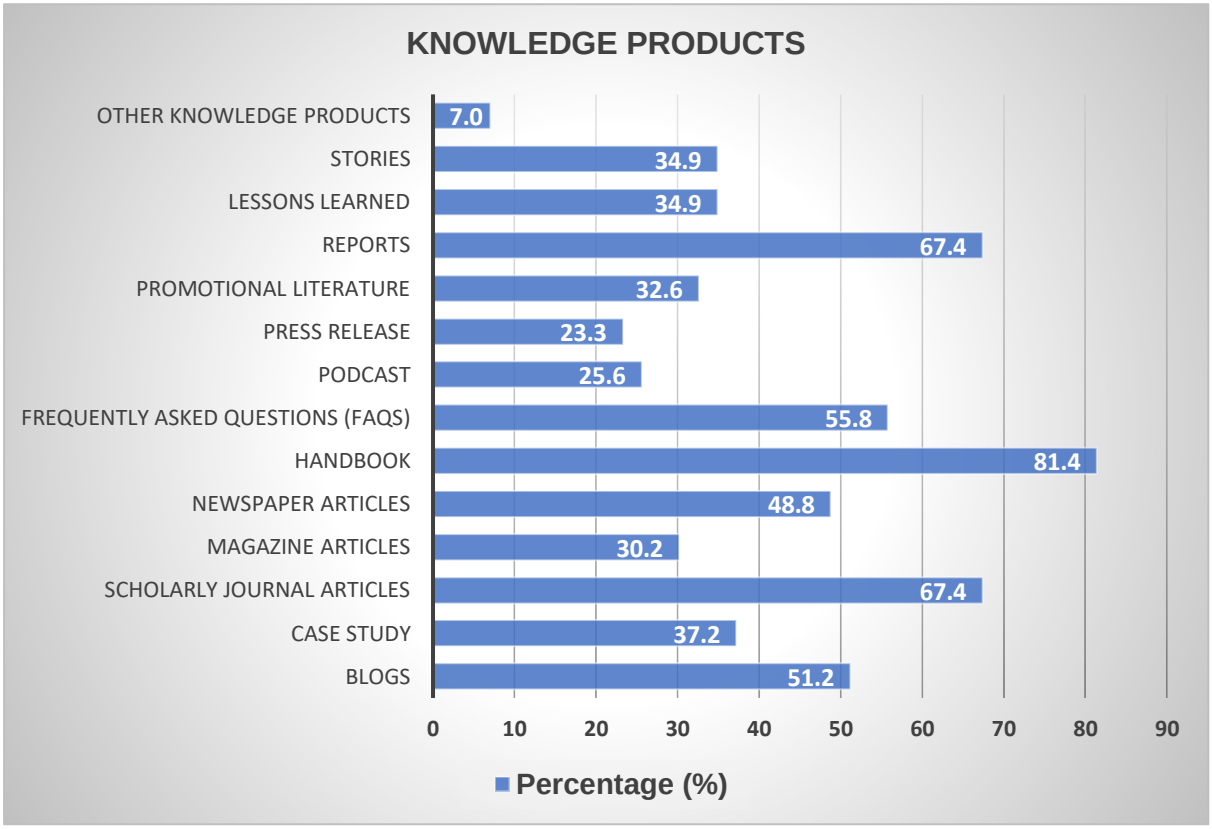


Figure 5.1: Knowledge products (N = 43)

Source: Field data (2024)

The data show that small-scale tea farmers use certain knowledge products more widely than others to support their KMb activities. Handbooks emerged as the most popular knowledge products, with 81.4% of respondents acknowledging their use. This was closely followed by scholarly journal articles and reports, with 67.4% of the respondents selecting them as valuable knowledge products. These findings imply that small-scale tea farmers rely on formal and evidence-based information to support their tea farming practices. The responses also indicate that the knowledge products that are moderately ranked include frequently asked questions (55.8%), blogs (51.2%), and newspaper articles (48.8%). This indicates that both informal and mainstream media sources play a complementary role in knowledge dissemination. On the other hand, the data further show that case studies (37.2%), lessons learned (34.9%), stories (34.9%), promotional literature (32.6%), magazine articles (30.2%), podcasts (25.6%), and press releases (23.3%) were selected by a small proportion of the respondents. Notably, other knowledge

products are infrequently utilised, as only 7.0% of respondents reported using them. These findings on other knowledge products underscore the limited diversity in the knowledge products besides the main categories cited by the respondents.

5.2.5.2 Knowledge events

The study also sought to identify the knowledge events developed or utilised as strategies to enhance small-scale tea farmers' access to tea farming knowledge. Participant responses were analysed and are presented as percentages in Figure 5.2.

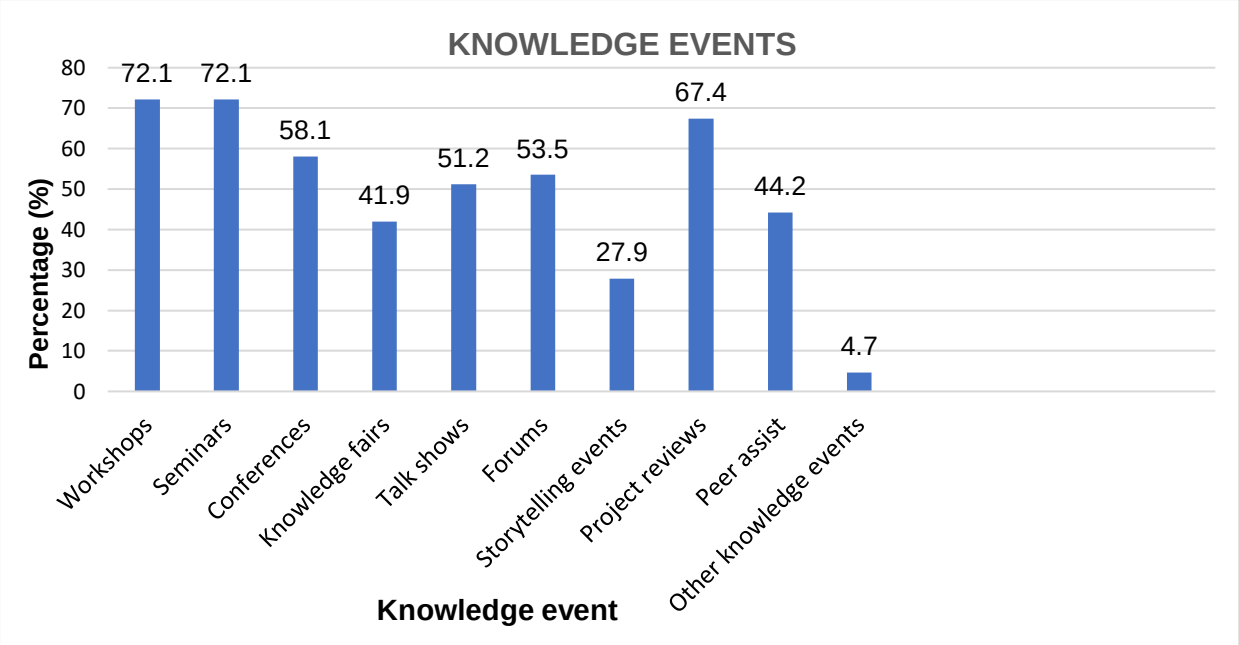


Figure 5.2: Knowledge events (N = 43)

Source: Field data (2024)

The analysis of knowledge events used for small-scale tea farmers reveals that 72.1% of the participants selected workshops and seminars as the most utilised knowledge events, which indicates their popularity, recognition, and effectiveness in facilitating knowledge transfer and engagement among the farmers. Similarly, project reviews (67.4%) were also popular, which indicates their role as significant platforms for knowledge dissemination among small-scale tea farmers. Conferences, talk shows, and forums were moderately recognised by 58.1%, 51.2%, and 53.5%, respectively. These events serve as additional but not primary platforms for engaging small-scale tea farmers. Peer assist was identified by 44.2% of the respondents, knowledge fairs by 41.9%, and storytelling events by 27.9%. A small percentage of respondents (4.7%) selected other knowledge-sharing events (such as training programmes, coaching,

mentoring, and counselling) as alternative avenues for small-scale tea farmers to exchange knowledge.

5.2.5.3 Knowledge networks

Respondents were asked to share their perspectives on the knowledge networks that were developed or utilised among small-scale tea farmers. The responses were analysed using percentages based on frequency data. The results of this analysis are presented in Figure 5.3.

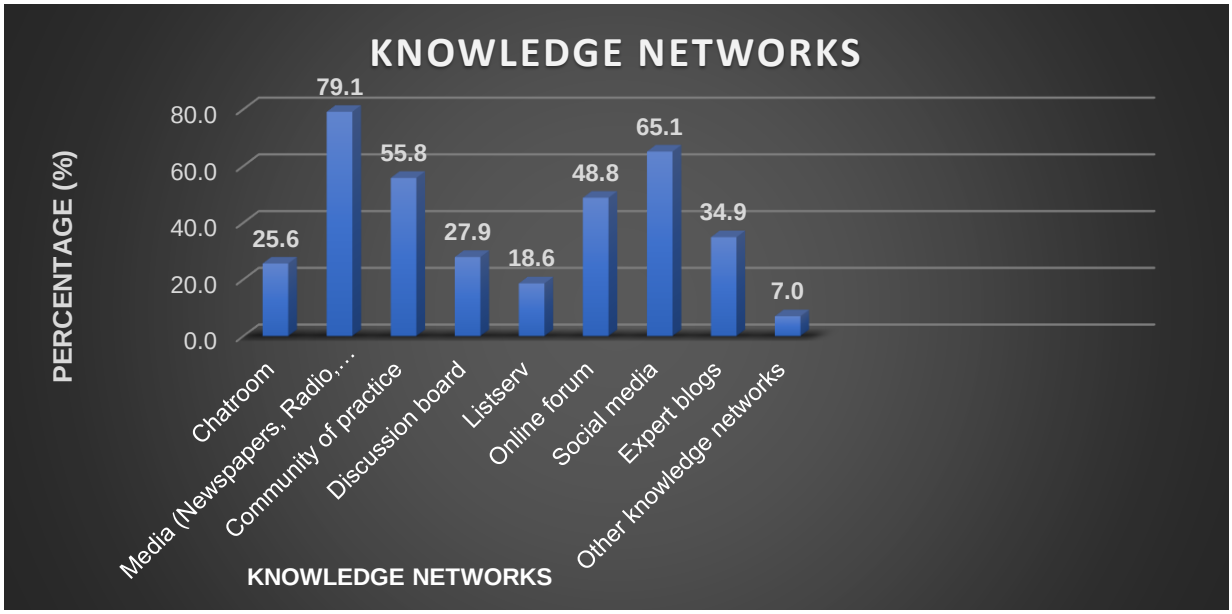


Figure 5.3: Knowledge networks (N = 43)

Source: Field data (2024)

The results of the analysis of knowledge networks as a strategy for enhancing KMb practices among small-scale tea farmers indicate that their usage is generally average. Mass media channels (newspapers, radio, TV, and podcasts) are the most frequently used, with 79.1% of respondents affirming their use, whereas social media follows closely, with 65.1%. Community of practice was identified by 55.8% of the respondents, whereas online platforms and expert blogs were reported by 48.8% and 34.9% of respondents, respectively. Finally, discussion boards were reported by 27.9% of the respondents, whereas chatrooms and listservs were cited by 25.6% and 18.6% of respondents, respectively. Other unspecified knowledge networks were mentioned by 7.0% of respondents.

5.2.5.4 How knowledge products, events, and networks have facilitated the dissemination, sharing, and transfer of knowledge for small-scale tea farmers.

The study also sought to understand how knowledge products, events, and networks facilitated knowledge dissemination, sharing, and transfer for small-scale tea farmers. Respondents were presented with a variety of questions and asked to rate these KMb strategies using a five-point Likert scale: "strongly agree," "agree," "neither agree nor disagree," "disagree," and "strongly disagree." An additional "other" option was included to allow respondents to indicate alternative ways they benefited from engaging with these knowledge resources in their farming practices. The weighted means are also presented, guided by the research methodology section in Chapter Four. The weighted mean is interpreted using a class interval scale as follows: 4.20 –5.00 (very high), 3.40 – 4.19 (high), 2.60 – 3.39 (moderate), 1.80 – 2.59 (low), and 1.00 – 1.79 (very low). This approach ensured consistency in analysing and presenting the research findings (see Tables 5.11, 5.12, and 5.13).

On the question of how **knowledge products** facilitated knowledge dissemination, sharing, and transfer for small-scale tea farmers, respondents were presented with fourteen statements and asked to indicate their level of agreement. The findings are presented in Table 5.11.

Table 5.11: How knowledge products facilitate knowledge dissemination, sharing, and transfer (N = 43)

Knowledge Product (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
Handbooks	16 (37.2%)	22 (51.2%)	4 (9.3%)	1 (2.3%)	0 (0.0%)	4.23	.718
Reports	14 (32.6%)	20 (46.5%)	7 (16.3%)	2 (4.7%)	0 (0.00%)	4.07	.828
Case Study	12 (27.9%)	21 (48.8%)	7 (16.3%)	2 (4.7%)	1 (2.3%)	3.95	.925
Lessons Learned	12 (27.9%)	20 (46.5%)	8 (18.6%)	2 (4.7%)	1 (2.3%)	3.93	.936
Frequently Asked Questions (FAQs)	12 (27.9%)	17 (39.5%)	10 (23.3%)	3 (7.0%)	1 (2.3%)	3.84	.998

Magazine Articles	11 (25.6%)	18 (41.9%)	8 (18.6%)	4 (9.3%)	2 (4.7%)	3.74	1.093
Stories	9 (20.9%)	17 (20.9%)	10 (23.3%)	5 (11.6%)	2 (4.7%)	3.60	1.094
Newspaper Articles	10 (23.3%)	16 (37.2%)	9 (20.9%)	5 (11.6%)	3 (7.0%)	3.58	1.180
Blogs	8 (18.6%)	16 (37.2%)	12 (27.9)	5 (11.6	2 (4.7)	3.53	1.077
Promotional Literature	8 (18.6%)	15 (34.9%)	13 (30.2%)	5 (11.6%)	2 (4.7%)	3.51	1.077
Press Release	8 (18.6%)	16 (37.2%	10 (23.3)	6 (14.0%)	3 (7.0%)	3.47	1.162
Scholarly Journal Article	7 (16.3%)	17 (39.5%)	9 (20.9%)	6 (14.0%)	4 (9.3%)	3.40	1.198
Podcast	7 (16.3%)	13 (30.2%)	13 (30.2%)	6 (14.0%)	4 (9.3%)	3.30	1.186
Other knowledge products	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0.00	.000

Source: Field data (2024)

A significant majority, 88.4% of respondents (37.2% strongly agree and 51.2% agree), affirmed that handbooks are the most preferred and valuable knowledge products, which means that they are the most strongly endorsed and widely accepted tools for generating, sharing, and transferring knowledge among small-scale tea farmers. Reports were also highly rated, with 79.1% of respondents in agreement. This finding highlights the importance of reports in disseminating knowledge. The next group of knowledge products also received a high to moderate share of responses, including case studies (76.7%), lessons learned (74.4%), FAQs (67.4%), magazines (67.5%), newspaper articles (60.5%), and stories (60.5%). Press releases (55.8%), blogs (55.8%), scholarly journal articles (55.8%), promotional literature (53.5%), and podcasts (46.5%) were reported. No additional knowledge products were identified.

The weighted mean ratings for knowledge products, as presented in Table 5.13, further show the following: Handbooks were rated the highest (M = 4.23, SD = 0.718), followed closely by reports (M = 4.07, SD = 0.828). Additionally, both products recorded low standard deviation

figures, which indicates a strong consensus among the respondents regarding their value in enhancing KMb practices for small-scale tea farmers. Case studies (M = 3.95, SD = 0.925), lessons learned (M = 3.93, SD = 0.936), and FAQs (M = 3.84, SD = 0.998) also attained high mean scores, although their slightly larger standard deviations suggest less uniformity in opinion. The results also show that greater variability was observed for magazine articles (M = 3.74, SD = 1.093), stories (M = 3.60, SD = 1.094), and blogs (M = 3.53, SD = 1.077), which reflects more divided views among respondents. At the lower end, scholarly journal articles (M = 3.40, SD = 1.198) and podcasts (M = 3.30, SD = 1.186) recorded the lowest mean scores, with relatively higher standard deviations, which indicates limited agreement on their relevance. Finally, the category "other knowledge products" (M = 0.00, SD = 0.000) showed no variation, as no additional products were identified.

The study further sought to examine how **knowledge events** facilitated knowledge dissemination, sharing, and transfer for small-scale tea farmers. Respondents were therefore asked to rate the extent to which each of the proposed knowledge events contributed to this facilitation, using a Likert scale. The results of this assessment are presented in Table 5.12.

Table 5.12: How knowledge events facilitate knowledge dissemination, sharing, and transfer (N = 43)

Knowledge Events (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
Workshops	20 (46.5%)	19 (44.2%)	3 (7.0%)	1 (2.3%)	0 (0.0%)	4.35	.720
Project reviews	15 (34.9%)	21 (48.8%)	5 (11.6%)	2 (4.7%)	0 (0.0%)	4.14	.804
Seminars	13 (30.2%)	22 (51.2%)	5 (11.6%)	2 (4.7%)	1 (2.3%)	4.02	.913
Forums	13 (30.2%)	19 (44.2%)	7 (16.3%)	3 (7.0%)	1 (2.3%)	3.93	.985
Conferences	13 (30.2%)	18 (41.9%)	8 (18.6%)	3 (7.0%)	1 (2.3%)	3.91	.996
Peer assist	11 (25.6%)	19 (44.2%)	9 (20.9%)	3 (7.0%)	1 (2.3%)	3.84	.974

Storytelling events	10 (23.3%)	17 (39.5%)	9 (20.9%)	4 (9.3%)	3 (7.0%)	3.63	1.155
Knowledge fairs	9 (20.9%)	17 (39.5%)	10 (23.3%)	4 (9.3%)	3 (7.0%)	3.58	1.139
Talk shows	7 (16.3%)	16 (37.2%)	11 (25.6%)	6 (14.0%)	3 (7.0%)	3.42	1.139
Other knowledge events	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00	.000

Source: Field data (2024)

Regarding the extent to which knowledge events facilitated the dissemination, sharing, and transfer of knowledge for small-scale tea farmers, the findings presented in Table 5.12 revealed several key insights. The most dominant events, ranked in descending order based on combined approval ratings, included workshops (90.7%), project reviews (83.7%), seminars (81.4%), forums (74.4%), conferences (72.1%), peer assists (69.8%), storytelling events (62.8%), knowledge fairs (60.4%), and talk shows (53.5%). On the other hand, no respondents (0.0%) identified any other knowledge events applied to them besides those listed.

The findings on the weighted mean (see Table 5.12) reveal that workshops are perceived as the most effective knowledge event, scoring a mean (M) of 4.35 with a low standard deviation (SD) of 0.720, which indicates strong agreement among the respondents. Project reviews also were highly rated (M = 4.14, SD = 0.804), while seminars followed closely (M = 4.02, SD = 0.913), which shows consistent feedback from the respondents. Forums (M = 3.93, SD = 0.985), conferences (M = 3.91, SD = 0.996), and peer-assist (M = 3.84, SD = 0.974) reported high to moderate scores but with more variability, which suggests that respondents have a range of opinions about these knowledge events. On the other hand, storytelling events (M = 3.63, SD = 1.155), knowledge fairs (M = 3.58, SD = 1.139), and talk shows (M = 3.42, SD = 1.139) received lower ratings and showed greater variability, which indicates less consensus among the respondents on their effectiveness. No values were recorded under other events (M = 0.00, SD = 0.000).

The study further sought to examine the extent to which various **knowledge networks** facilitated the dissemination, sharing, and transfer of knowledge for small-scale tea farmers. To achieve this, respondents were asked to rate the effectiveness of each proposed knowledge network using a Likert scale. The results of this assessment are summarised in Table 5.13.

Table 5.13: How knowledge networks facilitate knowledge dissemination, sharing, and transfer (N = 43)

Knowledge Networks (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
Community of practice (CoP)	17 (39.5%)	21 (48.8%)	4 (9.3%)	1 (2.3%)	0 (0.0%)	4.26	.727
Media (Newspapers, Radio, TV, Podcasts)	11 (25.6%)	22 (51.2%)	7 (16.3%)	3 (7.0%)	0 (0.0%)	3.95	.844
Social media	12 (27.9%)	18 (41.9%)	9 (20.9%)	3 (7.0%)	1 (2.3%)	3.86	.990
Online forum	10 (23.3%)	19 (44.2%)	9 (20.9%)	4 (9.3%)	1 (2.3%)	3.77	.996
Discussion board	9 (20.9%)	17 (39.5%)	13 (30.2%)	3 (7.0%)	1 (2.3%)	3.70	.964
Expert blogs	10 (23.3%)	16 (37.2%)	11 (25.6%)	4 (9.3%)	2 (4.7%)	3.65	1.089
Chatroom	7 (16.3%)	16 (37.2%)	12 (27.9%)	5 (11.6%)	3 (7.0%)	3.44	1.119
Listserv	8 (18.6%)	13 (30.2%)	13 (30.2%)	6 (14.0%)	3 (7.0%)	3.40	1.158
Other knowledge networks	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.00	.000

Source: Field data (2024)

Regarding how knowledge networks facilitated the dissemination, sharing, and transfer of knowledge for small-scale tea farmers, Table 5.13 shows that the community of practice is the highest-rated knowledge network, agreed upon by 88.3% of the respondents (39.5% strongly agreed and 48.8% agreed). Likewise, media networks (such as newspapers, radio, television, and podcasts) followed, with 76.8% of respondents acknowledging their usefulness in disseminating knowledge to broad audiences and in providing timely updates to farmers on agricultural trends and practices. Other knowledge networks that were identified included social media (69.8%), online forums (67.5%), expert blogs (60.5%), discussion boards (60.4%),

chatrooms (53.5%), and listservs (48.8%). Notably, no respondent selected other knowledge networks, which indicates general satisfaction with the predefined categories.

The analysis of weighted mean (M) and standard deviation (SD) scores (see Table 5.13) revealed that communities of practice (CoPs) attained the highest rating (M = 4.26, SD = 0.727), with respondents appreciating their effectiveness as platforms for facilitating peer-based and collaborative knowledge sharing and mobilisation. The low SD figure indicates a strong consensus among the respondents on the efficacy of these knowledge networks. Traditional and digital media channels (M = 3.95, SD = 0.844) and social media (M = 3.86, SD = 0.990) followed closely, even though their moderate SDs suggest some variation in the respondents' observations. On the other hand, online forums (M = 3.77, SD = 0.996), discussion boards (M = 3.70, SD = 0.964), and expert blogs (M = 3.65, SD = 1.089) were also given moderate mean ratings but with slightly higher SDs. This implies that while they are viewed as useful, respondents differed in their views on the extent of their effectiveness. In contrast, chatrooms (M = 3.44, SD = 1.119) and listservs (M = 3.40, SD = 1.158) recorded lower mean scores coupled with higher SDs, which indicates weaker consensus and less perceived relevance as KMb strategies. Notably, no responses were reported for "other" networks (M = 0.00, SD = 0.000). Overall, the results suggest that platforms with higher mean scores tend to demonstrate lower SD values, which signifies stronger agreement, whereas lower means are often associated with higher variability in respondent views.

5.2.5.5 Effectiveness of technology in enhancing KMb

The study also examined the role of technology in supporting the mobilisation, dissemination, sharing, and transfer of knowledge for small-scale tea farmers. To explore this further, a follow-up question was posed, inviting respondents to indicate their level of agreement with the proposed role of technology in their tea farming practices. Their responses were analysed using percentages, with the results presented in Table 5.14.

Table 5.14: The effectiveness of technology in enhancing KMb (N = 43)

Rating of the effectiveness of technology (N43)	Very effective (5)	Effective (4)	Neutral (3)	Not effective (2)	Extremely not effective (1)	Mean	Std. Deviation

Effectiveness of technology in enhancing KMb	18 (41.9%)	16 (37.2%)	6 (14.0%)	2 (4.7%)	1 (2.3%)	4.12	.981

Source: Field data (2024)

The findings, as presented in Table 5.14, show how technology impacts the processes of mobilisation, sharing, dissemination, and transfer of knowledge for small-scale tea farmers. The findings reveal that 41.9% of participants considered technology to be very effective in enhancing KMb. A further 37.2% of the respondents regarded technology as effective. These findings indicate that, combined, 79.1% of the respondents view technology as very effective or effective. A small proportion of participants (13.9%) were neutral on the issue of the efficacy of technology. This finding suggests that although the majority view technology as beneficial to KMb, a minority perceive its importance as context-dependent. Additionally, 4.7% of respondents rated technology as ineffective. Just 2.3% of respondents thought technology was extremely not effective, which shows only a small number of them view technology as unhelpful. Table 5.14 also presents the calculated weighted mean to assess how the respondents rated the impact of technology on KMb. The resulting weighted average was 4.12, which indicates a high perceived contribution of technological tools in facilitating KMb. The standard deviation (SD) was 0.981, which reflects relative agreement across respondents. This finding indicates that technology is generally perceived as beneficial in enhancing KMb practices for small-scale tea farmers.

5.2.6 Indicators of KMb for small-scale tea farmers

The study aimed to identify indicators that knowledge collaborators could use to evaluate the effectiveness of KMb for small-scale tea farmers. Drawing on the Co-created Pathway to Impact model (Phipps et al., 2016), as outlined in Chapter 2, the study sought to clarify the KMb process and highlight key adoption indicators within the agribusiness sector. These indicators are vital for assessing both the outputs and impact of activities related to research generation and utilisation, including knowledge synthesis, dissemination, transfer, exchange, and co-production between researchers and knowledge users (Sales et al., 2024). Four core indicators were examined: dissemination, use, usefulness, and collaboration or partnership indicators. The findings related to these variables are presented in the following sections.

5.2.6.1 Dissemination or reach indicator

Respondents were asked to identify the dissemination or reach indicators of KMb for small-scale tea farmers. The results of this analysis are presented in Table 5.15.

Table 5.15: Dissemination indicator (N = 43)

Dissemination Indicator (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
The total number of beneficiaries who have accessed and benefited from the knowledge	17 (39.5%)	19 (44.2%)	5 (11.6%)	2 (4.7%)	0 (0.0%)	4.19	.824
The quantity of knowledge disseminated	11 (25.6%)	23 (53.5%)	6 (14.0%)	3 (7.0%)	0 (0.0%)	3.98	.831
The number of requests for knowledge requests	12 (27.9%)	20 (46.5%)	7 (16.3%)	3 (7.0%)	1 (2.0%)	3.91	.971
The extent of media and social media exposure	11 (25.6%)	21 (48.8%)	8 (18.6%)	2 (4.7%)	1 (2.3%)	3.91	.921
The number of downloads or hits	10 (23.3%)	18 (41.9%)	9 (20.9%)	3 (7.0%)	3 (7.0%)	3.67	1.128

***Source: Field data (2024*)**

The responses to the dissemination indicators varied across different variables, as illustrated in Table 5.15. A large number of the respondents, 83.7% (39.5% strongly agreed and 44.2% agreed), identified the total number of beneficiaries who accessed and benefited from the knowledge as a key measure of KMb. Similarly, a combined 79.1% and 74.4% of participants considered the quantity of knowledge disseminated, media and social media exposure, and the number of requests for knowledge to be equally important indicators of KMb. Finally, the number of downloads or hits was acknowledged, with 65.2% of respondents agreeing on its relevance as a dissemination metric.

The mean scores revealed that the most highly rated indicator was the total number of beneficiaries who accessed and benefited from the knowledge (M = 4.19, SD = 0.824). This was followed by the quantity of knowledge disseminated (M = 3.98, SD = 0.831), the extent of social and mainstream media exposure (M = 3.91, SD = 0.921), and the number of knowledge requests (M = 3.91, SD = 0.971), which were also highly rated. The slightly more diverse responses for these indicators suggest a degree of variation in how respondents perceive the indicators. In contrast, the number of downloads or hits (M = 3.67, SD = 1.128) received comparatively lower mean scores and higher SD values, which indicates less consensus on its significance as a measure of dissemination. Overall, the results show that indicators with higher mean scores tend to correspond with lower SD values, which signifies stronger agreement, while those with lower means exhibit greater variability in perceptions.

5.2.6.2 Use indicator

Respondents were asked to provide their perspectives on knowledge use as an indicator for evaluating successful KMb for small-scale tea farmers. Several knowledge use indicators were listed, and participants were asked to indicate their level of agreement or disagreement regarding their relevance. The results of this analysis are presented in Table 5.16.

Table 5.16: Use indicator (N = 43)

Use Indicator (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
Consumers who have actively adapted and implemented knowledge	16 (37.2%)	22 (51.2%)	4 (9.3%)	1 (2.3%)	0 (0.0%)	4.23	.718
Tangible impact of knowledge utilisation on improving practices and performance	17 (39.5%)	20 (46.5%)	4 (9.3%)	2 (4.7%)	0 (0.0%)	4.21	.804

Influence of knowledge use on policies, programmes, training, education, and research	14 (32.6%)	20 (46.5%)	7 (16.3%)	2 (4.7%)	0 (0.0%)	4.07	.828
The number of consumers who demonstrate intent to use the knowledge	13 (30.2%)	22 (51.2%)	5 (11.6%)	2 (4.7%)	1 (2.3%)	4.02	.913

Source: Field data (2024)

The analysis in Table 5.16 shows that the indicator consumers who have actively adapted and implemented knowledge received the highest joint level of agreement, with 88.4% of respondents identifying it as the most significant measure of knowledge use. Similarly, 86.0% and 81.4% of respondents agreed that the tangible impact of knowledge utilisation on improving overall practices and performance and tracking small-scale tea farmers' interest and intent to apply what they have learned are critical indicators of knowledge use. These findings indicate that knowledge can be effectively assessed by monitoring farmers expressed interest, intention to apply, and the resulting tangible impact of using the knowledge attained. Finally, the indicator influence of knowledge use on policies, programmes, training, education, and research received 79.1% agreement, further demonstrating that knowledge utilisation plays a central role in shaping policy and informing educational and research agendas.

Table 5.16 further shows that the use indicators recorded strong levels of agreement among survey respondents. Active adaptation and implementation of knowledge recorded the highest mean and low variability (M = 4.23, SD = 0.718), which indicates strong uptake and high agreement on its importance. Other indicators also received favourable responses. The indicator 'tangible impact of knowledge utilisation on improving practices and performance' (M = 4.21, SD = 0.804) scored highly, which indicates that respondents agreed on its value as an indicator of KMb. The influence of knowledge use on policies, programmes, training, education, and research also received favourable ratings (M = 4.07, SD = 0.828), while the number of consumers who demonstrated intent to use knowledge was slightly lower (M = 4.02, SD = 0.913) and showed relatively more variability.

5.2.6.3 Usefulness indicator

Respondents were asked to indicate their level of agreement with the statement that the usefulness of knowledge serves as an indicator for evaluating the successful mobilisation of knowledge among small-scale tea farmers. Their responses were analysed as percentages based on various levels of agreement. The findings are illustrated in Table 5.17.

Table 5.17: Usefulness indicator (N = 43)

Usefulness Indicator (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
The acquisition of new knowledge.	17 (39.5%)	21 (48.8%)	4 (9.3%)	1 (2.3%)	0 (0.0%)	4.26	.727
The perceived utility of the information.	16 (37.2%)	20 (46.5%)	6 (14.0%)	1 (2.3%)	0 (0.0%)	4.19	.764
Shifts in perspective resulting from the application of the knowledge.	14 (32.6%)	21 (48.8%)	5 (11.6%)	3 (7.0%)	0 (0.0%)	4.07	.856
The degree of satisfaction expressed by knowledge users.	12 (27.9%)	23 (53.5%)	5 (11.6%)	2 (4.7%)	1 (2.3%)	4.00	.900
The number of documents read or browsed.	9 (20.9%)	20 (46.5%)	8 (18.6%)	3 (7.0%)	3 (7.0%)	3.67	1.107

Source: Field data (2024)

Concerning the usefulness of knowledge as an indicator for evaluating the success of KMb for small-scale tea farmers, Table 5.17 presents several key insights. A joint majority of respondents (88.4%) agreed that the acquisition of new knowledge is the most significant indicator, underscoring the importance of enabling small-scale tea farmers to learn and gain new knowledge. Similarly, 83.7% identified the perceived utility of the information as a significant measure, reflecting the value that small-scale tea farmers place on information that has practical relevance. Furthermore, 81.4% of respondents agreed that both shifts in perspective resulting from the application of knowledge and the degree of satisfaction

expressed by knowledge users are equally important indicators. These findings highlight that knowledge is appreciated not only for its immediate applicability but also for its capacity to influence attitudes and meet user needs. In contrast, the number of documents read or browsed received the lowest combined level of agreement (67.4%), suggesting that farmers prioritise the impact and relevance of information over the mere volume of content accessed.

The analysis from Table 5.17 on the weighted mean and standard deviation shows that the acquisition of new knowledge received the highest rating (M = 4.26, SD = 0.727). This finding indicates that respondents gain new knowledge as a primary outcome of effective KMb. This was closely followed by the perceived utility of the information (M = 4.19, SD = 0.764) and shifts in perspective resulting from the application of knowledge (M = 4.07, SD = 0.856), both indicating that the respondents place importance on practical relevance and the transformative impact of knowledge. The degree of satisfaction expressed by knowledge users (M = 4.00, SD = 0.900) also ranked highly, accentuating the role of end-user experience in KMb. In contrast, the number of documents read or browsed attained the lowest comparative rating (M = 3.67, SD = 1.107) and the most significant variability, which indicates that respondents prioritise the quality, applicability, and effect of knowledge resources over volume of usage. In summary, the minor standard deviations for the top knowledge indicators portray stronger consensus among the respondents, while higher deviations for the lower-ranked indicator reflect more divergent views.

5.2.6.4 Collaboration indicators

The final indicator the researcher analysed was collaboration and partnership. Respondents were asked to indicate their level of agreement on whether collaboration and partnerships could serve as measures of successful KMb for small-scale tea farmers. The responses were analysed based on percentages derived from frequency data. The results are presented in Table 5.18.

Table 5.18: Collaboration indicators (N = 43)

Collaboration Indicator (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
The extent of collaboration within the KMb process	16 (37.2%)	21 (48.8%)	5 (11.6%)	1 (2.3%)	0 (0.0%)	4.21	.742

The expansion of social networks	14 (32.6%)	22 (51.2%)	5 (11.6%)	1 (2.3%)	1 (2.3%)	4.09	.868
The types of capacity-building efforts undertaken	13 (30.2%)	22 (51.2%)	6 (14.0%)	2 (4.7%)	0 (0.0%)	4.07	.799
The range of knowledge products or services created/shared in collaboration	12 (27.9%)	21 (48.8%)	7 (16.3%)	2 (4.7%)	1 (2.3%)	3.95	.925
The enhancement of influence capacity	12 (27.9%)	19 (44.2%)	7 (16.3%)	3 (7.0%)	2 (4.7%)	3.84	1.067

Source: Field data (2024)

The analysis presented in Table 5.18 indicates that a joint 86.0% of respondents agreed (37.2% strongly agreed and 48.8% agreed) that the degree of collaboration in the KMb process is the most important indicator of its success. This finding underscores the centrality of cooperative engagement among knowledge cohorts in effective KMb. Similarly, 83.8% of respondents identified the growth of social networks as a key indicator of partnership success, emphasising the importance of building and expanding networks with small-scale farmers to enhance knowledge exchange. In the same vein, 81.4% and 76.7% of participants highlighted the emphasis on building capacity and the generation and sharing of knowledge products, respectively, as essential to strengthening collaboration, which points to tangible outcomes and capacity development as key success indicators. Finally, 72.1% of respondents acknowledged strengthening influence capacity as an important measure, though it is considered secondary to more direct collaborative and knowledge-sharing activities.

The analysis of the mean and standard deviation figures on collaboration indicators shows that the extent of collaboration in the KMb process received the highest rating (M = 4.21, SD = 0.742), which reflects a strong consensus among respondents on its value as a key indicator for assessing KMb success. This ranking was followed closely by the indicators the expansion of social networks (M = 4.09, SD = 0.868) and the types of capacity-building efforts undertaken (M = 4.07, SD = 0.799), both of which were recognised for facilitating partnerships and skills development, thereby enhancing KMb. The range of knowledge products or services created and shared in collaboration also ranked highly (M = 3.95, SD = 0.925), although with slightly greater variability. In contrast, ‘\the enhancement of influence capacity’\ had the lowest

comparative rating (M = 3.84, SD = 1.067) and the most significant variability, which implies that, although recognised as relevant, there is less consistency among the respondents on its effectiveness compared to the other indicators. Overall, the minor standard deviations associated with the higher-ranked indicators indicate stronger agreement, whereas the higher deviation for influence capacity points to divergent perceptions.

5.2.7 Factors impacting KMb for small-scale tea farmers

This study examined the factors influencing KMb for small-scale tea farmers, as outlined in Objective Five in Chapter One: to investigate the factors that influence KMb for small-scale tea farmers in Murang'a County. These factors were derived from two underpinning theoretical frameworks: the Ward Model (Ward, 2017) and the KMb Activities and Services (KMbAS) Model (Phipps & Shapson, 2009), as detailed in Chapter Two. Guided by these frameworks, the researcher designed a series of items exploring key dimensions, namely knowledge resources, knowledge users, knowledge complexity, and management support. Respondents were asked to indicate their level of agreement with each statement using a five-point Likert scale. The findings are presented in Tables 5.19-5.22.

5.2.7.1 Knowledge resources

The study aimed to assess the extent to which respondents agreed with statements regarding the impact of knowledge resource factors on KMb for small-scale tea farmers. The factors evaluated included budgetary allocation initiatives, stipends for knowledge collaborators, information technology support, collaborative knowledge networks, and other knowledge resources. The results are presented in Table 5.19.

Table 5.19: Knowledge resources (N = 43)

Knowledge Resource (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
Information technology support influences KMb initiatives	19 (44.2%)	20 (46.5%)	4 (9.3%)	0 (0.0%)	0 (0.0%)	4.35	.650

Collaborative knowledge networks, such as a community of practice, influence KMb initiatives	17 (39.5%)	22 (51.2%)	4 (9.3%)	0 (0.0%)	0 (0.0%)	4.30	.638
Budgetary allocations influence KMb initiatives	14 (32.6%)	22 (51.2%)	5 (11.6%)	2 (4.7%)	0 (0.0%)	4.12	.793
Other resources influence KMb initiatives	13 (30.2%)	21 (48.8%)	7 (16.3%)	2 (4.7)	0 (0.0%)	4.05	.815
Stipends for knowledge collaborators influence KMb initiatives	8 (18.6%)	24 (55.8%)	7 (16.3%)	4 (9.3%)	0 (0.0%)	3.84	.843

Source: Field data (2024)

Table 5.19 presents the participants' responses across five levels of agreement regarding the various knowledge resources pertinent to this study. This comparison portrays the resources that are perceived as having the strongest, moderate, and least influence on the KMb process for small-scale tea farmers. A predominant number of respondents, 90.7% (44.2% strongly agreed and 46.5% agreed), view information technology (IT) support as the most influential resource for enhancing KMb activities. This finding underscores the vital role of IT infrastructure, particularly digital communication tools, in enabling effective KMb, collaboration, and information dissemination. Similarly, 90.7% of the respondents identified collaborative knowledge networks as a key driver of KMb. This outcome indicates the significance of this resource in promoting interaction and knowledge exchange. Additionally, 83.8% of respondents agreed that budgetary allocations impact KMb, while 79.0% selected other resources such as physical spaces, tools, or administrative support. These findings suggest that diverse resources effectively contribute to KMb for small-scale farmers. Lastly, 74.4% agreed that stipends for knowledge collaborators are an important factor, as financial incentives can encourage greater participation and commitment in knowledge sharing and exchange.

The findings on knowledge resources (see Table 5.19) show that information technology support ($M = 4.35$, $SD = 0.650$) exerts the most significant influence on KMb initiatives, with respondents showing strong consensus on its importance. This indicator was closely followed

by collaborative knowledge networks (M = 4.30, SD = 0.638), which was also marked by a high weighted mean and slight standard deviation. Budgetary allocations also emerged as a key factor and were rated highly (M = 4.12, SD = 0.793), which indicates the important role of financial support in enabling successful KMb initiatives, although their standard deviation was comparatively high, suggesting slightly more variability in participants' responses. Other resources, which constituted other unspecified knowledge resources, were also acknowledged as influential (M = 4.05, SD = 0.815). In contrast, stipends for knowledge collaborators received the lowest mean score and a high standard deviation (M = 3.84, SD = 0.843), exhibiting mixed views among respondents regarding their effectiveness. Overall, the relationship between the high mean scores and low standard deviations underscores how significant information technology, strategic resource planning, and collaborative partnerships are in enhancing KMb practices for small-scale tea farmers, compared to more dispersed opinions on stipends.

5.2.7.2 Knowledge users

Respondents were asked to indicate their level of agreement with statements regarding the influence of knowledge users on KMb practices for small-scale tea farmers. The responses were analysed as percentages based on the frequency of agreement, and are presented in Table 5.20.

Table 5.20: Knowledge users (N = 43)

Knowledge users (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
Engaging small-scale tea farmers as knowledge users impacts the effectiveness of KMb.	23 (53.5%)	18 (41.9%)	2 (4.7%)	0 (0.0%)	0 (0.0%)	4.49	.592
Small-scale tea farmers are the primary users of tea agribusiness knowledge.	20 (46.5%)	20 (46.5%)	3 (7.0%)	0 (0.0%)	0 (0.0%)	4.40	.623
Small-scale tea farmers are a critical resource in the KMb process.	18 (41.9%)	20 (46.5%)	5 (11.6%)	0 (0.0%)	0 (0.0%)	4.30	.674

Source: Field data (2024)

Table 5.20 presents the findings of the analysis of the role of knowledge users in mobilising agribusiness knowledge for small-scale tea farmers. The findings show that a high proportion of respondents agreed on the importance of small-scale tea farmers in the KMb process. Most of the respondents (95.4%) agreed that engaging small-scale tea farmers as knowledge users positively impacts the effectiveness of KMb initiatives. Similarly, 93.0% of respondents agreed that small-scale tea farmers are the primary users of tea farming knowledge. Another 88.4% of respondents viewed small-scale tea farmers as critical resources in the KMb process. The overall trend shows strong support for the role of small-scale tea farmers in enhancing the effectiveness of knowledge dissemination and mobilisation in agribusiness.

The results, as presented in Table 5.20, show that engaging small-scale tea farmers as active knowledge users was rated with the highest mean and had the lowest SD (M = 4.49, SD = 0.592), which reflects both robust agreement and low variability among respondents. Similarly, the statement recognising small-scale tea farmers as the primary users of tea agribusiness knowledge also received strong support (M = 4.40, SD = 0.623), while the assertion that small-scale tea farmers are a critical resource in the KMb process was rated slightly lower but still highly (M = 4.30, SD = 0.674), showing strong though slightly less uniform agreement. The close alignment of mean scores, coupled with consistently low standard deviations, indicates a strong consensus among respondents that small-scale tea farmers not only consume but also enrich the process of mobilising agribusiness knowledge.

5.2.7.3 Knowledge complexity

Respondents were asked to share their views on how the complexity of knowledge affects its mobilisation for small-scale tea farmers. The findings are illustrated in Table 5.21.

Table 5.21: Knowledge complexity (N = 43)

Knowledge complexity (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
The complexity of knowledge affects its mobilisation, transfer, and application for small-scale tea farmers.	12 (27.9%)	23 (53.5%)	7 (16.3%)	1 (2.3%)	0 (0.0%)	4.07	.737

The complexity of knowledge has presented challenges and restricted opportunities for small-scale tea farmers.	10 (23.3%)	22 (51.2%)	8 (18.6%)	3 (7.0%)	0 (0.0%)	3.91	.840

Source: Field data (2024)

The data in Table 5.21 reveal that a significant proportion of respondents acknowledged the influence of knowledge complexity on its mobilisation and adoption for small-scale tea farmers. Specifically, 81.4% either agreed or strongly agreed that knowledge complexity significantly affects the farmers' ability to mobilise, transfer, and apply knowledge. Equally, 74.4% of the respondents concurred that knowledge complexity is an issue that constrains the farmers' ability to embrace efficient agribusiness practices. Conversely, very few respondents showed disagreement, indicating that a substantial majority concurred that knowledge complexity adversely affects its mobilisation for small-scale tea farmers. The results suggest that simplifying information on tea agribusiness may enhance the capacity of small-scale tea farmers to adopt and execute new farm practices, thereby increasing productivity and outcomes.

The findings on knowledge complexity, as presented in Table 5.21, show that respondents agreed that the complexity of knowledge influences its mobilisation, transfer, and application ($M = 4.07$, $SD = 0.737$), which indicates a relatively strong consistency in their views. This suggests that participants largely recognised the complexity of knowledge as a critical hindrance affecting both its mobilisation and practical use among small-scale farmers. Likewise, the statement that knowledge complexity presents challenges and restricts opportunities for farmers received high agreement ($M = 3.91$, $SD = 0.840$), though with slightly greater variability. Taken together, these results underscore that while complexity is widely acknowledged as a constraint to knowledge use, opinions differ regarding the severity of its impact.

5.2.7.4 Management support

Respondents were asked to indicate their level of agreement regarding the influence of management support on KMb for small-scale tea farmers. The responses were analysed based on percentage distributions derived from frequency counts. The findings are illustrated in Table 5.22.

Table 5.22: Management support (N = 43)

Management Support (N=43)	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Std. Deviation
Strong management support can improve KMb activities for small-scale tea farmers	21 (48.8%)	19 (44.2%)	3 (7.0%)	0 (0.0%)	0 (0.0%)	4.42	.626
Management support is significant in KMb activities for small-scale tea farmers.	17 (39.5%)	21 (48.8%)	5 (11.7%)	0 (0.0%)	0 (0.0%)	4.28	.666

Source: Field data (2024)

The dataset from Table 5.22 reveals a strong consensus among respondents regarding the importance of management support in mobilising agribusiness knowledge for small-scale tea farmers. A combined 93.0% of the respondents agreed that strong management support enhances KMb for the farmers. Regarding the second statement, 88.3% of the respondents agreed that management support plays a crucial role in enhancing KMb activities. These results indicate a clear consensus on the importance of management support in improving KMb initiatives. It also shows that strengthening management support could significantly boost KMb activities among tea farmers.

The results in Table 5.22 further show that management support is regarded as highly significant in enabling KMb activities for small-scale tea farmers. The statement that strong management support improves KMb activities received the highest mean score of 4.42 and a standard deviation (SD) of 0.626. This reflects a very strong agreement with low variability, which indicates a consistent view among the respondents. A closely related statement, management support is significant in KMb activities, attained a mean of 4.28 and an SD of 0.666, further indicating that the respondents acknowledged the importance of managerial involvement in supporting KMb initiatives. Overall, the consistently high means and low standard deviations confirm a strong consensus that effective KMb is strongly dependent on supportive leadership and management structures.

5.2.8 Results of the exploratory factor analysis for developing a KMb framework

The final objective of this study was to propose a framework for enhancing KMb for small-scale tea farmers. It is important to recognise that not all variables in the survey instrument were equally relevant to the development of this framework. Exploratory Factor Analysis (EFA) is a multivariate statistical procedure used to identify the smallest number of underlying constructs that can parsimoniously account for the covariation among a set of observed variables (Watkins, 2018). EFA is used to identify questionnaire-specific constructs and to eliminate redundant variables (Jani et al., 2023). In this study, EFA was applied at the item level to determine the underlying factors that could inform the development of a framework for enhancing KMb. By grouping related variables and isolating those with the most significant influence, the analysis facilitated the refinement of the data by removing elements with limited relevance to the study's aims. In addition, the analysis was conducted in stages, beginning with separate factor examinations of the main questionnaire sections and then proceeding to an overall factor solution to establish the broader dimensions of KMb. This allowed the researcher to observe how individual items clustered within specific constructs and how those constructs jointly contributed to the proposed framework. The subsequent sections outline this process in detail. Before running the factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were conducted to assess the suitability of the data. The results of these tests are presented in the next section.

5.2.8.1 Sampling adequacy and factorability assessment

The purpose of employing factor analysis was to eliminate redundant questions from the survey instrument and to identify variables that were significant for the study and the subsequent development of the framework. The initial survey was designed to be comprehensive, containing 199 questions (variables) to ensure a wide range of data was captured for analysis, as the researcher did not know the specific items most valuable for the framework. A factorial assessment was conducted to evaluate the suitability of the dataset for factor analysis. Two tests were applied to determine the feasibility of using factor analysis to reduce redundancy among the variables: the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity (Shrestha, 2021; Organza et al., 2024). These tests were used to measure sampling adequacy and the suitability of the dataset, and the results are presented in Table 5.23.

Table 5.23: KMO and Bartlett's test of sphericity

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.675
Bartlett's Test of Sphericity	Approx. Chi-Square	2025.092
	df	820
	Sig.	<.001

As noted above, the suitability of the dataset for factor analysis was evaluated using two tests, namely the Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The findings indicate a KMO value of 0.675, which exceeds the minimum acceptable threshold of 0.60. This depicts a moderate level of shared variance among the presented variables. The statistics further suggest that the dataset was adequate for factor analysis (Kaiser, 1974). The Bartlett's Test of Sphericity also produced a highly significant result, χ^2 (df = 820) = 2025.092, p < .001, which confirms that the correlation matrix was not an identity matrix. This Bartlett test proved that there is sufficient intercorrelation among the variables to justify the application of factor analysis. Collectively, these tests provided statistical evidence supporting the factorability of the data and the use of Principal Component Analysis (PCA) to examine the underlying structure of the observed variables.

5.2.8.2 Factors useful for the development of the framework

This section identifies the number of factors that can be used to design a framework for enhancing KMb practices for small-scale tea farmers. The eigenvalue criterion was applied to determine the number of significant factors. This criterion retains factors with an eigenvalue greater than 1, as an eigenvalue represents the amount of variance accounted for by a factor. The rationale is that factors accounting for a variance greater than one are considered significant. This approach is supported by Cliff (1988), who argued that factors with eigenvalues less than 1 would have negative reliability. Table 5.24 shows that 46 components had eigenvalues exceeding 1, organised according to the study variables.

Table 5.24: Eigenvalues

Eigenvalues for types of knowledge produced and utilised						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% Of Variance	Total	% Of Variance	Total	% Of Variance
1	6.959	22.45	22.45	6.959	22.45	22.45
2	3.531	11.39	33.84	3.531	11.39	33.84
3	3.036	9.79	43.63	3.036	9.79	43.63

4	2.274	7.34	50.97	2.274	7.34	50.97
5	2.217	7.15	58.12	2.217	7.15	58.12
6	1.727	5.57	63.69	1.727	5.57	63.69
7	1.600	5.16	68.85	1.600	5.16	68.85
8	1.407	4.54	73.39	1.407	4.54	73.39
9	1.172	3.78	77.17	1.172	3.78	77.17
10	1.014	3.27	80.44	1.014	3.27	80.44
Extraction Method: Principal Component Analysis						
a. 1 components extracted.						
Eigenvalues for collaborators involved in KMb						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% Of Variance	Total	% Of Variance	Total	% Of Variance
1	7.947	20.91	20.91	7.947	20.91	20.91
2	4.292	11.30	32.21	4.292	11.30	32.21
3	3.255	8.57	40.77	3.255	8.57	40.77
4	3.062	8.06	48.83	3.062	8.06	48.83
5	2.345	6.17	55.00	2.345	6.17	55.00
6	2.052	5.40	60.40	2.052	5.40	60.40
7	1.847	4.86	65.26	1.847	4.86	65.26
8	1.614	4.25	69.51	1.614	4.25	69.51
9	1.382	3.64	73.15	1.382	3.64	73.15
10	1.330	3.50	76.65	1.330	3.50	76.65
11	1.116	2.94	79.58	1.116	2.94	79.58
Extraction Method: Principal Component Analysis						
a. 1 components extracted.						

Eigenvalues for KMb strategies						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Total	% of Variance	Total	% of Variance
1	18.263	44.544	44.544	18.263	44.544	44.544

2	2.728	6.654	51.198	2.728	6.654	51.198
3	2.334	5.694	56.892	2.334	5.694	56.892
4	2.078	5.068	61.960	2.078	5.068	61.960
5	1.738	4.239	66.199	1.738	4.239	66.199
6	1.416	3.454	69.653	1.416	3.454	69.653
7	1.274	3.106	72.759	1.274	3.106	72.759
8	1.240	3.024	75.783	1.240	3.024	75.783
9	1.057	2.579	78.362	1.057	2.579	78.362
Extraction Method: Principal Component Analysis						
a. 1 components extracted.						

Eigenvalues for indicators of KMb

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Total	% of Variance	Total	% of Variance
1	2.198	11.568	11.568	2.198	11.568	11.568
2	2.093	11.018	22.586	2.093	11.018	22.586
3	1.775	9.344	31.929	1.775	9.344	31.929
4	1.753	9.229	41.158	1.753	9.229	41.158
5	1.620	8.529	49.687	1.620	8.529	49.687
6	1.314	6.914	56.601	1.314	6.914	56.601
7	1.117	5.878	62.478	1.117	5.878	62.478
8	1.057	5.564	68.042	1.057	5.564	68.042
9	1.008	5.304	73.346	1.008	5.304	73.346
Extraction Method: Principal Component Analysis						
a. 1 components extracted.						

Eigenvalues for factors impacting KMb

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% Of Variance	Cumulative %
1	6.456	53.802	53.802	6.456	53.802	53.802
2	1.149	9.573	63.375	1.149	9.573	63.375
3	.864	7.198	70.573	.864	7.198	70.573
4	.746	6.219	76.792	.746	6.219	76.792
5	.691	5.755	82.546	.691	5.755	82.546
6	.569	4.744	87.290	.569	4.744	87.290
7	.450	3.748	91.038	.450	3.748	91.038
Extraction Method: Principal Component Analysis.						
a. 1 components extracted.						

The principal component analysis (PCA) for the construct types of knowledge produced and mobilised yielded ten components with eigenvalues greater than 1, collectively explaining 80.44% of the total variance. The first component accounted for 22.45% of the variance, reflecting its dominant role in representing the underlying structure of knowledge types. The second (11.39%) and third (9.79%) components also explained substantial proportions, indicating a multidimensional construct. In line with the Kaiser criterion (Abdi & Williams, 2010), only components with eigenvalues above 1 were retained for analysis. However, based on the rotated component matrix and a 0.60 loading threshold, only the most conceptually relevant and statistically strong indicators were selected for further study. While the high cumulative variance affirms the multidimensionality of the raw construct, the final factor solution provides a parsimonious set of indicators capturing its core latent dimension.

Principal component analysis (PCA) was also applied to the construct collaborators involved in KMb. As presented in Table 5.24, 11 components had eigenvalues greater than 1, collectively accounting for 79.58% of the total variance. The first component was the most influential, with an eigenvalue of 7.947, explaining 20.91% of the variance. The second and third components contributed 11.30% and 8.57%, respectively, while the fourth explained 8.06%, bringing the cumulative variance for the first four components to 48.83%. The remaining components (fifth to eleventh) each explained between 2.94% and 6.17%, raising the cumulative variance explained to nearly 80%. The use of the eigenvalue >1 criterion is consistent with the Kaiser rule, a recognised approach for retaining meaningful components (Shrestha, 2021). The

cumulative variance exceeded the 60% threshold generally accepted in social sciences, indicating a strong factor solution. The decreasing variance contributions further suggest that each component captured distinct aspects of collaboration without redundancy (Williams, Onsman, & Brown, 2010).

The PCA results for the KMb strategies construct showed that nine components had eigenvalues greater than 1, jointly explaining 78.36% of the total variance. The first component accounted for 44.54% of the variance, underscoring its dominant role in representing the core of KMb strategies. The remaining components each explained between 2.58% and 6.65%, capturing additional yet meaningful dimensions of the construct. The substantial variance explained by the first component reflects a strong underlying factor structure, aligning with previous research indicating that organisational knowledge strategies often converge around a few thematic pillars (Nonaka and Takeuchi, 1995). The retention of only items with loadings ≥0.60 ensured that both traditional and modern dissemination methods within the construct had a substantial correlation with the underlying factor.

For the construct "indicators of KMb, the PCA extracted 9 components with eigenvalues above 1, cumulatively accounting for 73.35% of the total variance. The first component accounted for 11.57% of the variance, while the remaining components each contributed between 5.30% and 11.02% of the total variance. The lower variance explained by the first component, compared to the other constructs, indicates an evenly distributed factor structure in which multiple dimensions carry comparable weight in defining the indicators. This distribution reflects the diversity of KMb indicators. The application of the ≥0.60 loading threshold ensured the retention of only the most representative indicators across these dimensions, thereby improving measurement precision. These findings align with Ward (2017), who argued that KMb outcomes are multi-faceted, integrating dissemination reach, user engagement, and practical application.

The analysis of factors impacting KMb identified two components with eigenvalues exceeding one, together explaining 63.38% of the variance. The first component contributed 53.80%, indicating a strong unidimensional tendency, while the second explained 9.57%. The large proportion of variance attributed to the first factor supports the view that contextual and organisational enablers often cluster into a dominant latent construct, while other factors play secondary but still significant roles. The application of the ≥0.60 retention rule ensured that weaker correlates were excluded, leaving a construct defined by its most influential drivers.

5.2.8.3 Rotated Component Matrix interpretation for a developing framework for enhancing KMb

The rotated component matrix in this study provided a clearer and more interpretable structure of the factors underpinning the proposed framework for enhancing KMb. By redistributing the explained variance across components, the rotation technique highlighted the distinct clustering of variables, thereby facilitating the identification of the core dimensions that characterise effective KMb practices. The resulting pattern of factor loadings enabled the meaningful labelling of each component, revealing how specific strategies, actors, and processes group together to support the development of a coherent and empirically grounded KMb enhancement framework (Ward, 2017; Bayley et al., 2018). The rotated component matrix for this study is presented in Table 5.25.

Table 5.25: Rotated Component Matrix Showing Retained Factor Loadings (≥ .60)

	Component matrix[a] for types of knowledge produced and utilised			
	Item Code	**Item Description (from Questionnaire)**	**Component**	**Loading**
	Q5a1	Knowledge of land preparation and management	1	.603
	Q5c1	Accessing tacit knowledge via experience and lessons learned	1	.650
	Q6b2	Accessing explicit knowledge through intranets and extranets	1	.701
	Q8b	Embedded knowledge through products	1	.685
	Q8c	Embedded knowledge through cultural norms	1	.825
	Q9a3	IT supports reverse engineering to access embedded knowledge	1	.839
	Q9a4	IT integrates tacit and explicit to form embedded knowledge	1	.829
	Q9c1	Dissemination via intranet and extranets	1	.714
	Q9c3	Dissemination via Communities of Practice (CoPs)	1	.677
	Q9c4	Dissemination via storytelling and mentoring	1	.919
	Component matrix[a] for collaborators involved in KMb			

	Item Code	Item Description (from Questionnaire)	Component	Loading
	Q10b	Small-scale tea farmers	1	.685
	Q10e	Tea Research and Development Institutes	1	.804
	Q11c	Combining and converting various knowledge types.	1	.777
	Q11e	Utilising knowledge and user feedback to generate new knowledge.	1	.704
	Q12a	Knowledge creators	1	.687
	Q12b	Knowledge mobilisers	1	.843
	Q12c	Knowledge champions	1	.848
	Q12d	Knowledge consumers	1	.823
	Q14a	Yes	1	.844
	Q15c	They facilitate training, coaching and learning initiatives for the farmers.	1	.940
	Q16c	Integration of knowledge into their daily tea farming practices	1	.641
	Extraction Method: Principal Component Analysis			
	a. 1 components extracted.			

Component matrix[a] for KMb strategies

Item Code	Item Description (from Questionnaire)	Component	Loading
Q17a3	Scholarly journal articles	1	.861
Q17b1	Workshops	1	.902
Q17c3	Community of practice	1	.791
Q17c7	Social media	1	.911
Q18a5	Newspaper articles (extent of facilitation)	1	.869
Q18b3	Conferences (extent of facilitation)	1	.808
Q18c6	Online forum (extent of facilitation)	1	.806
Q18c7	Social media (extent of facilitation)	1	.899
Q19	Technology effectiveness in enhancing KMb	1	.801
Extraction Method: Principal Component Analysis			
a. 1 components extracted.			

Component Matrix[a] for Indicators of KMb			
Item Code	**Indicator Description (from Questionnaire)**	**Component**	**Loading**
Q20a2	The quantity of knowledge disseminated	1	.764
Q20b2	The consumers who have actively adapted and implemented the knowledge	1	.703
Q20b3	The influence of knowledge use on policies, programs, training, education, and research	1	.696
Q20c1	The quantity of documents read or browsed	1	.678
Q20c2	The degree of satisfaction expressed by knowledge users	1	.692
Q20c3	The perceived utility of the information	1	.679
Q20c4	The acquisition of new knowledge	1	.615
Q20d4	The enhancement of influence capacity	1	.685
Q20d5	The extent of collaboration attained within the process of KMb	1	.634
Extraction Method: Principal Component Analysis			
a. 1 components extracted.			
Component matrix[a] for factors impacting KMb			
Item Code	**Item Description (from Questionnaire)**	**Component**	**Loading**
Q21a1	Budgetary allocations influence KMb initiatives	1	.703
Q21a2	Stipends for knowledge collaborators influence KMb initiatives	1	.774
Q21a4	Collaborative Knowledge networks, such as community of practice influence KMb initiatives	1	.703
Q21b1	Small-scale tea farmers are the primary users of tea agribusiness knowledge	1	.686
Q21b2	Small-scale tea farmers are a critical resource in the KMb process	1	.755
Q21b3	Engaging small-scale tea farmers as knowledge users impacts the effectiveness of KMb initiatives	1	.772

Q21c1	The complexity of knowledge affects its mobilisation, transfer and application for small-scale tea farmers	1	.842
Extraction Method: Principal Component Analysis			
a. 1 components extracted.			

For the construct types of knowledge produced and utilised, the component matrix showed that all ten items loaded onto a single latent construct, confirming the presence of a unified knowledge system underpinning tea-farming practices. The highest loading was recorded for dissemination through storytelling and mentoring (0.919), indicating the dominance of informal, experience-based knowledge transfer. Technology-enabled processes were also prominent, with strong loadings for IT-supported reverse engineering (0.839) and IT integration of tacit and explicit knowledge (0.829). Embedded knowledge forms, such as cultural norms (0.825) and product-based knowledge (0.685), further reinforced the importance of situated expertise within farming systems. Access to explicit knowledge through intranet and extranet platforms (0.714), communities of practice (0.677), and dissemination using digital portals (0.701) all exceeded the 0.60 loading threshold. Comparable loadings were observed for tacit knowledge accessed via experiential sources, such as lessons learned (0.650) and land preparation and management practices (0.603). Collectively, these findings support a hybrid model of KMb that combines tacit, explicit, embedded, and digital knowledge forms, consistent with the arguments of Nonaka, Takeuchi and Umemoto (1996), and Wenger (2009). Overall, the construct demonstrates that small-scale tea farmers depend on a multi-layered KMb ecosystem in which experiential practices are interwoven with digital, explicit, and embedded knowledge types to create a strong and contextually grounded hybrid structure.

The rotated component matrix for collaborators involved in KMb produced a single, cohesive factor, with all eleven collaboration items displaying strong positive loadings, thereby validating a unified collaboration construct. The strongest loading was associated with the facilitation of training, coaching, and learning initiatives (0.940), underscoring the central role of capacity-building. This was followed by knowledge champions (0.848), knowledge mobilisers (0.843), knowledge consumers (0.823), and the binary indicator Yes (0.844), all of which reflected active engagement mechanisms. Process-related elements, including the combination and conversion of knowledge types (0.777) and the utilisation of user feedback to generate new knowledge (0.704), also loaded highly. Institutional actors were represented by

tea research and development institutes (0.804) and knowledge creators (0.687). Farmer involvement was evident through significant loadings for small-scale tea farmers (0.685) and the integration of knowledge into daily farming practices (0.641). Collectively, these results portray collaboration as an integrative, participation-based system operating across diverse actors and processes (Klerkx, Jakku and Labarthe 2019; Hermans et al. 2017).

For the construct KMb strategies, the component matrix showed that all 9 items exceeded the 0.80 loading threshold, except communities of practice, which nonetheless met the acceptable loading criterion (>0.60), thereby indicating a strong strategic factor. The most influential contributors were the extent of facilitation through social media (0.899), participation in workshops (0.902), and the use of social media as a KMb strategy (0.911). Mass media platforms also recorded high loadings, notably newspaper articles (0.869) and scholarly journal articles (0.861). Formal knowledge-sharing platforms, such as conferences (0.808), online forums (0.806), and technology effectiveness (0.801), loaded strongly, while semi-formal mechanisms, such as communities of practice, loaded at 0.791. Collectively, these findings suggest a multi-pronged mobilisation repertoire that blends interpersonal, institutional, digital, and media-based strategies, as discussed by Cvitanovic et al. (2017) and Ward, House and Hamer (2009).

The rotated component matrix for indicators of KMb showed that all nine indicators demonstrated strong loadings on a single latent factor. The quantity of knowledge disseminated registered the highest loading (0.764), followed by acquisition of new knowledge (0.615) and extent of collaboration attained (0.634). Use-related outcomes, including active adaptation and implementation (0.703) and policy and programme influence (0.696), also loaded strongly. Measures of user experience similarly exceeded the retention threshold, with quantity of documents read (0.678), user satisfaction (0.692), utility of information (0.679), and enhancement of influence capacity (0.685). Collectively, these findings illustrate a balanced performance construct capturing reach, uptake, user perceptions and collaborative influence (Lavis et al., 2003; Nutley & Davies, 2016). This reinforces the notion that measurement of mobilisation effectiveness needs to combine tangible and intangible dimensions. The decision to retain only items ≥0.60 ensured that all indicators had meaningful explanatory power within the construct.

The impact-factor matrix produced a single coherent construct, with seven items exhibiting high loadings. 'Knowledge complexity' emerged most strongly (0.842), indicating that the

intrinsic nature of knowledge substantially conditions its mobilisation effectiveness. Incentive-related mechanisms such as 'stipends for knowledge collaborators' (0.774) and 'the engagement of farmers as knowledge users' (0.772) were equally influential. Farmer-centric factors also remained prominent, with the components' farmers as a critical resource' (0.755) and 'farmers as primary users' (0.686) registering substantial loadings. Contextual enablers such as 'budgetary allocation' (0.703) and 'collaborative knowledge networks' (0.703) further underscored the role of structural and financial supports. Applying the 0.60 threshold allowed for the removal of weaker items, thereby increasing the robustness of the construct. Collectively, these findings suggest that KMb outcomes are shaped by a combination of knowledge attributes, stakeholder engagement, and resource availability, aligning with broader theoretical perspectives on mobilisation effectiveness (Ward, 2017; Durrant et al., 2024).

5.2.8.4 Confirmatory Factor Analysis (CFA) for a developing framework for enhancing KMb

A CFA) test was conducted to evaluate the structural validity of the components for the proposed framework for enhancing KMb. f. The purpose of the CFA was to confirm whether the retained factors were conceptually coherent and statistically sound. This could assist the researcher in affirming the integrity of the framework and positioning it as a credible foundation for strengthening KMb practices. The results of the CFA for the components of the KMb framework are discussed in the subsequent sections.

A CFA for the types of knowledge produced and utilised was conducted to validate the dimensional structure that emerged from the exploratory phase. The analysis aimed to confirm the coherence and reliability of the knowledge type construct, specifically how the various forms of knowledge collectively underpin mobilisation effectiveness for small-scale tea farmers. It also strengthened the conceptual basis for understanding how multiple knowledge types are created, integrated, and applied within the context of this study. The CFA results are presented in Figure 5.4.

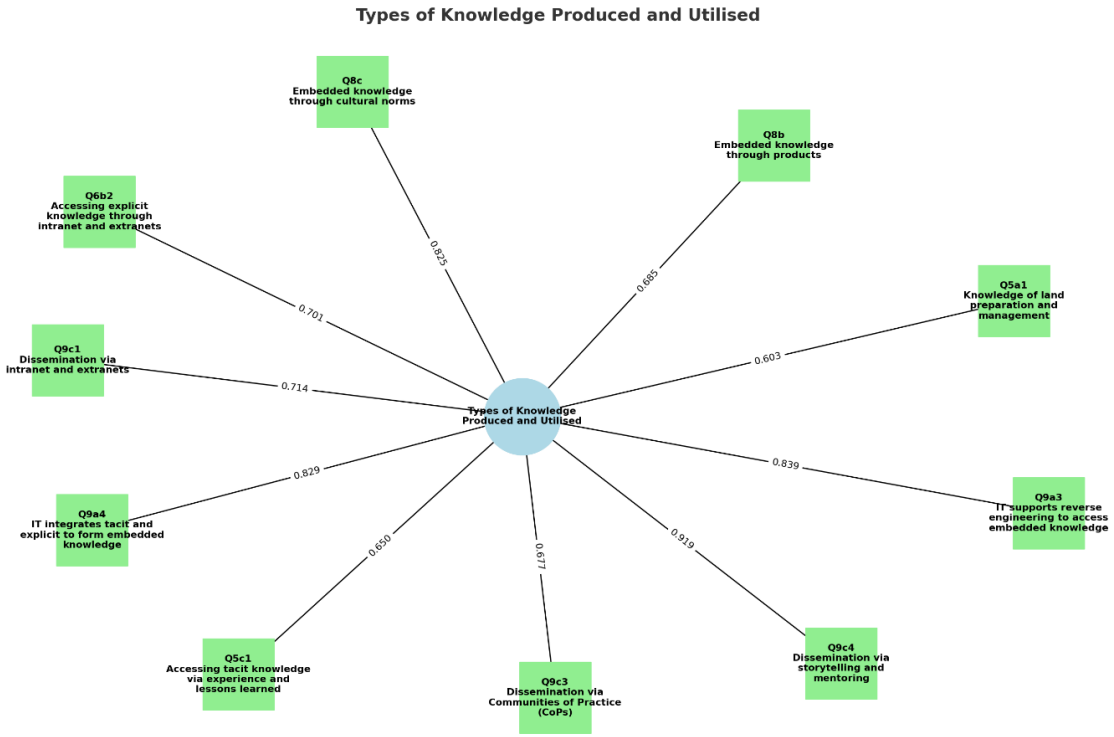


Figure 5.4: CFA for types of knowledge produced and utilised

Source: Field data (2024)

The CFA results for types of knowledge produced and mobilised indicated that the construct was defined by three core indicators: knowledge on land preparation and management (loading = 0.603), access to tacit knowledge through experience and lessons learned (loading = 0.650), and access to explicit knowledge via intranet and extranet (loading = 0.701). Other measured variables, such as embedded knowledge through products (loading = 0.685) and cultural norms (loading = 0.825), were also included. IT-related integration and dissemination practices (with loadings ranging from 0.677 to 0.919) also demonstrated acceptable to strong associations with the latent construct. Collectively, these findings confirm the multidimensional structure of the construct, which integrates tacit, explicit, embedded, and IT-supported knowledge forms. The particularly high loading for storytelling and mentoring (0.919) further underscores the prominence of interpersonal knowledge transfer within this system.

A CFA for the collaborators involved in mobilising knowledge was conducted to validate the underlying structure of stakeholder roles and interactions within the mobilisation framework. The analysis aimed to confirm the coherence and reliability of the collaboration construct and to strengthen the conceptual basis for understanding how diverse actors collectively enhance the processes of knowledge creation, integration, and utilisation in this context. The CFA results are presented in Figure 5.5.

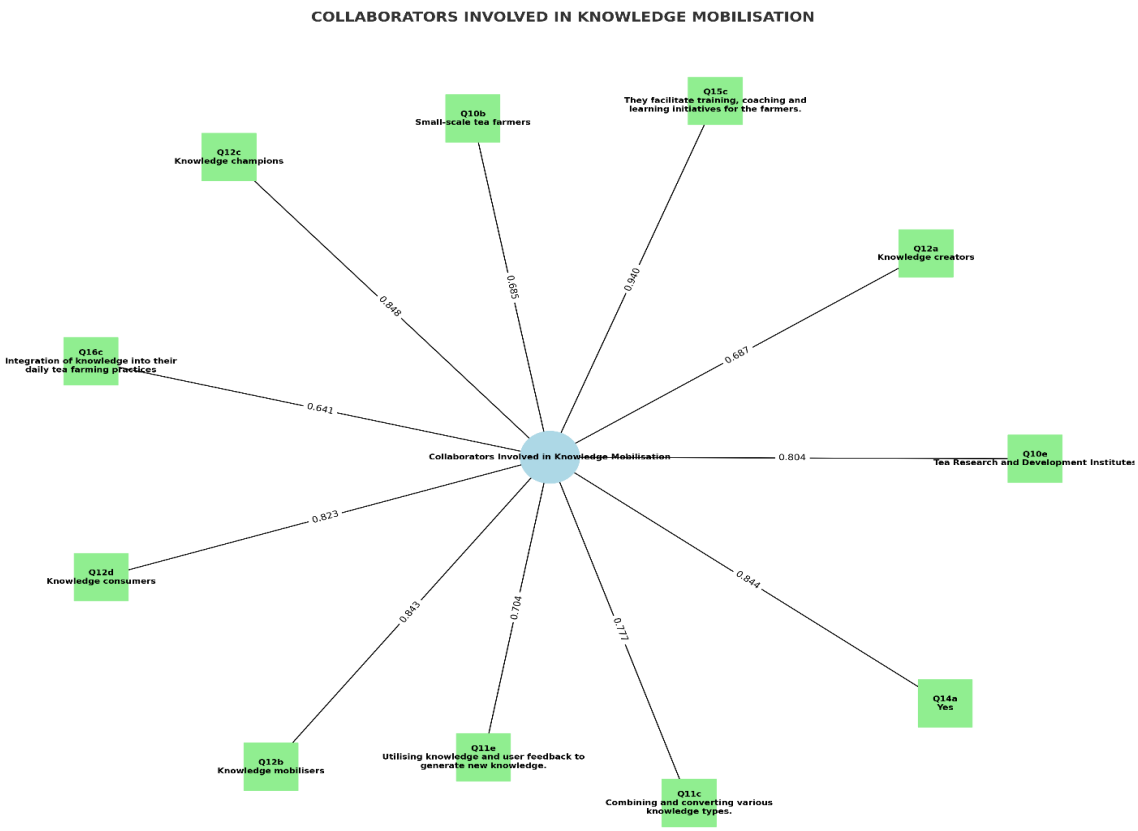


Figure 5.5: CFA for collaborators involved in KMb

Source: Field data (2024)

As aforementioned, a CFA was conducted to validate the hypothesised single-factor structure representing collaborators in KMb for small-scale tea farmers. The model specified one latent construct, 'collaborators involved in KMb, which was measured by 11 observed indicators. The findings show that all factor loadings exceeded the recommended minimum threshold of 0.60, which indicates a strong association of each variable with the latent construct. The highest loading was for 'facilitation of training, coaching, and learning initiatives' (0.940). Similarly high loadings were recorded for 'knowledge champions' (0.848), 'knowledge mobilisers' (0.843), and 'knowledge consumers' (0.823). 'Tea research and development institutes' (0.804) and 'knowledge creators' (0.687) demonstrated high loadings. Grassroots contributions were reflected in the role of small-scale tea farmers (0.685), while the integration of knowledge into daily tea farming practices (0.641) illustrated the practical application of knowledge at the farm level. Process-related indicators, including the combination and conversion of various knowledge types (0.777) and the utilisation of user feedback to generate new knowledge (0.704), confirmed that the collaboration framework incorporates adaptive and iterative

knowledge processes. Collectively, these results affirm the construct validity of the collaboration model in KMb.

A CFA) for the KMb strategies was conducted to validate the structural integrity of the strategy construct identified during the exploratory phase. The analysis aimed to confirm the coherence and reliability of these strategies and to strengthen the conceptual basis for understanding how different KMb strategies collectively drive the creation, sharing, and utilisation of knowledge within the small-scale farming sector. The CFA results are presented in Figure 5.6.

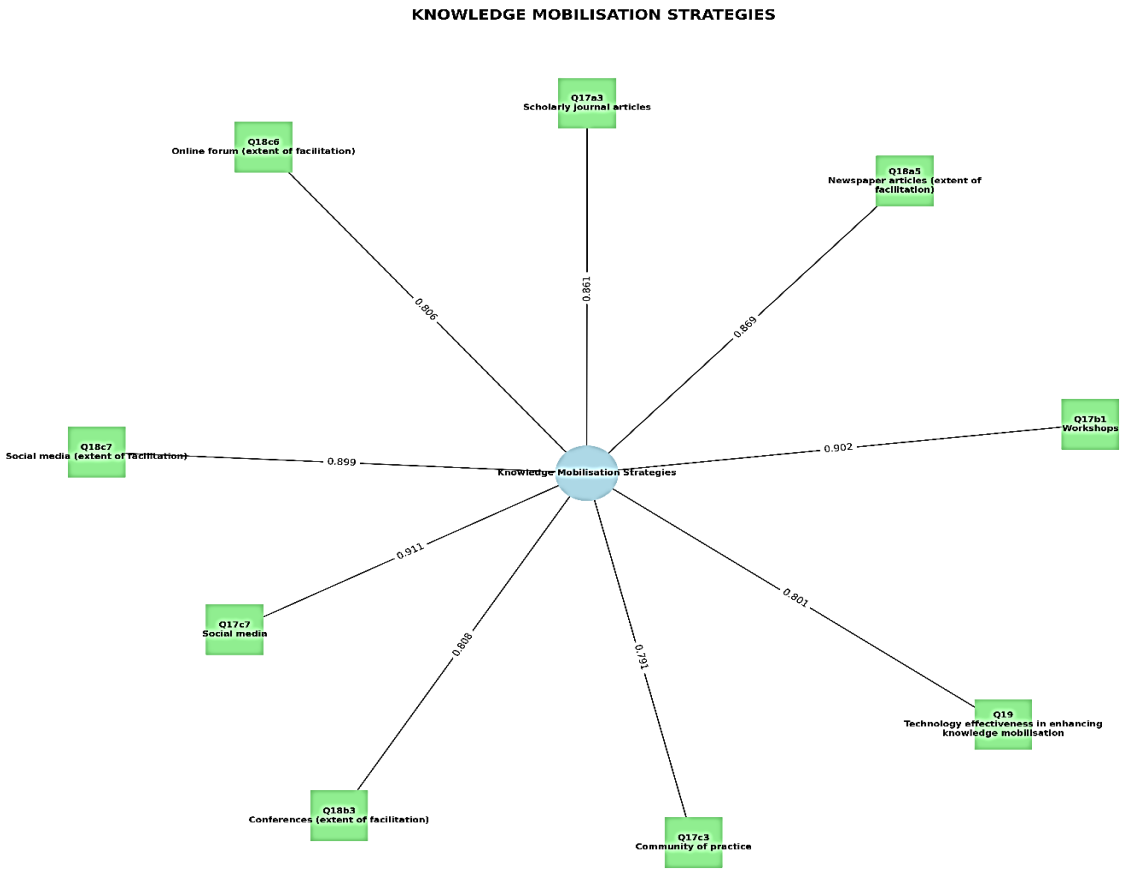


Figure 5.6: CFA for KMb strategies

Source: Field data (2024)

CFA supported the hypothesised one-factor structure for KMb strategies. All 9 observed indicators loaded strongly on a single latent construct, indicating a cohesive strategic orientation. The highest loadings were recorded for ‘social media’ (0.911) and ‘social media facilitation’ (0.899). Face-to-face engagements, such as ‘workshops’ (0.902), and formal news channels (such as ‘newspaper articles’ (0.869) and ‘scholarly journals’ (0.861), also demonstrated substantial loadings. Knowledge-sharing events like ‘conferences’ (0.808) and

digital hubs such as ‘online forums’ (0.806) also recorded high loadings. Moderately high contributions were also observed for ‘communities of practice’ (0.791) and ‘technology effectiveness for KMb’ (0.801), further highlighting the strategic diversity of KMb initiatives. Collectively, these results confirm that effective KMb relies on a synergistic combination of digital, interactive, and institutional strategies.

A CFA for the indicators of KMb was conducted to validate the latent structure of the measurement construct identified during the exploratory phase. The purpose of the CFA was to confirm the coherence and reliability of the indicators (such as relevance, timeliness, usability, and uptake) and to reinforce the conceptual foundation for understanding how these dimensions collectively reflect the effectiveness of knowledge creation, integration, and utilisation in this context. The resulting model and factor loadings are presented in Figure 5.7.

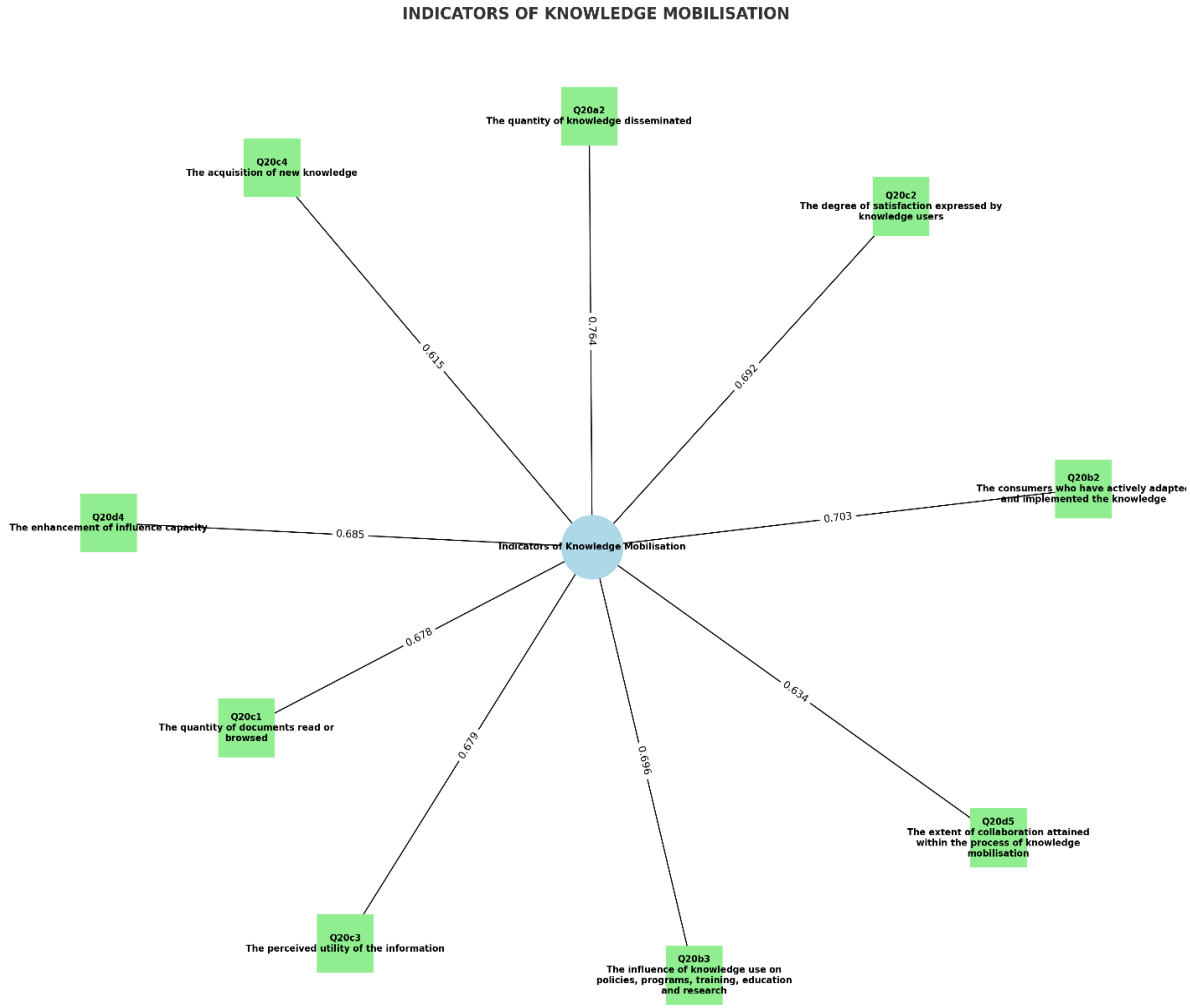


Figure 5.7: CFA for indicators of KMb

Source: Field data (2024)

CFA confirmed a one-factor structure for indicators of KMb. All 9 variables loaded strongly on the latent construct, validating it as a unified performance measure. The highest loading was for ‘quantity of knowledge disseminated’ (0.764), suggesting dissemination volume is a key success marker. Use-related indicators, such as ‘active adaptation by consumers’ (0.703) and ‘policy/programme influence’ (0.696), demonstrated high loadings, reflecting the perceived importance of behavioural and institutional change. High loadings were also recorded for ‘user satisfaction’ (0.692), ‘utility of information’ (0.679), ‘quantity of documents read’ (0.678), and ‘acquisition of new knowledge’ (0.615), highlighting a user-centred assessment criterion. ‘Enhanced influence capacity’ (0.685) and ‘extent of collaboration’ (0.634) also had substantial loadings, indicating the recognition of broader network effects. Collectively, the results demonstrate that dissemination, uptake, user experience, and collaborative influence operate synergistically as indicators of mobilisation effectiveness.

A CFA for the factors impacting KMb was conducted to validate the latent structure of the determinants identified during the exploratory stage. The purpose of the CFA was to confirm the coherence and reliability of the influencing factors, including organisational support, resource availability, stakeholder engagement, and the policy environment, and to reinforce the conceptual foundation for understanding how these factors collectively shape the processes of knowledge creation, integration, and utilisation in this context. The resulting model and factor loadings are presented in Figure 5.8.

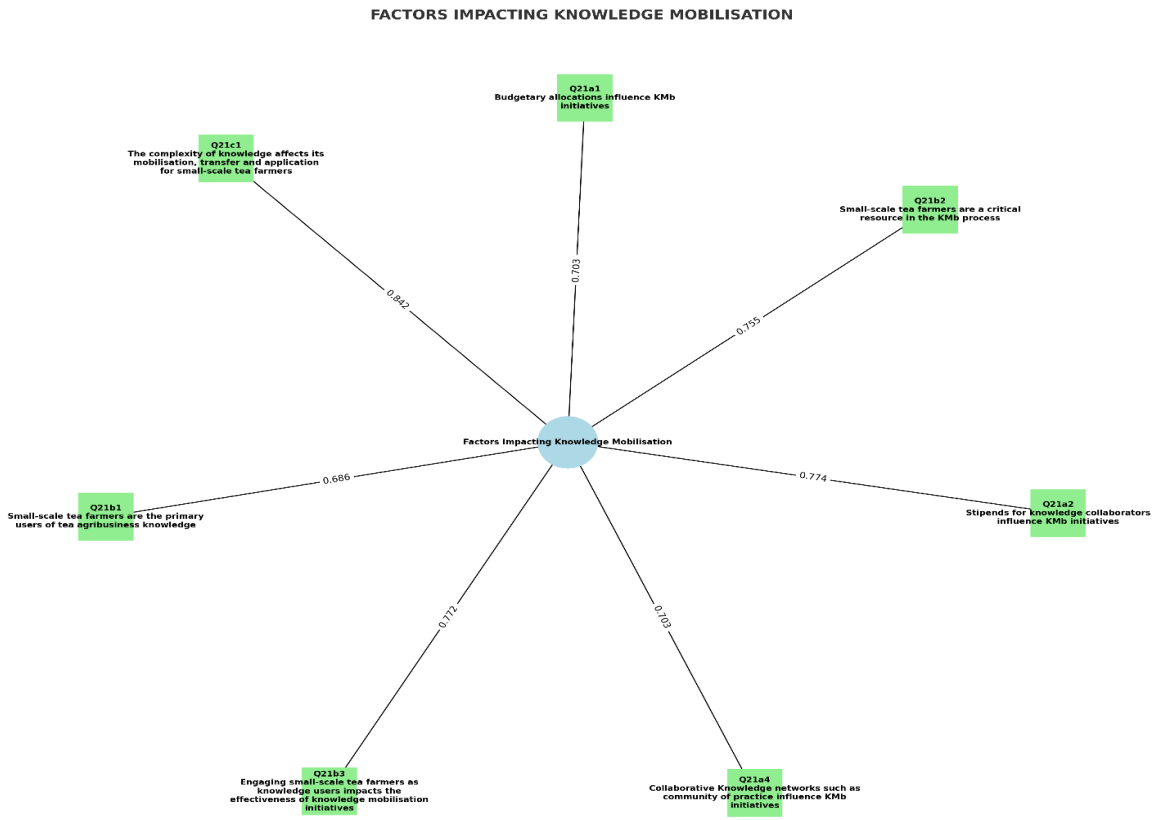
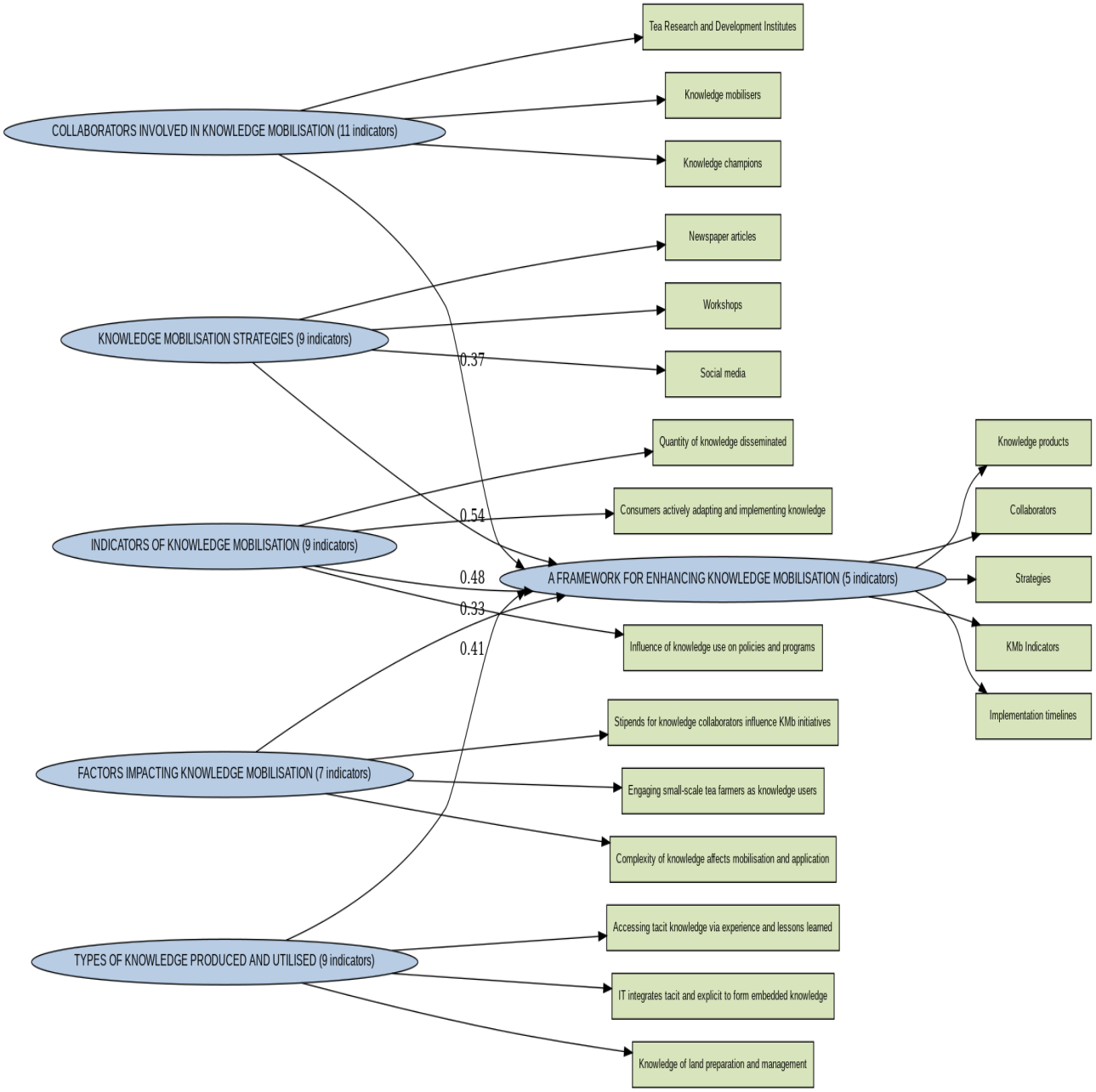


Figure 5.8: CFA for the factors impacting KMb

Source: Field data (2024)

CFA validated a one-factor structure for factors impacting KMb. All 7 variables loaded strongly onto the latent construct, confirming their collective influence. 'Knowledge complexity' showed the highest loading (0.842), suggesting that the ease of understanding knowledge plays a critical role in ensuring successful mobilisation. Incentive-driven mechanisms, including 'stipends for collaborators' (0.774) and 'engaging small-scale tea farmers as knowledge users' (0.772), also registered high loadings. Farmer-centric elements, namely 'treating farmers as critical resources' (0.755) and 'recognising farmers as primary users of knowledge' (0.686), reinforced their central role in KMb implementation. Organisational enablers, including 'budgetary allocations' and 'collaborative knowledge networks', both with loadings of 0.703, further accentuate the importance of resourcing and collaborative infrastructure. Collectively, these findings confirm that knowledge characteristics, stakeholder engagement, and institutional support act synergistically as determinants of mobilisation outcomes, which is consistent with theoretical perspectives highlighting the contextual and relational nature of KMb effectiveness.



5.2.8.5 The Principal Component Analysis (PCA) for the initial framework of KMb

The initial framework was constructed from the results of a Principal Component Analysis (PCA), which examined all the measurement constructs for enhancing KMb for small-scale tea farmers. The PCA assessed the extent to which five latent constructs, types of knowledge, knowledge collaborators, KMb strategies, KMb indicators, and factors impacting KMb, collectively contributed to the overall framework. In the initial structural model, these five constructs were operationalised with a broad set of observed indicators to capture the conceptual scope of the study. The initial structural model is presented in Figure 5.9.

Figure 5.9: Principal Component Analysis (PCA) for the initial KMb framework

Source: Field data (2024)

When the model was estimated in SPSS AMOS, the standardised path coefficients between the independent constructs and the dependent variable ranged from 0.33 to 0.54, suggesting moderate associations. The most influential predictor was 'indicators of KMb' (0.54), followed by 'collaborators involved in KMb' (0.48), 'factors impacting KMb' (0.41), 'KMb strategies' (0.37), and 'types of knowledge produced and utilised' (0.33). Although this configuration preserved the richness of the original constructs, the results indicated that not all indicators contributed equally to explaining the outcome. The diversity of variables in the measurement model provided comprehensive coverage but introduced measurement noise, prompting the need for refinement to improve parsimony and interpretability. The PCA results overall affirmed the rationality of the proposed framework and demonstrated that effective KMb is strengthened when multiple components, including products, collaborators, strategies, contextual factors, and knowledge types, intersect coherently and synergistically.

5.2.8.6 The Principal Component Analysis (PCA) for the final framework of KMb

The final framework (see Figure 5.10) was also developed from the results of Principal Component Analysis (PCA), which examined all the measurement constructs for enhancing KMb practices for small-scale tea farmers.

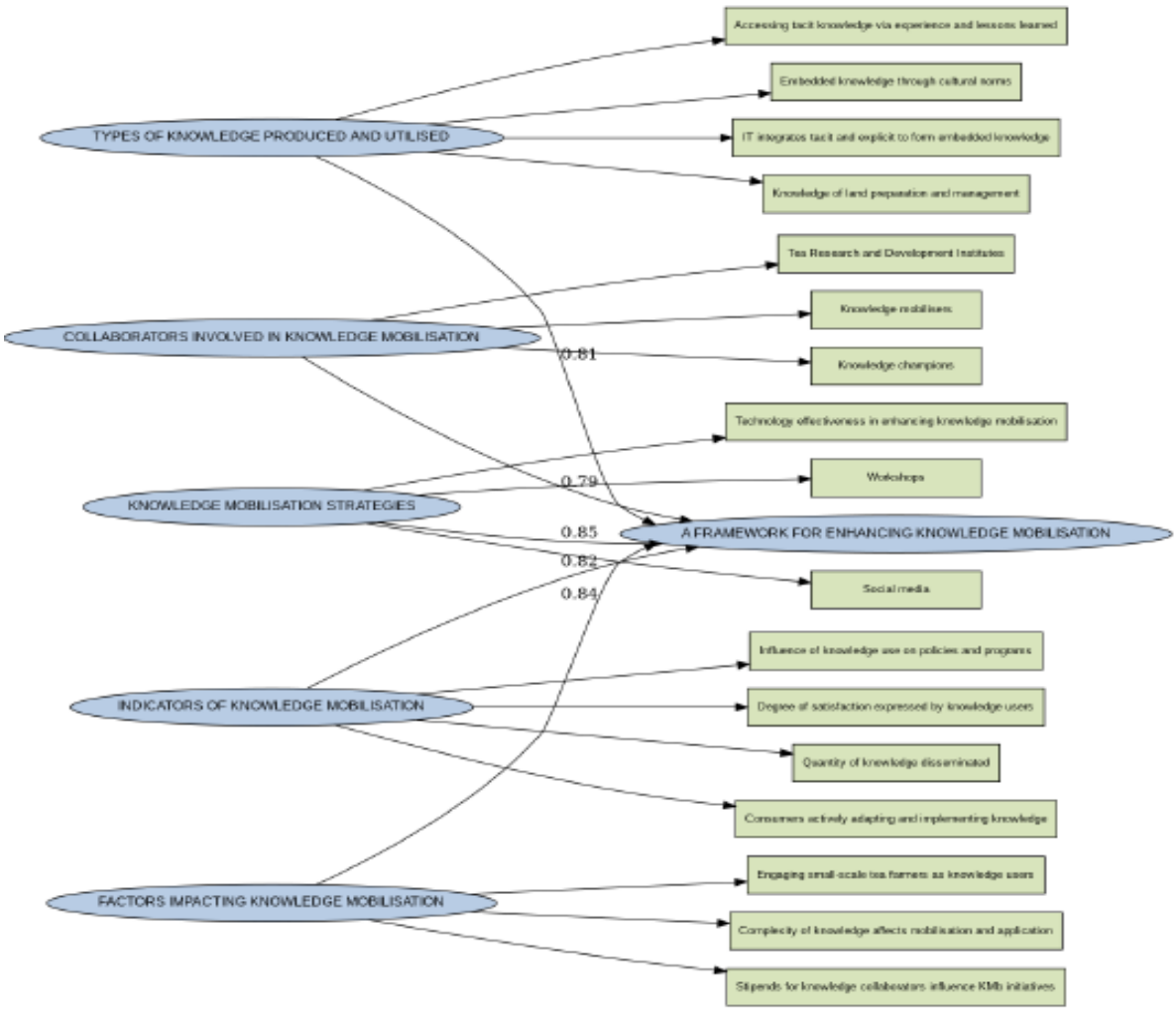


Figure 5.10: Principal Component Analysis (PCA) for the final KMb framework

Source: Field data (2024)

The final framework emerged from a process of systematically narrowing the measurement model to retain only the most statistically and theoretically significant indicators. Items with factor loading below 0.70 were removed to ensure that the remaining indicators contributed strongly to their respective constructs. This resulted in a model where each latent variable was defined by a reduced set of high-loading indicators, which improved clarity while preserving the essential dimensions of the original framework. The SEM estimation of the refined model produced stronger path coefficients, with values ranging from 0.79 to 0.85. This improvement indicated that the retained variables explained a substantially greater proportion of the variance in the dependent variable. The final framework offers a more empirically robust representation of the relationships. It also maintains the theoretical breadth necessary to reflect the KMb process for small-scale tea farmers. Thus, the final framework depicts the most influential

predictors and achieves a balance between statistical rigour and conceptual comprehensiveness. This makes the framework well-suited for guiding both interpretation and practical application.

5.3 Qualitative findings for interviews

This section presents the qualitative findings of the study, which aim to complement the quantitative analysis discussed earlier. The qualitative data were collected using semi-structured interviews to gather first-hand insights from participants. The data was analysed using thematic analysis, a method considered appropriate by Castleberry and Nolen (2018) due to its flexibility and ease of use in interpreting interview-based qualitative data. The presentation includes themes, codes, and direct quotes from the respondents' narratives. The interviews were recorded and transcribed verbatim before analysis. The study followed the eight-phase approach to qualitative data analysis as outlined by Creswell and Plano Clark (2023). These phases include organising and preparing data, reading through the material, developing a storyline, coding the data, identifying themes, interpreting findings, using an analytic framework, and reporting the results. Before collecting the data, permission was obtained from respondents to record audio, an essential aspect of qualitative analysis. Ethical considerations were observed by ensuring participant anonymity, with respondents instructed not to disclose their names, locations, or institutional affiliations during the interviews.

A total of 19 participants were selected for the semi-structured interviews. This qualitative analysis aimed to explore how these individuals, in their professional capacities, have contributed to the mobilisation of knowledge for small-scale tea farmers. The interview guide comprised 13 questions derived from the study objectives and survey data, in harmony with the concurrent mixed methods approach. Key sections of the guide included: a) participant biodata, b) types of knowledge produced and utilised, c) knowledge collaborators, d) KMb strategies, e) indicators of KMb, f) factors influencing KMb, and g) a KMb framework. The findings are presented in the order in which the questions were asked.

5.3.1 Response rate

As previously mentioned, 19 participants were initially selected for the semi-structured interviews, comprising 13 managers and 6 agricultural extension officers. The researcher scheduled appointments via telephone and email. Ultimately, 13 participants were interviewed: all 6 agricultural extension officers (100%) and 7 managers (53.8%). The lower response rate among the managers, who were directors of the tea factories, was primarily due to ongoing elections, which resulted in some incumbents not being re-elected. Furthermore, the Director

of Research at MUT was unavailable for an interview. Consequently, thematic analysis was conducted on the 13 completed interviews, and the findings from these are presented herein.

5.3.2 Respondents' biodata

The first section of the interview guide aimed to explore the sociodemographic profiles of the study participants. The demographic data collected included the participants' category, gender, age, educational background, and experience in the tea agribusiness sector. This information is summarised and presented in Table 5.26.

Table 5.26: Demographic information of interview participants

Respondents Code		**Category**	**Gender**	**Age**	**Education**	**Years of experience**
MAN-1		Manager	Male	53 years	Master's Degree	12 years
MAN-2		Manager	Male	50 years	Bachelor's Degree	19 years
MAN-3		Manager	Male	55 years	Master's Degree	15 years
MAN-4		Manager	Female	57 years	College Diploma	27 years
MAN-5		Manager	Female	44 years	Bachelor's Degree	18 years
MAN-6		Manager	Male	46 years	Bachelor's Degree	20 years
MAN-7		Manager	Male	39 years	Master's Degree	14 years
AEO-8		Agricultural Extension Officers	Female	42 years	College Diploma	15 years

AEO-9		Agricultural Extension Officers	Male	35 years	Bachelor's Degree	7 years
AEO-10		Agricultural Extension Officers	Male	40 years	College Diploma	10 years
AEO-11		Agricultural Extension Officers	Male	37 years	College Diploma	7 years
AEO-12		Agricultural Extension Officers	Male	24 years	Bachelor's Degree	2 years
AEO-13		Agricultural Extension Officers	Male	31 years	College Diploma	5 years

Source: Field data (2024)

From the demographic information of the 13 respondents presented in Table 5.26, the researcher represented each respondent's identity with a serial number based on their category. For instance, Managers were allocated the code MAN (example MAN-1) while agricultural extension officers allocated AEO notation (such as AEO-8). The qualitative data revealed the following details: The respondents' grouping revealed that 6 were agricultural extension officers and 7 were managers. Gender distribution analysis revealed male dominance among both managers and agricultural extension officers. To be specific, 5 out of the 7 managers were male, while two were female. Among the agricultural extension officers, 5 respondents were male and 1 was female. The respondents' ages were between 24 and 57 years old. The managers' age ranges were in their mid-ages (39 to 57 years), while agricultural extension officers' age ranges were in their youth to early Middle Ages (24 to 42 years old), meaning that extension work is being undertaken increasingly by young professionals.

The level of education of the managers was 3 holding master's degrees, 3 holding bachelor's degrees, and 1 holding a college diploma. The majority of the agricultural extension officers have a college diploma (4 officers), whereas 2 of them hold bachelor's degrees. Finally, in terms

of experience, managers had more years of experience (12 to 27 years), while the agricultural extension officers had fewer years of experience, the majority having less than 10 years, with 1 officer having 15 years of experience.

5.3.3 Types of knowledge produced and utilised for small-scale tea farmers

To address the first objective of the study, data from interview responses were coded and compared to identify recurring patterns in participants' descriptions of knowledge use in tea farming. Through thematic analysis, one major theme emerged: understanding the types of knowledge created, shared, and mobilised for small-scale tea farmers. This theme was supported by three sub-themes: experiential knowledge, extension-based knowledge, and practical agribusiness knowledge. Across the interviews, participants consistently described knowledge mobilisation as a process through which farmers acquire, exchange, and apply information from personal experience, peer interaction, and professional guidance. Selected responses depicting these subthemes are presented below:

> Most of the farmers rely on knowledge passed down from other experienced farmers and agricultural extension officers, which helps them manage their tea farms (AEO-10).
>
> To me, the most important knowledge for the small-scale tea farmers is what they acquire through learning and experiences over many seasons. The farmers share practical experiences with others and, in turn, learn from others (MAN-3).
>
> When I hear the term KMb, I think of helping small-scale tea farmers acquire and apply various types of agribusiness knowledge and new farming practices (AEO-12).

The three sampled responses indicate that the participants understood that KMb is not a single event but an ongoing process of learning, sharing, and application within real farming contexts. The response from AEO-10 supports the sub-theme of extension-based knowledge, where external technical advice is integrated with local farming experience. This response from MAN-3 illustrates experiential knowledge, as it shows that farmers do not merely receive knowledge passively but actively construct it through repeated engagement with tea farming activities. Similarly, AEO-12 described KMb as helping farmers acquire and apply agribusiness knowledge and new farming practices which points to the practical and applied nature of knowledge mobilisation in the tea sector.

However, the data also suggest variation in the depth of understanding among participants. While some responses demonstrated a relatively strong grasp of knowledge mobilisation, others

concentrated primarily on general farming advice rather than differentiating between various forms of knowledge. This indicates that the evidence supports a broad awareness of knowledge mobilisation, but not necessarily a uniform or comprehensive understanding across all participants. Accordingly, the findings should be interpreted as reflecting emerging, context-specific knowledge awareness rather than assuming complete mastery by every respondent.

5.3.4 Collaborators involved in KMb for small-scale tea farmers

To address the second objective, which sought to determine the collaborators involved in knowledge mobilisation for small-scale tea farmers, the interview data were coded and compared to identify the main actors and institutions supporting KMb. Three sub-themes emerged from the analysis: access to processing and information resources, training and practical support, and collaboration with researchers. These sub-themes show that knowledge mobilisation in the tea sector is not limited to farmers alone, but is supported by institutional actors who facilitate access to both technical services and knowledge resources.

Participants described factories as important points of access for both processing and learning. They provided varied responses, such as:

> I ensure that the tea farmers have access to processing facilities and resources, including information resources (AEO-9).
>
> My company hosts workshops and training sessions, and provides practical support to farmers on tea farming (MAN-1).
>
> We often collaborate with researchers to ensure farmers have access to, utilise and apply the information and knowledge (AEO-10).

The interviewees' statements can be interpreted as follows. The response from AEO-09 reflects the sub-theme of access to processing and information resources, where the factory functions not only as a production site but also as a channel for information and knowledge support. The response from MAN-1 illustrates the sub-theme of training and practical support, indicating that factories contribute to KMb by creating opportunities for farmers to learn and apply improved tea farming practices. Additionally, the statement from AEO-10 highlights the sub-theme of collaboration with researchers, showing that KMb is strengthened through linkages between practitioners and research actors.

Overall, these responses indicate that factories and their respective staff serve as key collaborators in KMb by providing infrastructure, facilitating training, and connecting farmers

with research-based knowledge. The findings therefore suggest that KMb practices in the small-scale tea sector are supported through a network of institutional relationships rather than isolated individual efforts. This interpretation is grounded in the participants' accounts, which consistently demonstrate that processing facilities also function as spaces for information sharing, capacity building, and the exchange of practical knowledge.

5.3.5 KMb strategies for small-scale tea farmers

Establishing effective KMb strategies and systems is essential to the growth of the tea agribusiness sector. In this context, the researcher sought to identify the strategies, policies, and systems that support KMb, sharing, and transfer. Framed by the general theme of 'support structures for small-scale tea farmers', the researcher posed several guiding questions to the respondents. As a result, five sub-themes arose from the above questions: training needs, policy and programme frameworks, leadership and management support, financial resources, and access to information. The following sections give a detailed discussion of the sub-themes.

5.3.5.1 Training needs for farmers and staff

The researcher posed the question: "What training needs do farmers and knowledge providers who support small-scale tea farmers require?" The findings from the interview data revealed that training is a fundamental requirement for both small-scale tea farmers and the agricultural extension officers who support them. The respondents further emphasised that the farmers need technical and practical skills to strengthen their tea farming practices. Then again, extension officers and knowledge mobilisers require ongoing professional development to remain up to date with emerging agribusiness innovations and best practices. The importance of continuous capacity building was particularly consistently echoed across the interviews. A few selected responses from participants illustrate these insights.

> I need training in agribusiness and KMb and transfer (AEO-8).
>
> There is a need to build capacity and technical skills for small-scale tea farmers to enhance their production (MAN-7).
>
> There is a need for frequent training to keep both small-scale tea farmers and agricultural extension officers updated on best agribusiness practices (AEO-10).

In general, respondents highlighted the necessity of targeted training to improve farmers' technical skills and ensure that support staff are equipped to assist farmers effectively.

5.3.5.2 Policy and programme support

Regarding policy and programme support, the researcher posed the question: "Are there policies, strategies, or programmes in place to facilitate KMb for small-scale tea farmers?" The respondents acknowledged that there are some initiatives that are in place aimed at promoting KMb initiatives, although their effectiveness was reported to vary. The respondents further emphasised the need for current programmes to be better aligned with small-scale tea farmers' specific needs. They also stressed the importance of stronger government-backed initiatives to enhance knowledge sharing and dissemination. Sample responses are presented below.

> Policies and programmes should be aligned with farmers' needs and tailored to local contexts (AEO-10).

> The government should develop national policies to support the dissemination of research knowledge to small-scale tea farmers (MAN-2).

> The organisation does not have a formal KMb strategy, but there is support for knowledge sharing activities through workshops and field days (MAN-3).

5.3.5.3 Leadership and management support

The researcher also asked: "How significant are leadership and management support in furthering KMb activities?" The interview data highlighted the critical role of leadership and management support in advancing KMb initiatives for small-scale tea farmers. A large number of the respondents agreed that effective leadership acts as a catalyst for providing direction, allocating resources, and ensuring accountability in KMb initiatives. Selected responses are presented below.

> It is the responsibility of management to ensure that support staff are both adequately trained and sufficient in number to meet farmers' needs (AEO-12).

> Leadership-driven programmes are instrumental in facilitating the exchange and application of knowledge (MAN-1).

> Without management support, KMb efforts are not likely to succeed, as they lack the necessary institutional backing and operational guidance (MAN-3).

Collectively, these responses underscore that strong leadership not only legitimises KMb initiatives but also provides the strategic and logistical framework necessary for their effective implementation.

5.3.5.4 Budgetary allocation and financial support for KMb

A recurrent concern among respondents was the absence of dedicated funding for KMb activities. The researcher asked, "Is there any budgetary provision for marketing KMb activities for small-scale tea farmers? The interviewees stressed that specific budget allocations are needed to support education, training, and resource-sharing initiatives. Additionally, financial resources are vital for KMb. The responses to this question underscore the importance of increased investment in infrastructure and knowledge-sharing platforms to strengthen KMb and ultimately improve farmers' incomes. Some of the expressed opinions included:

> Our department is allocated a specific budget for information-sharing activities to support farmers effectively (AEO-12).
>
> Our company allocates a specific budget for KM activities to support farmers effectively (MAN-4).
>
> Our company provides subsidised resources to small-scale tea farmers to lower production costs and boost expansion; nonetheless, more consistent investment is needed (MAN-1).

5.3.5.5 Access to agribusiness information and knowledge uptake

Enabling access to agribusiness knowledge also emerged as a critical factor in supporting KMb for the small-scale tea farmers. The researcher therefore posed the question: "How important is the process of making agribusiness information accessible to small-scale tea farmers?" The interviewees emphasised that timely and relevant information flow is essential to ensuring that the farmers are empowered. Selected responses included:

> It is important to ensure that agricultural information is readily accessible to small-scale tea farmers (AEO-9).
>
> Measures should be taken to monitor and ensure that small-scale tea farmers share and apply the knowledge gained (MAN-6).
>
> Despite the availability of agribusiness information, uptake and use are hindered by barriers such as low literacy levels and limited access to technology (MAN-7).

In summary, the interview data underscored that knowledge mobilisers should facilitate access to agribusiness information by putting in place strategies that enhance usage and application. The strategies should address structural barriers in order to achieve meaningful KMb and sustained agribusiness development among the small-scale tea farmers.

5.3.6 Factors and indicators of KMb for small-scale tea farmers

To identify the factors and indicators influencing KMb for small-scale tea farmers, the researcher analysed interview data gathered from key informants. In this study, 'factors' refer to determinants that enhance or hinder KMb, while 'indicators' represent measurable signs of progress in KMb activities. The researcher asked targeted interview questions relating to agribusiness training, knowledge dissemination challenges, effectiveness of knowledge application, organisational support, staffing, and training needs. Thematic analysis of the responses yielded three major themes: support structures for small-scale tea farmers, challenges in KMb, and training and capacity building. These were further categorised into subthemes such as training experiences, ongoing training needs, knowledge barriers, application monitoring, investment and financial aid, and staff sufficiency and expertise. The presentation of the findings under each of these themes is provided below.

5.3.6.1 Training background and needs

Interview data revealed that agribusiness training among respondents varied, with some having formal education while others relied on on-the-job learning. Despite this diversity, concern emerged: staff tasked with disseminating agribusiness knowledge to small-scale tea farmers lacked the practical skills required for them to transfer knowledge to the farmers effectively. Respondents therefore underscored the importance of continuous professional development to equip support staff with the latest agribusiness practices and technologies. Some of the responses are presented below:

> Most of our team members were trained long ago, and many have not had refresher courses in years. It is hard for us to pass on new methods when we ourselves have not been updated (AEO-13).

> Both staff and small-scale tea farmers need regular specialised training in agribusiness and knowledge management. Without such training, staff cannot effectively guide farmers, especially with the changing climate and market demands (MAN-1).

> Small-scale tea farmers require training in modern farming techniques and financial literacy to thrive in today's market (MAN-5).

5.3.6.2 Challenges in knowledge dissemination

Interviewee answers revealed that there existed challenges that hindered the successful dissemination and mobilisation of agribusiness information to small-scale tea farmers. These answers were grounded in two questions: "Have you encountered challenges in sharing

knowledge?" and "How do you ensure that the small-scale tea farmers utilise knowledge?" Thematic analysis indicated consistent challenges in knowledge dissemination, such as logistical limitations, poor literacy levels among farmers, and a lack of access to available information resources. Respondents also mentioned difficulty in encouraging farmers to apply the acquired knowledge. Other respondents mentioned the necessity of follow-up feedback systems and support mechanisms to complement learning and improve knowledge adoption. Some sampled responses include:

> Challenges like infrastructure, literacy, and resource availability hinder KMb (MAN-1).
>
> One of our main obstacles is limited access to the rural locations where most small-scale farmers operate (AEO-12).
>
> Feedback mechanisms are essential to ensure farmers adopt the knowledge, although low literacy levels hinder them from communicating feedback effectively" (AEO-8).

These qualitative findings suggest that without targeted interventions, particularly in infrastructure, outreach, and post-training engagement, the impact of knowledge dissemination efforts remains limited.

5.3.6.3 Organisational support and resource availability

This theme addressed two questions, namely, "Does your organisation offer financial and information support?" and "Do you have dedicated staff to assist small-scale tea farmers?" From the responses, respondents underscored the crucial role of organisational support in providing financial, investment, and information resources to support small-scale tea farmers. However, concerns were raised about the sufficiency and expertise of staff assigned to assist farmers, which could limit the effectiveness of KMb and transfer efforts. Sample responses include:

> Our organisation provides investment and financial aid to support small-scale tea farmers (MAN-1).
>
> There is a need for well-trained and adequately staffed teams to support KM initiatives (AEO-10).
>
> Whereas we have organisational support, we need more resources to sustain the programmes that assist small-scale farmers (AEO-12).

5.3.8 A framework for enhancing KMb for small-scale tea farmers

Establishing effective strategies and systems for KMb is essential in the tea agribusiness sector. The goal of the study was to develop a framework to enhance KMb, sharing, and dissemination for small-scale tea farmers. The researcher, therefore, asked the respondents for their opinions on the elements to be included in the KMb framework. Anchored on this sixth objective, the research posed this question to the interviewees: "I am interested in developing a framework to enhance KMb, sharing, and dissemination for small-scale tea farmers; what recommendations or insights would you provide to assist me in this endeavour?" To understand the issues and analyse the questions, the researcher developed the following sub-themes: training and capacity building, policy and leadership support, resource allocation and budgeting, and challenges and barriers. These themes are discussed below:

5.3.8.1 Training and capacity building

The interviewees highlighted the importance of capacity-building for small-scale tea farmers and the support staff as elements that could enhance KMb. Additionally, they observed that training is essential for improving the skills needed to mobilise and disseminate agribusiness knowledge effectively. A sample of the quotes from the interviewees is shown below:

> It is my opinion that without targeted training, farming and knowledge transfer efforts may not yield the desired results (AEO-8).
>
> Both staff and farmers need specialised training in agribusiness and KM (MAN-1).
>
> Capacity-building initiatives are essential, especially in helping farmers adopt sustainable farming techniques (AEO-12).

5.3.8.2 Leadership, policy, and strategic support

Interviewees underscored the critical role of leadership support and structured policies in developing a robust KMb framework. They emphasised that without dedicated management support and well-defined strategies, knowledge dissemination efforts would lose focus and effectiveness. The following insights illustrate this view:

> Effective mobilisation requires leadership-driven policies that recognise the unique needs of small-scale tea farmers (MAN-1).
>
> Strong policies on knowledge sharing enhance our ability to mobilise knowledge and support small-scale tea farmers in effectively utilising knowledge resources (AEO-12).

> Leadership support is essential in ensuring that KMb initiatives remain sustainable and impactful (MAN-3).

5.3.8.3 Financial and resource allocation

Respondents pointed out that financial investments are critical to supporting knowledge-sharing programs. Inadequate budgeting for training, staffing, and outreach programs was mentioned as a barrier to successful knowledge dissemination and should be an important component of a KMb framework. A few quotes from the respondents are indicated below:

> Allocating sufficient resources for these efforts is necessary for scaling up agribusiness knowledge among small-scale tea farmers (MAN-1).

> Allocating adequate resources is fundamental, but our current budget does not allow us to reach as many farmers as needed (AEO-10).

> Investment and financial aid are essential to supporting small-scale farmers (AEO-12).

5.3.8.4 Mitigating challenges and barriers to KMb

The analysis of the interview data reveals several challenges to KMb as identified by the respondents, including cultural barriers, inadequate feedback mechanisms, and delays in information dissemination. Respondents highlighted that cultural resistance is a hindrance to KMB, emphasising the importance of culturally sensitive techniques when disseminating knowledge. Similarly, another respondent underscored the importance of feedback and monitoring mechanisms to ensure that farming knowledge is effectively shared. Another respondent noted delays in information and communication flow, indicating logistical inefficiencies in disseminating timely information. A few quotes from the respondents are indicated below:

> We collaborate with local leaders to overcome cultural barriers that hinder knowledge uptake among farmers (AEO-12).

> Monitoring of challenges and feedback mechanisms is necessary to ensure that knowledge shared is effectively applied in farming practices (MAN-1).

> We aim to streamline information channels to make sure farmers receive timely, relevant updates without delays (AEO-11).

5.4 Summary of Chapter Five

This chapter presents an analysis of the data collected through survey questionnaires and semi-structured interviews, accentuating key findings on KMb practices for small-scale tea farmers in Murang'a County, Kenya. The study adopted a convergent mixed-methods research (MMR) design, in which the researcher integrated quantitative and qualitative methods to collect data concurrently. This exercise provided a comprehensive and triangulated understanding of the KMb landscape. Quantitative analysis employed frequencies, percentages, tables, pie charts, and bar graphs, generated through the Statistical Package for the Social Sciences (SPSS) version 27. Qualitative data underwent thematic analysis, following the guidelines recommended by Creswell and Plano Clark (2023). Where appropriate, interviewees' key ideas were incorporated through verbatim quotations to support the interpretation of findings. The analysis and presentation of both data types were aligned with the research objectives outlined in Chapter One, thereby establishing a solid empirical foundation for understanding how knowledge is mobilised, shared, and applied in the small-scale tea farming sector. These findings set the stage for the interpretation and discussion phase presented in Chapter Six.

CHAPTER SIX

INTERPRETATION AND DISCUSSION OF THE RESEARCH FINDINGS

6.1 Introduction

Chapter six presents a discussion of the findings from Chapter five, which analysed and presented the results of the study. This discussion is anchored on the theoretical framework from chapter two and the literature review in chapter three. The purpose of the research was to investigate how KMb practices could enhance knowledge utilisation among small-scale tea farmers in Murang'a County, Kenya. The study at the end proposed a framework for enhancing these KMb practices. The discussion is framed around the study objectives itemised in Section 1.5 of Chapter 1. These specific objectives were as follows:

1. To establish the nature of knowledge produced and mobilised for small-scale tea farmers in Murang'a County.
2. To identify the knowledge collaborators involved in KMb for small-scale tea farmers in Murang'a County.
3. To explore the strategies used for KMb for small-scale tea farmers in Murang'a County.
4. To assess the indicators of KMb for small-scale tea farmers in Murang'a County.
5. To examine the factors that impact KMb for small-scale tea farmers in Murang'a County.
6. To propose a framework to enhance KMb for small-scale tea farmers in Murang'a County.

This section also provides an overview of key assumptions related to the study's objectives. Data were gathered from 43 out of 55 sampled participants through structured survey questionnaires and from 13 out of 19 participants via semi-structured interviews. A mixed-methods approach (MMR) was utilised to collect, analyse, and integrate qualitative and quantitative data. The quantitative component achieved a response rate of 78.2%, while the qualitative component achieved a rate of 68.4%; both were deemed sufficient for analysis. The research questions guiding the investigation, presented in Chapter One, correspond to the six study objectives. This chapter summarises and interprets the results in relation to these objectives and questions.

In summary, this chapter provides a thorough discussion of the key findings from the data analysis section in Chapter 5. The evaluation is supported by perspectives from a number of scholars who suggest that researchers should interpret and connect their findings to the research

problems, research questions, literature, and experiences from data collection after completing their analysis (Creswell & Creswell, 2017; Creswell & Plano Clark, 2023). To this end, a concurrent mixed-methods design was employed, using surveys and interviews to gather the study data.

6.2 Data consolidation, combination, and integration

The data for this study were derived from structured questionnaires and semi-structured interviews. To enable a cohesive interpretation, the qualitative and quantitative results were integrated. The synthesis process began with an analysis of the demographic profiles of both survey respondents and interview participants, followed by a presentation of the findings for each research objective. Following a comparative analysis approach, as outlined by Farghaly (2018), the researcher compared and contrasted the qualitative and quantitative data to identify both similarities and differences. This process facilitated a robust integration of the findings, which directly addresses the research objectives and questions. Furthermore, this integrated analysis provides deeper insights into KMb practices for small-scale tea farmers in Murang'a County. The use of both data types also enabled triangulation, which enhanced the validity and dependability of the research outcomes. As noted in Chapter Four, the study employed a mixed-methods design, with quantitative data from surveys constituting the primary dataset, complemented by qualitative data.

6.3 Demographic profile of respondents

The demographic profile of respondents is a crucial aspect of research on research on agriculture and KMb, as it provides a framework for contextualising the attributes of the participants involved in knowledge generation, dissemination, and utilisation. Defining variables such as respondent categories, gender, age, farming experience, and level of education enables researchers to explain how these factors mediate access to information, adoption of innovations, and involvement in agricultural development programmes. Previous studies on agricultural knowledge systems and smallholder agriculture have routinely explored these demographic variables and found that they influence how farmers interact with research institutions, extension services, and knowledge-sharing networks (Tsan et al., 2019; Mtega and Ngoepe, 2020). Similarly, it has been shown that age, education, and farming experience play a significant role in determining the ability of the farmers to interpret and apply research-based knowledge and agricultural innovations (Weyori et al., 2018; Mulema et al., 2019; Deka, Goswami and Anurupam, 2022; Azizah and Aprylasari, 2025). As a result, a systematic review

of the demographic profile of respondents will provide critical information regarding the situational circumstances that support agribusiness KMb.

The study therefore began by analysing the demographic profiles of the respondents, which incorporated both quantitative and qualitative data from chairpersons of small-scale tea farmers, agribusiness researchers, agricultural extension officers, and managers. Several key demographic factors were examined, including professional category, gender, age, education level, and years of experience in the small-scale tea farming sector. This demographic analysis helped to illuminate how gender, age, experience, and qualifications shaped the profiles of the respondents, and further provided a basis to assess the suitability of various stakeholders in enhancing KMb practices for small-scale tea farmers.

6.3.1 Category of respondents

The study sample comprised two primary clusters of respondents, who represent a critical stakeholder group that facilitates KMb practices for small-scale tea farmers. As detailed in Chapter 5, the survey section comprised 43 respondents, with 29 of them (67.4%) being chairpersons of small-scale tea farmers and 14 respondents (32.6%) being agribusiness researchers. This combination was carefully selected to ensure a good balance of perspectives from both hands-on small-scale tea farmers and agribusiness experts in the tea farming sector. The inclusion of chairpersons was important, given their role as direct representatives of small-scale tea farmers. Particularly, their insights proved instrumental in articulating the small-scale tea farmers' practical experiences, knowledge needs, and local challenges they encounter in the utilisation and application of knowledge.

On the other hand, agribusiness researchers provided an institutional and research-oriented viewpoint to the study. They contributed a broader understanding of how agribusiness knowledge is generated, processed, mobilised, and strategies for developing collaborative frameworks. In total, 43 valid responses were collected, and these were deemed sufficient to allow analysis and interpretation of meaningful KMb practices in the sector. The qualitative data indicated that 6 of the 13 respondents (46.2%) were factory managers, and 7 (53.8%) were agricultural extension officers, which offered a clear demographic and professional context for the participants in the qualitative study.

6.3.2 Gender of respondents

The data revealed a gender disparity among the 43 respondents who took part in the survey, in which 65.1% identified as male and 34.9% as female. This disparity was even more noticeable

in the qualitative data, where 76.9% of the 13 participants identified as male and 23.1% as female. Combined, the data show that 67.9% of participants were male and 32.1% female. This gender imbalance is supported by findings from other scholars, who have noted the predominance of the male gender in the agricultural sector (Jost et al., 2016). Such disparity may be attributed to the fact that farming is a labour-intensive activity, which could discourage women's participation. Furthermore, this gender imbalance may influence the dynamics of KMb, including access, sharing, and utilisation of agricultural knowledge.

6.3.3 Age of respondents

The age distribution of survey participants showed that the majority (67.5%) were aged 41-60, representing a cohort of experienced professionals with extensive institutional knowledge and operational stability. The data also show that 4.7% of respondents were aged between 21 and 30 years, while 25.6% were between 31 and 40 years old, which indicates limited representation of younger individuals among small-scale tea farmers. This underrepresentation of youth may reflect structural challenges such as restricted access to farmland, the perceived unattractiveness of farming, and the ongoing trend of rural-to-urban migration. It may also point to the absence of a formalised mentorship framework that facilitates the participation of young people in small-scale tea farming. These findings highlight the urgent need for stakeholders to design targeted strategies to attract and retain younger farmers, not only to ensure generational continuity but also to infuse innovative perspectives into the sector and strengthen long-term KMb practices.

Respondents aged over 60 made up a small proportion, probably due to retirement or physical constraints. Nevertheless, this older group still holds immense value for intergenerational knowledge transfer, an area that seems underutilised in many rural settings. Qualitative data showed that the respondents were aged from 24 to 57 years. Factory managers were older (39 to 57), while agricultural extension officers were much younger (24 to 42). This can be seen as a sign of a change of generations in the extension staff, with young professionals increasingly becoming responsible for the frontline job of supporting the farmers. This can have highly positive interpretations for the dissemination of farming information at the grassroots level.

6.3.4 Experience of respondents

The study also sought to determine the extent of respondents' involvement in small-scale tea farming or agribusiness by inquiring about their years of experience. The findings are as follows: over 90% of respondents had more than 5 years of experience in the tea farming sector.

This indicates a stable workforce at the peak of their careers, and they possess substantial tacit knowledge in the agricultural sector. This group may also have significant potential to influence productivity and policymaking. The data further revealed fewer participants with either limited or very extensive experience. Specifically, 6.9% of respondents had 1–5 years of experience, a finding that points to a potential challenge in attracting new talent or providing opportunities for less-experienced individuals in the small-scale tea farming sector. This raises serious questions about the industry's openness to new entrants, which may be constrained by factors such as limited access to land, insufficient training, or a lack of start-up capital. Only 9.3% of respondents had experience of more than 20 years, representing senior professionals who are either retiring or occupying management or mentoring roles. Qualitative data further showed that managers had extensive experience, ranging from 12 to 27 years, while agricultural extension officers were generally less experienced, with most having under 10 years in the field.

Collectively, these patterns suggest that respondents' experience levels, combined with the accessibility of extension services and training, are pivotal to the adoption and application of agribusiness knowledge for small-scale tea farmers (Trinh et al., 2018; Abegunde, Sibanda, & Obi, 2019). With such a wealth of experience reflected in both qualitative and quantitative data, KMb strategies must be developed to draw upon this group of stakeholders as a valuable repository of agricultural knowledge. KMb stakeholders should therefore assign the top priority to these experienced individuals so that their extensive knowledge, experience, and insights can effectively be captured, documented, and shared. Such a policy would not only support retention of institutional memory and intergenerational learning but also promote innovation through mentoring and sharing of best agribusiness practices.

6.3.5 Education of respondents

As presented in Chapter 5, the findings revealed that small-scale tea farming stakeholders in this study were relatively well-educated, with almost half (46.6%) of respondents having a bachelor's degree or higher. Specifically, 27.9% of respondents had college-level qualifications, 25.6% possessed bachelor's degrees, 16.3% held master's degrees, and 4.7% had doctorates. An additional 25.6% reported secondary education as their highest level of formal attainment. This distribution indicates that respondents possessed a strong foundational capacity for KMb within the tea farming sector. The notably high proportion of individuals with tertiary education (bachelor's degree and above) is particularly important, as such respondents are well-positioned

to participate in research, facilitate knowledge dissemination, and engage in evidence-based decision-making, as observed by Powell, Davies and Nutley (2018).

Their academic qualifications and training position them as potential champions of KMb initiatives, such as policy formulation, farmer training, and research-driven agricultural innovation. The varying educational levels of respondents further highlight the need to develop KMb strategies tailored to accommodate their differing capacities for knowledge uptake. This diversity calls for the implementation of multi-level KMb strategies, ranging from academic research dissemination to participatory extension services at the community level, to ensure accessible and effective utilisation of agribusiness knowledge within the tea farming community. This finding aligns with reputable literature, which acknowledged the critical role of education in enhancing individuals' capacity to understand, adopt, and effectively implement agricultural knowledge (Durrant et al., 2024). Nevertheless, knowledge mobilisers should be cautious, as the predominantly high level of education among respondents may not be representative of all small-scale tea farmers. Further studies could investigate how KMb practices might be piloted in environments with lower formal education levels to ensure equitable access to and use of knowledge.

6.4 Types of knowledge produced and mobilised for small-scale tea farmers

The knowledge generated and mobilised for small-scale tea farmers in this study was reported to focus primarily on tea cultivation practices. This knowledge encompassed diverse areas, including modern farming methods, market information and trends, soil fertility management, strategies for improving income and health, environmental awareness, value addition in tea production, competitive advantage, and sustainability. This finding aligns with the work of Šūmane et al. (2018), who indicated that farmers place considerable value on informal, local, and experiential knowledge because it reflects their daily practices and carries personal and local relevance. Within the framework of the Ward model, the knowledge type variable defines the specific categories of knowledge that small-scale tea farmers can apply in their core activities. These categories include agribusiness research outputs from academics, non-academic expertise from sector stakeholders, traditional wisdom transmitted intergenerationally, and experiential knowledge gained through practical engagement in tea farming. The Ward model (Ward, 2017) identifies the "what" component as the critical element influencing this variable. Ward (2017) notes that the "what" aspect clarifies the specific type of knowledge being mobilised, such as research findings, traditional wisdom, or experiential learning, thereby ensuring that agricultural knowledge is mobilised efficiently.

6.4.1 Tacit Knowledge

The types of knowledge mobilised for small-scale tea farmers were examined using a mixed-methods approach. Quantitative data were collected via questionnaires administered to chairpersons of small-scale tea farmer associations and researchers, as detailed in subsection 5.2. Qualitative data were gathered through semi-structured interviews with factory managers and agricultural extension officers, as outlined in subsection 5.3. The quantitative findings presented in subsection 5.2.3.1 revealed that tacit knowledge, specifically relating to land preparation and management, tea leaf harvesting, processing, marketing, and weed and pest control, was the most widely shared and applied type of knowledge within small-scale tea farming communities. This finding corroborates the work of Kamunya et al. (2019), who point out that these phases of tea production are critical to the success of tea farming.

This finding underscores the importance of these knowledge areas to small-scale tea farmers, which explains their frequent use and dissemination. The study suggests that implementing targeted KMb efforts in these domains could significantly enhance farming practices through adding value to the land preparation, planting, and harvesting phases. The results also confirm that these areas are not only essential to the tea farming process but are also widely shared and applied within the community. The study also revealed that knowledge on seeds and seedlings, and technology, innovation, and value addition in tea farming, followed with a moderate acceptance rate. This pattern indicates potential gaps in the sharing or application of such knowledge, likely attributable to a lack of awareness or limited resources among small-scale farmers for implementing these more advanced innovations.

Both the qualitative and quantitative data demonstrated that a majority of respondents regarded tacit knowledge as an essential form of agribusiness knowledge. However, the findings also indicate a need for enhanced KMb and awareness campaigns focused on the specific tacit knowledge types that received lower acceptance rates. For instance, many respondents reported that small-scale tea farmers frequently shared and applied tacit knowledge related to land preparation, tea leaf harvesting, and frequently asked questions (FAQs), whereas other areas, as indicated by the lower rates, require further promotion.

A smaller proportion of respondents agreed that farmers regularly used tacit knowledge related to tea leaf processing and marketing, agribusiness technology, innovation, value addition, and environmental management. This disparity suggests a need for knowledge mobilisers to develop targeted strategies to overcome barriers to knowledge transfer and to address the

varying levels of importance that farmers assign to these activities. Respondents further identified multiple sources for accessing tacit knowledge. They unanimously agreed on the use of traditional and direct methods, such as personal experience, lessons learned, and storytelling events. A moderate proportion also acknowledged using emerging platforms, including podcasts, forums, and talk shows, as well as collaborative approaches such as communities of practice and mentorship from more experienced colleagues. This finding is consistent with recent literature; for instance, Atsango, Chimoita and Njeru (2022) reported that, while modern technologies and ICTs are available, their use for production, processing, and marketing by smallholder tea farmers in Kakamega County remains minimal or uneven. A similar study by KIPPRA (2024) identified infrastructure and cost constraints in tea processing and value addition as significant limiting factors.

6.4.2 Explicit Knowledge

The study also examined the creation, sharing, and utilisation of explicit knowledge for small-scale tea farmers. Both quantitative (subsection 5.2.3.2) and qualitative (subsection 5.3.3) data indicated that respondents overwhelmingly agreed that the farmers primarily access explicit knowledge through research reports, handbooks, online platforms, and scholarly journals. This demonstrates a significant shift toward digital knowledge resources, besides traditional platforms. The findings further revealed that small-scale tea farmers prefer interactive and collaborative systems (such as workshops, seminars, knowledge fairs, and online forums) to access agribusiness knowledge. This emphasises the value the farmers place on platforms that facilitate direct engagement and practical demonstration. In contrast, technical and technology-dependent channels, such as intranets and project reviews, exhibited lower adoption rates, possibly due to their perceived complexity or limited accessibility.

Regarding the integration of tacit and explicit knowledge, respondents agreed that most small-scale tea farmers have incorporated both forms into their operational processes. However, integration through cultural practices was perceived as weak, which may constrain effective knowledge dissemination and utilisation. This finding is consistent with studies in Tanzania, which show that although indigenous knowledge (tacit) was converted into explicit forms, cultural conduits such as apprenticeships, folklore, and local rituals remain underutilised (Lwoga, Ngulube, & Stilwell, 2010). Similarly, Melash et al. (2023) observed that indigenous knowledge, which is often embedded in cultural practices, is rarely integrated into formal systems, and that cultural sharing mechanisms are neither supported nor documented. In Ghana, Kommey and Fombad (2024) reported that rice farmers rely heavily on observation and social

group gatherings for knowledge sharing, indicating that explicit knowledge alone does not capture the full scope of farmers' practices. Collectively, these findings highlight both the growing acceptance of digital transformation in agricultural knowledge sharing and the pressing need to strengthen strategies that link technological adoption with cultural change to enhance the effectiveness of KMb initiatives in small-scale farming communities.

6.4.3 Embedded knowledge

Regarding embedded knowledge, both quantitative and qualitative data revealed that it was primarily associated with procedures, physical tools, standard practices, and technical routines rather than organisational culture, shared norms, or informal practices. This indicates that small-scale tea farmers mainly relied on these processes, products, artefacts, and routines as key sources for sharing embedded knowledge. These findings also suggest that respondents regarded embedded knowledge related to operational procedures, products, and artefacts as essential for the knowledge-sharing and utilisation activities of small-scale tea farmers, consistent with the studies by Nonaka and Takeuchi (2007), who noted that embedded knowledge is often codified in processes and technologies rather than in social structures.

Similarly, in Kenya, Mudekhere, Mugalavai, and Nabiswa (2023) found that farmers tended to embed knowledge in operational tools and artefacts while underutilising informal and cultural mechanisms for knowledge transfer. Comparable studies in Tanzania and Ghana also confirm that, although farmers possess rich embedded knowledge in local practices and organisational culture, such knowledge is rarely institutionalised or systematically captured (Lwoga, Ngulube, & Stilwell, 2010; Kommey & Fombad, 2024). Melash et al., (2023) further indicate that integrating cultural and routine-based embedded knowledge into agricultural learning systems can enhance knowledge retention and innovation. Overall, the findings indicate that in the tea farming sector, embedded knowledge is primarily codified within physical tools, standard practices, and end-products rather than within organisational culture or day-to-day routines. This pattern may have implications for knowledge transfer, particularly regarding embedded knowledge such as cultural norms, which appear to be underutilised or not fully expressed within the sector's knowledge systems.

6.4.4 Other aspects of knowledge

The study elucidated the contribution of information technology (IT) to knowledge management, revealing several key insights. The majority of respondents indicated that IT plays a vital role in supporting organisational processes and culture, emphasising its importance in

developing platforms that facilitate effective knowledge management. IT was also recognised for its capacity to organise diverse knowledge domains within the tea sector, thereby improving farmers' access, dissemination, and utilisation of knowledge. This finding underscores the need to strengthen IT systems to integrate these domains better and enhance overall KM practices. However, only a small proportion of respondents thought that IT effectively integrates tacit and explicit knowledge or supports the reverse engineering of embedded knowledge. This perception highlights a critical gap that may require upgrading IT systems to address these specific functionalities.

These findings align with the work of Šūmane et al. (2018), who emphasised that IT serves as a crucial platform for integrating formal and informal knowledge. Similarly, Fielke, Taylor and Jakku (2020) argued that digitalisation fosters connectivity among stakeholders, strengthens networks, and supports agricultural value chains. The study further established that digital tools such as blogs, websites, portals, and training platforms were the most utilised for knowledge sharing. In contrast, technologies that support communities of practice (CoPs), intranets, and systems for storytelling and mentoring were moderately to less preferred. This indicates a clear preference for digital resources that provide direct access to information over more collaborative or socially complex IT platforms. The limited use of intranets and extranets, along with low user participation in local knowledge-sharing activities, is a significant concern. The researcher suggests that IT-based strategies must be carefully aligned with user readiness and engagement levels to achieve more effective KMb.

6.5 Collaborators involved in KMb for small-scale tea farmers

This study aimed to identify the key actors involved in KMb for small-scale tea farmers in Murang'a County. Existing literature emphasises that collaboration is fundamental to effective agricultural innovation, facilitated through both formal platforms, such as meetings and seminars, and informal peer-exchange forums (Ramanauskas et al., 2021). Furthermore, studies have identified a diverse range of collaborators, including researchers, extension managers, farmers, input dealers, and marketers, and have highlighted the need for strategies to ensure these actors are equipped to utilise available knowledge systems effectively (Modirwa & Oladele, 2017). Building on this foundation, the present study identified and categorised the key collaborators into four distinct roles: knowledge creators, knowledge disseminators, knowledge champions, and knowledge consumers.

6.5.1 Knowledge creators

The first category of knowledge disseminators identified in the study was knowledge creators. The respondents identified the primary knowledge creators as agribusiness research institutions, higher education institutions, and researchers, who were acknowledged for their vital role in advancing research and innovation within the tea production sector. The findings revealed a strong consensus among respondents that agribusiness researchers and scholars serve as the principal creators of new knowledge for small-scale tea farmers. Similarly, Tea Research and Development Institutes were recognised as pivotal actors in producing and disseminating tea agribusiness knowledge through research and innovation initiatives. A moderate number of respondents also identified small-scale tea farmers and agricultural extension officers as secondary knowledge creators. Farmers were regarded as sources of valuable experiential knowledge generated through daily practice, while extension officers were seen to facilitate this process by acting as intermediaries between formal research and farmers. Conversely, respondents largely disagreed that managers of higher education institutions had a significant direct influence on knowledge generation, noting that their roles are predominantly administrative rather than research-oriented.

These findings reveal that the knowledge creation process within the small-scale tea sector remains predominantly research-driven, with limited formal recognition of farmers' local knowledge and innovation. This hierarchical orientation may restrict the integration of valuable experiential knowledge into formal agribusiness research, potentially limiting the relevance and applicability of innovations. Previous studies support this trend. Munthali et al. (2023) found that the limited uptake of information technology in Malawi constrained agricultural knowledge creation, a finding that aligns with the technological gaps identified in this study. Furthermore, Carlson et al. (2018) emphasised the importance of involving farmers through farmer-led innovation systems, which they argue enhances the relevance and adoption of agricultural knowledge. Similarly, Farnese et al. (2019) highlighted the critical role of feedback loops between farmers and researchers in fostering iterative learning, enhancing research relevance, and sustaining innovation within agricultural value chains.

6.5.2 Knowledge disseminators

The second category of actors identified in this study is knowledge disseminators. Drawing on the definition by Bannister and Hardill (2016), these actors serve as intermediaries who facilitate the dissemination of agribusiness knowledge and promote collaboration between researchers and small-scale tea farmers. The findings revealed several categories of knowledge

mobilisers and their respective roles. The first category was knowledge mobilisers, who respondents perceived to play a pivotal role in the creation, dissemination, and exchange of agribusiness knowledge for small-scale tea farmers. Respondents regarded their contributions as central to enhancing the flow of actionable information within the sector. The second category comprised knowledge champions, who were highlighted as key facilitators, specifically in the sharing, transfer, and utilisation of knowledge. The final category encompassed knowledge brokers, who were also recognised by a moderate number of respondents, who acknowledged their role in the knowledge transfer process.

These findings align with several previous studies. Kilelu et al. (2011) noted that agricultural intermediaries in Kenya play a crucial role in fostering linkages between researchers, extension agents, and farmers, thereby enhancing the efficient flow of actionable knowledge. Similarly, Addom (2015) observed that knowledge intermediaries help coordinate multi-stakeholder partnerships and utilise ICT tools to strengthen communication and information exchange within agricultural innovation systems. Furthermore, a study in Malawi demonstrated that farmer-to-farmer extension and local knowledge-sharing platforms enhance the diffusion of agricultural knowledge and innovations (Munthali et al., 2023). Collectively, these findings affirm that knowledge dissemination is most effective when facilitated by active intermediaries who bridge institutional boundaries. By integrating local, scientific, and experiential knowledge systems, these actors are essential for improving KMb practices for small-scale tea farmers.

6.5.3 Knowledge champions

As presented in Chapter 5, the findings revealed that knowledge champions play a pivotal role as catalysts of KMb practices for small-scale tea farmers. Most respondents acknowledged their contribution to fostering a culture of learning and leading training initiatives through workshops and one-on-one farmer engagements. Despite these valuable contributions, their overall impact appeared uneven. Notably, respondents expressed divergent perceptions regarding the champions' consistency in facilitating day-to-day knowledge exchange. A considerable proportion of the respondents questioned whether knowledge champions reliably address the farmers' questions or integrate feedback, which hints at potential gaps that need to be addressed. These findings were corroborated by qualitative data, which revealed that knowledge champions provide formal capacity-building initiatives such as organising workshops, delivering hands-on training programmes, and offering practical guidance. However, some respondents expressed dissatisfaction with their limited field engagement. As one agricultural extension officer remarked, "They teach us new methods at workshops, but we rarely see them

in the fields afterwards" (AEO-11). Overall, the findings suggest that although knowledge champions are effective in structured dissemination, their parent institutions may need to strengthen incentives, monitoring, and support mechanisms to enhance their sustained engagement and bridge the implementation gap.

These findings align with previous studies that highlight the importance of reputation, trust, and sustained engagement in effective knowledge dissemination. For example, Davis, Babu and Ragasa (2020) asserted that agricultural knowledge champions enhance innovation uptake through continuous farmer engagement but require robust institutional support and incentive structures to sustain these initiatives. Similarly, Lei and Yang (2024) indicate that agricultural extension officers (knowledge champions) play a pivotal role in facilitating training, disseminating knowledge, and developing skills to enhance sustainable farming practices. Their success, however, depends heavily on their ability to provide consistent interaction, mentorship, and contextualised knowledge to fit farmers' operational realities. Furthermore, Cheruiyot and Sang (2020) emphasised that extension officers must evolve from being mere trainers to providers of valuable, iterative feedback. Their findings showed that inconsistent follow-up can undermine farmers' ability to adopt and apply new knowledge effectively. Therefore, the present study suggests that for knowledge champions to be more effective in the small-scale tea farming sector, institutions should strengthen mechanisms for sustained mentorship, field-based engagement, and performance-linked incentives to bridge the existing implementation gaps.

6.5.4 Knowledge consumers

The study established that knowledge consumers (small-scale tea farmers in this study) hold a crucial and multifaceted position in the KMb ecosystem of the tea farming sector. A majority of respondents reported that these farmers actively utilise and share agribusiness knowledge, which underscores their position as users of both tacit and explicit knowledge. This demonstrates that small-scale tea farmers are not just passive recipients but active agents who can adapt, apply, and integrate new knowledge and innovations into their farming activities. This finding aligns with Sutherland et al. (2017), who observed that small-scale tea farmers across Europe engage in informal peer learning that enhances adaptability and promotes the diffusion of knowledge. Many respondents further indicated that small-scale tea farmers acquire and implement new knowledge and innovations and contribute to knowledge exchange through community interactions and peer learning. Collectively, these findings suggest that knowledge consumers function as proactive participants in the KMb process. The consumers

transform acquired knowledge into improved farming practices and diversified income opportunities.

Several studies support these findings. Kirui et al. (2023) observed that the willingness of small-scale tea farmers to experiment and share outcomes fosters a culture of innovation and continuous learning within farming communities, hence effectively transforming research outputs into actionable practices. Similarly, Mapiye and Dzama (2024) found that small-scale farmers enhance agricultural outcomes through networked interactions and participatory knowledge systems that connect producers, extension officers, and researchers. These studies indicate that small-scale tea farmers contribute not only to the utilisation of knowledge but also to its co-creation and dissemination.

6.6 KMb strategies for small-scale tea farmers

The third objective of this study was to examine the strategies employed to mobilise knowledge for small-scale tea farmers in Murang'a County. The study sought to gain insight into the various approaches used by knowledge collaborators to facilitate the sharing and dissemination of agribusiness knowledge among these farmers. To assess these strategies, participants were asked to provide their views on several key aspects: the knowledge products, networks, and events developed or utilised to support small-scale tea farmers in accessing and applying knowledge; the extent to which these mechanisms have promoted knowledge dissemination, sharing, and transfer; and the effectiveness of technology in enhancing KMb. The findings related to these aspects are presented in the following section.

6.6.1 Knowledge products

The quantitative findings indicated that handbooks were the most widely utilised knowledge products that support KMb practices for small-scale tea farmers. A substantial number of respondents affirmed the effectiveness of handbooks in facilitating access to and utilisation of agribusiness knowledge. Scholarly journals and reports followed closely, as respondents viewed them as sources that enhance structured and credible information for the small-scale tea farmers. Similarly, frequently asked questions (FAQs) and blogs were moderately rated, with respondents recognising their value in enhancing accessibility and providing timely knowledge updates. In contrast, press releases, podcasts, stories, and lessons learned were among the least used, suggesting a continued preference for traditional and formal knowledge products over newer, less formal media. This trend highlights a strong association between the use of

structured knowledge products and effective knowledge utilisation within the tea farming community.

The qualitative findings further reinforced the quantitative results. Respondents shared their views on the policies, strategies, and programmes that support KMb activities for small-scale tea farmers. They accentuated the need for knowledge collaborators to align these initiatives with small-scale tea farmers' specific needs and contextual realities. Respondents also underscored the importance of developing interventions that enhance access to diverse knowledge products and promote inclusive dissemination practices. These findings align with previous studies. Šūmane et al. (2018) observed that farmers continue to heavily rely on printed manuals, reports, and local information resources as primary guides for practical agricultural learning. They noted that such materials remain trusted platforms for small-scale farmers. Similarly, Ngulube (2025) highlighted the critical role of digital tools in improving agricultural productivity and promoting environmental sustainability among smallholder farmers. The scholar further stressed the importance of ensuring equitable access to digital technologies and establishing robust policy frameworks to address infrastructural and literacy barriers, which are both essential to narrowing the digital divide. Together, these insights underscore the need for stakeholders to integrate both formal and digital KMb strategies in ways that reflect farmers' real information needs and preferences. These can ultimately enhance the effectiveness and sustainability of KMb practices.

6.6.2 Knowledge events

The study found that respondents perceived workshops as the most effective knowledge events for promoting KMb practices for small-scale tea farmers. The respondents preferred workshops due to their role in fostering experiential learning, peer interaction, and practical demonstrations, which, in this study, are crucial for translating agribusiness knowledge into practice. This finding aligns with prior research, which indicated that workshops enhance farmers' capacity to internalise and apply new knowledge through participatory learning and engagement (Prajapati et al., 2025). Bizikova et al. (2020) further observed that workshops enable farmers to contextualise information, share experiences, and co-develop local knowledge.

Project reviews, conferences, and forums were also moderately rated, underscoring their importance in bridging research and practice. The respondents noted that project reviews offer small-scale tea farmers opportunities to evaluate, provide feedback, and engage in knowledge-

sharing activities. Project reviews are also important platforms for broadly networking and sharing knowledge; therefore, they contribute to the dissemination of innovative practices and research findings. Conferences, forums, and talk shows were equally appreciated as interactive platforms for stakeholders to network and share research outcomes and innovations. However, other knowledge events (such as knowledge fairs, peer assists, storytelling events, and seminars) were equally favourable and apparent. These methods are generally more informal and community-focused, which may explain their lower ranking compared to more structured methods.

The results indicate that respondents strongly preferred interactive, structured knowledge formats, such as project reviews and workshops. This study demonstrates that organised activities such as workshops and reviews are essential for promoting group learning, creativity, and evidence-based decision-making in smallholder farming systems, in line with previous research (Stilwell, 2010; Zossou et al., 2020). Conventional methods like seminars and storytelling were frequently less employed. These insights can guide the creation of upcoming knowledge-sharing programs that are pertinent to small-scale tea farmers' requirements. Knowledge events are crucial for improving farmers' knowledge acquisition and application, according to the study.

6.6.3 Knowledge networks

Regarding knowledge networks as a mobilisation strategy, the findings revealed that traditional media channels, including radio, television, and newspapers, were the most widely used and perceived as highly beneficial for farmers. The study further identified a hierarchy of other knowledge networks, which, in descending order of use, were social media platforms, communities of practice, expert blogs, listservs, and discussion boards. These findings reveal that small-scale tea farmers depend predominantly on both traditional and social media platforms for their knowledge uptake and dissemination initiatives. However, the comparatively low utilisation of more interactive, peer-to-peer tools such as discussion boards and expert blogs indicates a potential gap. The findings indicate a need for knowledge mobilisers to diversify their use of the knowledge networks so that they can reach a broader audience and effectively engage the small-scale tea farmers.

Several studies support the above findings. Aker (2011) observed that radio remains a vital medium for disseminating agricultural information across sub-Saharan Africa due to its affordability and wide reach among rural populations. Similarly, Mapiye et al. (2023) noted

that traditional media platforms continue to be preferred among rural farming communities, particularly those with limited literacy and digital proficiency. In contrast, Phillips, McEntee and Klerkx (2021) stated that social media and other digital tools have become popular platforms due to their ability to facilitate participatory knowledge exchange among rural agricultural communities. However, they noted that despite the popularity of these platforms, their potential remains underexploited in many developing countries. Likewise, Norton and Alwang (2020) reported that the effectiveness of digital platforms in agricultural extension is contingent upon the availability of supportive infrastructure, user capacity, and digital literacy. Collectively, these studies underscore the importance of adopting a blended KMb approach that integrates both traditional and digital networks. Such an approach would enhance inclusivity, expand reach, and promote dynamic, multi-directional knowledge sharing among diverse groups of small-scale tea farmers.

6.7 How knowledge products, events, and networks have facilitated the dissemination, sharing, and transfer of knowledge for small-scale tea farmers.

The study sought to determine the extent to which knowledge products, events, and networks facilitate the dissemination, sharing, and transfer of knowledge for small-scale tea farmers. The findings revealed a strong consensus that these strategies effectively support core KM processes, including knowledge creation, utilisation, sharing, and mobilisation.

6.7.1 Knowledge products

The findings on how knowledge products facilitate KMb practices revealed that handbooks were the most preferred resources. Respondents explicated that the structured and accessible format of handbooks made them very effective for creating, sharing, and disseminating agricultural knowledge. Reports and case studies were also highly rated. Respondents regarded them as credible channels for communicating operational insights and supporting evidence-based decision-making. This preference reflects the farmers' inclination towards knowledge products that simplify complex concepts into actionable practices aligned with their literacy levels and farming contexts. In addition, lessons learned, FAQs, magazines, newspaper articles, and stories were positively rated. Respondents appreciated lessons learned for capturing their practical experiences and demonstrating real-world applications; FAQs for addressing their immediate concerns and promoting feedback; magazines and newspapers for their timeliness; and stories for offering relatable narratives. A subsequent grouping of knowledge products, including press releases, blogs, scholarly journal articles, promotional materials, and podcasts, received moderate ratings. These findings suggest that small-scale tea farmers value knowledge

products that provide them with practical and experience-based knowledge. They also perceived formal and digital knowledge formats as less relevant or accessible, partly due to their technical structure and presentation.

The findings of this study align closely with existing literature that underscores the value of diverse knowledge products in enhancing KMb practices in the agricultural sector. Šūmane et al. (2018) demonstrated that printed materials, such as manuals and handbooks, offer the farmers step-by-step guidance, firming their confidence and autonomy, and capacity to make informed decisions. Similarly, Cheng (2021) submitted that reports and case studies serve as vital tools for aiding institutional learning and effective knowledge dissemination in agricultural settings. These insights reaffirm the importance of applying tangible and user-friendly knowledge products in building the capacity of small-scale tea farmers. The moderate adoption of digital knowledge products is consistent with the findings of Jumanne (2024), who observed that infrastructural constraints and limited digital literacy amongst rural communities in Kenya have hindered the effectiveness of these tools in facilitating knowledge sharing in the agribusiness sector. The low engagement of farmers with scholarly journal articles reveals a disconnect between academic research and actual application. This supports Bartol (2023), who asserted that resources that are overly academic can constrain KMb, their dissemination and sharing. Together, these findings suggest that strengthening knowledge transfer in the tea farming sector requires the development of accessible, context-sensitive, and practice-oriented knowledge products that effectively bridge the gap between research outputs and on-the-ground application.

The qualitative findings from the interviews further reinforced these quantitative patterns. One agricultural extension officer remarked, "It is important to ensure that agricultural information is readily accessible to small-scale tea farmers" (AEO-9). He further stated that providing the right information, which is neither complicated nor expensive to access, is critical. Similarly, a factory manager observed, "Despite the availability of agribusiness information, uptake and use are hindered by barriers such as low literacy levels and limited access to technology" (MAN-7). These reflections illustrate that the choice of knowledge products is largely influenced by their relevance, accessibility, and complexity. Overall, the convergence of these findings underscores the need to tailor knowledge products to farmers' capacities, preferences, and local contexts. Knowledge mobilisers should, therefore, integrate traditional formats such as handbooks with simplified digital tools. Such measures could ensure that KMb efforts impact both digitally connected and resource-constrained small-scale tea farmers.

6.7.2 Knowledge events

The findings revealed that workshops, project reviews, and seminars were the most effective knowledge events for facilitating KMb for small-scale tea farmers. These events were rated highly (see Section 5.2.5.4), indicating that they were perceived as the most suitable platforms for enabling knowledge dissemination, sharing, and transfer. Their popularity demonstrates that farmers strongly preferred events that provide structured engagement opportunities that promote participation and capacity building. The findings also show that small-scale tea farmers value platforms that support direct, experiential, and collaborative learning, which further enhance both understanding and practical application. This observation aligns with Kansanga et al. (2021), who noted that workshops and training sessions strengthen experiential learning and mutual trust among farmers, thereby improving the translation of knowledge into practice. Similarly, Cooreman et al. (2018) found that interactive learning environments, such as seminars and peer reviews, foster reflection, peer learning, and the adoption of innovation in smallholder agriculture.

Forums and conferences were also highly rated, emphasising their central role in fostering collaboration, networking, and the exchange of practical insights among agribusiness knowledge stakeholders. In contrast, informal events such as peer assists, storytelling sessions, knowledge fairs, and talk shows received moderate to low ratings. This suggests that, while respondents acknowledged their contribution to knowledge dissemination and collaboration, these events were perceived as less effective. Respondents also mentioned digital knowledge event platforms, such as videoconferencing tools, podcasts, social media, and blogs, which complement traditional events and extend the reach of knowledge-sharing activities. These findings are supported by Zamiri and Esmaeili (2024), who noted that informal knowledge events can reinforce local knowledge, cultural continuity, and peer-to-peer learning when integrated with formal training tools. Qualitative data further confirmed that enhancing farmers' technical capacity and skills through structured and continuous training could significantly improve productivity (see Sections 5.3.5.1 and 5.3.6.1). Overall, the converged findings highlight that knowledge mobilisers should prioritise popular knowledge events (such as workshops, project reviews, and seminars), and refine those that were moderately and lowly rated to improve their overall effectiveness. Such a purposefully diversified approach would strengthen both knowledge dissemination and co-creation within the small-scale tea farming sector.

6.7.3 Knowledge networks

Previous studies by Šūmane et al. (2018) have underscored the role of knowledge networks as effective channels for mobilising agribusiness knowledge, which concurs with the findings of the current study. Both the quantitative and qualitative results revealed that communities of practice (CoPs) were perceived as the most effective knowledge networks for small-scale tea farmers. Respondents viewed them as central to KMb because they foster collaborative learning, peer engagement, and knowledge co-production. They also facilitate direct interaction between agribusiness experts and small-scale tea farmers. This finding aligns with the observations of Adelle et al. (2021), who asserted that CoPs facilitate the formation of cohesive stakeholder groups that promote shared learning and joint knowledge production. Mass media platforms, such as newspapers, radio, television, and podcasts, were also frequently cited. Respondents noted that these knowledge networks enable collaborators to reach large audiences and provide timely updates on farming practices and emerging trends.

Other products, including social media, online forums, expert blogs, and discussion boards, were equally recognised as significant channels for exchanging information and knowledge, although they were rated slightly lower than the aforementioned knowledge products. While these platforms were perceived to provide opportunities for knowledge stakeholders to interact, discuss, and share information, their uptake appeared more variable. Social media and other online forums, in particular, were viewed as effective platforms through which small-scale tea farmers could share information, farming practices, and experiences within their locality. This could be facilitated using portable devices such as mobile phones and tablets. Conversely, chatrooms and Listservs were the least favoured knowledge networks, as respondents stated that the platforms are less accessible, irrelevant, or unfamiliar to the farmers. This finding aligns with previous studies, which have noted that digital and informal platforms such as chatrooms, social media, communities of practice, discussion boards, Listservs, online forums, and expert blogs facilitate the development of knowledge networks (Khamali & Thairu, 2018; Fielke, Taylor & Jakku, 2020). Overall, the findings underscore the importance of sustaining strong, interactive platforms such as communities of practice. They should also strategically enhance underutilised networks to broaden the reach and impact of KMb efforts within the tea farming sector.

6.8 Effectiveness of technology in enhancing KMb

This section corresponds to the third objective outlined in Chapter One, which aimed to examine the strategies employed by knowledge collaborators to enhance KMb for small-scale

tea farmers in Murang'a County. The analysis revealed that the role of technology extends beyond merely providing functional tools; it fundamentally shapes the processes and effectiveness of knowledge sharing. The study found that technology played a pivotal role in the mobilisation, sharing, transfer, and utilisation of agribusiness knowledge. Its availability and, more importantly, its accessibility influenced the capacity of knowledge collaborators to perform brokering functions effectively. For small-scale tea farmers, the technologies and tools in use needed to be simple, affordable, and adaptable to local conditions to facilitate the efficient storage, dissemination, and application of information. The assessment of KMb practices, therefore, underscores the importance of evaluating not only the types of technologies available but also the extent to which these technologies support or hinder the smooth flow of knowledge.

The results presented in Chapter 5, Section 5.2.5.5, indicated that respondents widely perceived technology as a central enabler of knowledge dissemination, mobilisation, and exchange for small-scale tea farmers. The high ratings assigned to technology underscore the value participants placed on its role in bridging information gaps, enhancing communication processes, and fostering collaborative learning within the tea farming sector. The findings further revealed that technology-enabled tools, such as mobile devices, online platforms, and digital extension services, greatly improved farmers' access to timely, relevant, and practical agricultural information. These observations align with Ajayi, Oluwole and Akinbamijo (2018), who found that information technology (IT) platforms substantially enhance farmers' access to agricultural initiatives, market information, and improvement of agribusiness activities. Similarly, studies have shown that technology promotes reciprocal knowledge sharing and the diffusion of innovation among researchers, extension workers, and farmers, thereby serving as an essential component of KMb systems (Takahashi, Muraoka, & Otsuka, 2020; Becerra-Encinales et al., 2024).

A small proportion of respondents held a neutral view regarding the effectiveness of technology. This perception may have arisen from several factors, including the suitability of the technological tools, the relevance of the information exchanged, and the varying levels of digital literacy among farmers. A minority of respondents regarded technology as ineffective, possibly due to challenges such as limited infrastructure, restricted access to technology, or a mismatch between the technology and the needs of small-scale tea farmers. The qualitative findings supported these results. Respondents acknowledged that both financial and informational resources were essential for the effective mobilisation of agribusiness knowledge. One manager noted, "Our company allocates a specific budget for KM activities to support

farmers effectively" (MAN-4). This suggests that part of the budgetary support was directed towards implementing technologies that enable farmers to access agribusiness information more efficiently. These insights further emphasise the need for managers to invest in appropriate technological tools that empower knowledge mobilisers to facilitate knowledge sharing and strengthen agribusiness practices among small-scale tea farmers.

6.9 Indicators of KMb for small-scale tea farmers.

The evaluation of KMb indicators was found to be central to assessing the effectiveness, reach, and impact of these practices within organisational contexts. As noted by Ziam et al. (2024), such evaluations enable stakeholders to determine the extent to which implemented KMb strategies have achieved their intended outcomes and to identify areas that require improvement. In agriculture, and specifically within the tea farming sector, respondents reported that KMb had significantly influenced improvements in farming practices, productivity, sustainability, income generation, health, environmental awareness, competitiveness, and value addition. In this context, understanding how respondents perceived and assessed the success of KMb strategies, particularly in terms of knowledge dissemination, utilisation, and the adoption of farming practices, emerged as a critical consideration. Aligned with the fourth objective of the study, this section examined key indicators used to assess the effectiveness of KMb practices for small-scale tea farmers in Murang'a County, focusing on dissemination, usage, perceived usefulness, and collaborative initiatives. The identification of these indicators provided knowledge collaborators with insights to enhance agricultural processes and foster a more enabling environment for sustainable tea farming.

6.9.1 Dissemination or reach indicator

The quantitative results presented in Subsection 5.2.7.1 identified the number of beneficiaries who accessed and utilised knowledge as the primary indicator of dissemination. Respondents regarded this indicator as a key metric for determining how many small-scale tea farmers benefited from KMb efforts, thus underscoring its importance in measuring impact. Additional indicators that received high ratings included the volume of knowledge shared, the reach of media and social media platforms, and the number of knowledge requests received. These findings emphasised three critical aspects. First, the scale of knowledge dissemination was essential for evaluating mobilisation outcomes. Second, digital platforms played a pivotal role in expanding knowledge reach and promoting engagement among diverse audiences. Finally, the number of knowledge requests signified active interest, highlighting the relevance and applicability of the information shared. Although metrics such as downloads and online

interactions received comparatively lower ratings, some respondents still recognised online engagement as valuable, albeit less critical, for small-scale tea farmers.

The qualitative findings reinforced the quantitative results under the sub-theme "knowledge application and monitoring." These findings demonstrated a strong appreciation and understanding of dissemination as a key indicator for evaluating KMb for small-scale tea farmers. The results of this study are consistent with previous research by Maag et al. (2018) and Durrant et al. (2024). Durrant et al. (2024) observed that effective KMb approaches must be adapted to the specific contexts, cultures, and capacities of the target individuals, organisations, or systems. Similarly, Maag et al. (2018) found that the success of KMb depends on the active engagement of individual knowledge brokers who facilitate connections between research, policy, and practice through projects, programmes, and platforms.

6.9.2 Use indicator

The second key indicator for evaluating the scope and impact of KMb for small-scale tea farmers was knowledge use. The findings revealed several use-related factors that shape the mobilisation, sharing, and application of knowledge within this group. Both the quantitative and qualitative results affirmed that multiple utilisation metrics are essential for assessing the effectiveness of KMb practices. The synthesised data showed that respondents considered all proposed use indicators highly significant in determining the success of KMb initiatives. These findings yield four major insights: First, respondents prioritised practical outcomes and measurable performance improvements as core indicators of effective knowledge use among small-scale tea farmers. Second, they also valued the adaptive implementation of knowledge, highlighting the importance of translating acquired information into actionable farming practices. Third, respondents acknowledged the institutional impact of knowledge, particularly its influence on policies, programmes, and educational or research initiatives, reinforcing its strategic contribution to organisational learning. Finally, tracking the number of farmers willing to apply acquired knowledge was regarded as vital for assessing utilisation, as it reflects end users' engagement levels and readiness to integrate new knowledge into practice.

These findings are consistent with the work of Zaim, Muhammed and Tarim (2019), who established that knowledge utilisation mediates the relationship among various KM processes, namely creation, sharing, mobilisation, and transfer, and subsequently influences an organisation's overall KM performance. Similarly, Abrell, Benker and Pihlajamaa (2018) observed that successful KMb and utilisation depend on collaborators' ability to: sensitise

organisations to the innovation potential of user knowledge, identify and access relevant knowledge, analyse and interpret it effectively, and integrate the insights gained into the development of products and services.

6.9.3 Usefulness indicator

The usefulness indicator emerged as a crucial measure in this study for assessing the achievements and milestones of KMb practices for small-scale tea farmers. The study identified several useful indicators, including the number of documents read or browsed, the degree of user satisfaction, the perceived utility of information, the acquisition of new knowledge, and shifts in perspective resulting from the application of knowledge. Most of the respondents agreed that acquiring new knowledge was a key indicator, as it enabled farmers to enhance their understanding and deepen their engagement with KMb processes. The perceived utility of information was also regarded as significant, which underscores the value that small-scale tea farmers place on information that is of direct practical relevance. Respondents further highlighted shifts in perspective and user satisfaction as important measures, implying that knowledge was appreciated not only for its immediate usefulness but also for its capacity to change thinking and address specific needs. However, opinions were more divided regarding the relevance of the number of documents read or browsed as an indicator. This divergence reflects that farmers prefer the quality and practical impact of information over its quantity.

The qualitative findings strongly supported these results. Respondents observed that the level of formal education and practical training in agribusiness and KM significantly shaped how farmers utilised knowledge and perceived its usefulness. Others emphasised the importance of developing effective feedback mechanisms as a means of encouraging small-scale tea farmers to adopt and apply knowledge in practice. These findings align with MacGregor and Phipps (2020) and Simeonov, Kobayashi and Grenier (2021), who demonstrated that an integrated KMb approach, reinforced by capacity building, ensured that the right information reached the right people, in the right format, and at the right time to inform decision-making.

6.9.4 Collaboration indicator

The final indicator of KMb identified in this study was collaboration. The analysis examined whether collaboration served as an effective measure for evaluating KMb practices for small-scale tea farmers. Quantitative findings, supported by qualitative data, revealed that both the extent of collaboration and the expansion of social networks were highly valued. Respondents noted that these factors strengthened relationships and encouraged joint initiatives within the

farming community. This finding aligns with Giroux et al. (2023), who emphasised that social networks enhance the farmers' adaptive capacity and information flow in rural contexts. A significant proportion of respondents also recognised the importance of creating and sharing knowledge resources and investing in capacity-building activities. This observation is consistent with Ofolsha et al. (2022), who found that establishing social linkages and trust among smallholder farmers influences their cooperation and participation. Similarly, Landmann and Cadilhon (2018) underscored that collaboration and mutual trust among smallholder farmers are critical in enhancing agribusiness capacities and promoting effective knowledge exchange. Overall, the findings indicate that small-scale tea farmers favour partnerships that promote active, practical, and results-oriented approaches to KMb.

6.10 Factors influencing KMb for small-scale tea farmers

This section examined the factors that enabled KMb practices for small-scale tea farmers, recognising their pivotal role in determining the success or failure of these initiatives within the tea farming sector. To achieve this objective, it was essential to identify both the most and least influential factors shaping KMb practices in this context. Guided by the fifth research objective outlined in Chapter One, to examine the factors influencing KMb for small-scale tea farmers in Murang'a County, the study evaluated several categories of factors, including knowledge resources, knowledge users, knowledge complexity, and management support. The findings align with studies that have highlighted the critical role of KMb factors in driving effective KMb across various sectors (Harvey et al., 2021; Zhao et al., 2023). A detailed discussion of these synthesised findings is presented in the subsequent sub-sections.

6.10.1 Knowledge resources

The quantitative analysis indicated strong agreement among respondents regarding the critical role of information technology support in advancing KMb initiatives, with collaborative knowledge networks closely following in importance. These two factors were identified as important in empowering knowledge mobilisers to share and disseminate agribusiness knowledge effectively. Respondents in particular singled out several collaborative knowledge-sharing platforms, such as communities of practice (CoP), which they applauded for fostering knowledge exchange among farmers and other stakeholders. In relation to budgetary allocation, respondents viewed it as a key knowledge resource, although opinions differed concerning its relevance. Respondents emphasised the importance of allocating financial resources to initiatives such as training and workshops to support knowledge collaborators effectively. Furthermore, a considerable number of respondents identified other resources, including

physical spaces, tools, and administrative support, which they found important for promoting KMb. Providing financial stipends for knowledge collaborators was also noted, though moderately significant, indicating that incentives to knowledge collaborators could boost their participation and dedication to knowledge-sharing efforts.

The qualitative findings generally supported perspectives from quantitative findings. Respondents reiterated the need for management to provide enough financial, informational and investment resources to enable small-scale tea farmers to access and integrate agribusiness knowledge into their daily practices effectively. These observations concur with previous research, which identified capacity building, support mechanisms, and strategic initiatives as fundamental avenues for strengthening KMb practices and improving overall performance (Veshkaei Nejad, Ebrahimpour, & Doustar, 2019; Golhasany & Harvey, 2023).

6.10.2 Knowledge users

Knowledge users were also found to be pivotal in promoting the sharing, utilisation, and adoption of knowledge for the small-scale tea farmers. Consequently, knowledge collaborators need to adopt strategies to enhance how these knowledge users engage with and apply agribusiness knowledge. The quantitative analysis indicated that most respondents agreed that involving small-scale tea farmers as knowledge users significantly improved the effectiveness of KMb initiatives. These findings reflect that respondents recognised the importance of engaging farmers in strengthening KMb efforts. An equal proportion of respondents agreed that small-scale tea farmers were the primary users of tea agribusiness knowledge, reinforcing their central role in the KMb process. Many respondents also identified small-scale tea farmers as a vital resource in KMb, emphasising their contribution to both the implementation and dissemination of knowledge.

The qualitative findings echoed the quantitative findings, revealing that knowledge collaborators should engage, monitor, and support small-scale tea farmers to share, adopt, and apply agribusiness knowledge in their farming practices. For example, Šūmane et al. (2018) identified multiple ways in which agribusiness knowledge could be integrated with the farmers' core activities, through networking, collaboration with researchers, and participation in multi-actor knowledge networks. Overall, the engagement of small-scale tea farmers as active knowledge users emerged as one of the most influential factors in enhancing KMb effectiveness. Respondents had a strong consensus on the twofold role of small-scale tea farmers as both primary users and essential resources in the process.

6.10.3 Knowledge complexity

The next factor examined in KMb was knowledge complexity. Respondents were asked whether the complexity of knowledge influenced its mobilisation, transfer, and application among small-scale tea farmers, and whether it posed challenges that limited their opportunities. The quantitative findings revealed that most respondents believed knowledge complexity hinders effective mobilisation and transfer, underscoring the need to simplify knowledge resources for easier comprehension and practical use. Similarly, a substantial number of respondents acknowledged that complex information often constrained farmers' ability to apply new knowledge in their farming practices. In line with this, Hörner et al. (2022) demonstrated that when agricultural technologies are knowledge-intensive and conceptually complex, adoption and impact decline.

Furthermore, (Cawley et al., 2023) found that the implementation of newly learned agricultural knowledge depends significantly on the relevance and manageability of the content for the farm context. (Gómez-López, 2025) similarly highlighted that effective dissemination of agricultural knowledge must consider user capacity and simplify content accordingly. Therefore, knowledge collaborators should develop strategies to simplify the processes of mobilisation, sharing, and dissemination to enhance knowledge adoption and promote improved agribusiness outcomes. The qualitative analysis reinforced these findings. Under the sub-theme "challenges in knowledge dissemination," respondents stressed the importance of continuous assessment of farmers' knowledge needs, regular follow-up support, and simplification of technical information to facilitate understanding. Such measures would help mitigate the barriers created by knowledge complexity and foster more effective utilisation of agribusiness knowledge among small-scale tea farmers.

6.10.4 Management support

The quantitative findings revealed a strong consensus that management support is a crucial factor in KMb activities for small-scale tea farmers. This highlights the critical role of top management in fostering an environment that encourages farmers to share, utilise, and apply knowledge in their agribusiness practices. Respondents agreed that management support can significantly enhance KMb efforts. The overwhelmingly positive response suggests that increased managerial involvement could directly improve KMb outcomes for small-scale tea farmers. The qualitative findings corroborated this, particularly under the subthemes of Policy and Program Support and Leadership and Management Support.

The study respondents stressed that KMb programmes needed to be more closely aligned with the specific needs of small-scale tea farmers. They called for stronger initiatives to enhance knowledge sharing, transfer, dissemination, and utilisation. Leadership and management support were viewed as pivotal in advancing KMb. This, according to the respondents, can be achieved through leadership providing strategic direction and ensuring adequate resource allocation for effective dissemination. These results are consistent with previous studies. Fischer et al. (2016) observed that leadership in KM requires managers to actively participate in the transfer and exchange of management research knowledge. Similarly, Reid (2014) argued that managers can act as knowledge influencers, playing a central role in both the creation and mobilisation of knowledge.

6.11 Chapter summary

This chapter presented an interpretation and discussion of the findings outlined in Chapter Five. The analysis was guided by the study objectives introduced in Chapter One and was discussed in relation to the data analysed in Chapter Five, as well as the theories and literature reviewed in Chapter Two. The findings demonstrated a strong appreciation of KMb initiatives for small-scale tea farmers. The study revealed that the main types of knowledge mobilised and applied included tacit knowledge relating to land preparation, tea leaf harvesting, weed and pest management, seeds and seedlings, and farming technology and innovation. Explicit knowledge was accessed through research reports, handbooks, and digital resources (such as blogs, portals, and websites), newspapers, and magazines. Embedded knowledge was identified in operational procedures and products, underscoring its importance for knowledge sharing and utilisation. The study also identified key knowledge collaborators involved in KMb for small-scale tea farmers: knowledge creators (agribusiness research institutions, higher education institutions, and agribusiness researchers), knowledge mobilisers (agricultural extension officers and cooperatives), knowledge champions (influential farmers or community leaders), and knowledge beneficiaries (small-scale tea farmers who apply and benefit from the knowledge).

The findings further identified a range of KMb strategies. These included products (handbooks, scholarly articles, and educational materials), networks (collaborative platforms such as traditional media, social media, and communities of practice), events (workshops, training sessions, and conferences), and technology (mobile applications, SMS platforms, and digital channels). KMb practices were evaluated using several indicators: dissemination (extent of knowledge distribution and media exposure), use (application of knowledge in policies, programmes, and practice), usefulness (perceived utility of knowledge), and collaboration

(stakeholder engagement and capacity-building efforts). Finally, the study revealed factors influencing the success or failure of KMb practices. These included the availability of resources (financial, human, and technical), the capacity and willingness of users to adopt knowledge, the complexity of knowledge, and management support. The next chapter, Chapter Seven, presents the summary, conclusions, and recommendations.

CHAPTER SEVEN

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This chapter presents a summary of the findings of the entire study, followed by the conclusions and recommendations for future research and practice in KMb. It draws from the preceding chapters, namely the analysis and presentation sections in Chapter Five, and the interpretation and discussion sections in Chapter Six. The chapter ends with a proposed framework for enhancing KMb practices for small-scale tea farmers in Murang'a county, Kenya. The purpose of the study was to investigate the KMb practices in order to develop a KMb framework that could enhance knowledge uptake among small-scale tea farmers in Murang'a County, Kenya. The specific objectives of the study are:

1. To establish the nature of knowledge produced and mobilised for small-scale tea farmers in Murang'a County.
2. To determine the knowledge collaborators involved in KMb for small-scale tea farmers in Murang'a County.
3. To explore the strategies used for KMb for small-scale tea farmers in Murang'a County.
4. To assess the indicators of KMb for small-scale tea farmers in Murang'a County.
5. To examine the factors that impact KMb for small-scale tea farmers in Murang'a County.
6. To propose a framework to enhance KMb for small-scale tea farmers in Murang'a County.

Relative to this, the researcher sought to demonstrate to the scholarly community the researcher's understanding of the concept under study and how he provided answers to the research questions. In this chapter, the research findings are linked to the research objectives and questions of the study. In a nutshell, this chapter presents the scholarly exposition in a more concise and easily comprehensible form for the targeted community of scholars. Moreover, and most importantly, the chapter presents an empirically grounded framework for enhancing KMb practices with an emphasis on the integration between KMb practices and enhanced knowledge uptake among the small-scale tea farmers.

The study concludes by conversing about the implications of these results and proposing issues for additional study and improvement in knowledge creation, dissemination, exchange, and utilisation among small-scale tea farmers. The researcher of the current study has a firm belief

that such a framework will assist agribusiness stakeholders, including researchers, agricultural extension officers, knowledge mobilisers and small-scale tea farmers in transition to address the challenges associated with KMb practices. Furthermore, in this chapter, the researcher identifies the limitations and implications of the study for policy and practice in the interest of addressing the phenomenon under study. In addition to the recommendations of the study, suggestions (based on the research findings) concerning possible future research are also made for the scholarly community.

7.2 Summary of chapters

To investigate the impact of KMb practices on small-scale tea farmers in Murang'a County, the research initiated in Chapter One outlined the primary subject and presented relevant background information. The chapter provided an overview of the study's background and prepared the stage for discussing the next chapters. It deliberated the conceptual and contextual framework, problem statement, purpose, objectives, research questions, theoretical foundation, and the significance and originality of the study. Besides, it concisely summarised the research methodologies employed and ethical issues considered. Chapter Two presented the theoretical framework, exploring relevant theories and concepts of KMb within the context of small-scale tea farming. The study drew on models such as the SECI model (Nonaka, Toyama, & Konno, 2000; Farnese et al., 2019), the KMb activities and services model (Phipps & Shapson, 2009), the Ward model (Ward, 2017), and the co-created pathway to impact model (Phipps et al., 2016). These frameworks formed the basis for developing a KMb framework tailored to the needs of small-scale tea farmers. The chapter concluded with a conceptual framework and a summary of the key constructs.

Chapter Three provided a comprehensive literature review on KMb and its related concepts in small-scale tea farming. Structured around the study's key variables: knowledge types, collaborators, KMb strategies, indicators, factors, and framework, the chapter examined literature on agriculture, tea farming, knowledge management, and KMb in agribusiness. It also reviewed empirical research on KMb for small-scale tea farmers, establishing a literature roadmap to guide the study. Chapter Four focused on the research paradigm, methodology, and methods for data collection. The study used a pragmatic paradigm and employed a mixed-methods research (MMR) approach, using a convergent design. The data collection methods included interviews and surveys, while the sampling techniques used were cluster sampling, census sampling, and stratified random sampling. These combined sampling methods ensured that the researcher covered all the relevant respondent groups. Quantitative data were analysed

using SPSS version 27, whereas qualitative data were assessed using thematic coding. The chapter generally outlined the process of collecting data and set the groundwork for analysis and presentation in Chapter Five.

In Chapter Five, the research results were discussed, showcasing quantitative data using descriptive statistics such as frequencies, percentages, and charts, while qualitative data was analysed through narratives and thematic analysis. This analysis offered a coherent conception of how knowledge is mobilised, shared, and exchanged among small-scale tea farmers, laying the groundwork for future deliberation in Chapter Six. Chapter Six presented a discussion of the findings in relation to the research objectives and data analyses outlined in the preceding chapters. The discussion was structured around key thematic areas, namely: the types of knowledge mobilised, knowledge collaborators, KMb strategies, KMb indicators, and factors influencing KMb practices for small-scale tea farmers. Chapter Seven synthesises the study's findings, conclusions, and recommendations in line with the research objectives discussed in the preceding chapters. It also presents the proposed framework for enhancing KMb practices for small-scale tea farmers in Section 7.6, drawing from the key findings generated throughout the study.

7.3 Summary of findings

This section provides a summary of findings for the study as aligned with the aim and objectives of the study. The study investigated the KMb practices, seeking to develop a KMB framework tailored for small-scale tea farmers in Murang'a County, Kenya. Both qualitative and quantitative data were collected through a mixed-method approach, combining surveys and interviews. The findings were synthesised and presented according to the study's objectives.

7.3.1 Types of knowledge produced and mobilised for small-scale tea farmers.

The first objective was to identify the types of knowledge produced and mobilised for small-scale tea farmers. The results revealed that knowledge on land preparation, tea leaf harvesting, and frequently asked questions (FAQs) were the most mobilised and utilised. This was followed by knowledge on tea processing, marketing, farming technology, innovation, value addition, and environmental management. Small-scale tea farmers primarily accessed tacit knowledge through informal avenues such as personal experiences, lessons learned, and storytelling events. Emerging platforms (podcasts, forums, and talk shows) and collaborative approaches (such as communities of practice and mentorship) were also identified as important sources for accessing tacit knowledge. On the issue of how the farmers access explicit knowledge, the

findings revealed that the farmers attained the knowledge through research reports, handbooks, newspapers, magazines and online tools (including blogs, portals, websites). Embedded knowledge was acquired through operational procedures and products, highlighting its role in knowledge sharing and utilisation. These findings indicate that small-scale tea farmers mobilise, adopt, and apply various forms of complex knowledge that address multiple aspects of tea farming practices.

7.3.2 Collaborators involved in KMb for small-scale tea farmers.

To address the second objective of the study, to identify the collaborators involved in mobilising knowledge for small-scale tea farmers, it was crucial to understand two pertinent aspects: who these collaborators are and their roles in facilitating the mobilisation and utilisation of knowledge among the abovementioned farmers. This analysis is therefore anchored on the second objective of the study (outlined in Chapter One), which reads, "to identify the knowledge collaborators involved in mobilising knowledge among small-scale tea farmers." Consequently, the study identified four main categories of knowledge collaborators: knowledge creators, knowledge mobilisers, knowledge champions, and knowledge consumers. The study established that agribusiness researchers, academics, and tea research and development societies were the key knowledge creators, responsible for generating, sharing, and promoting new knowledge and innovations for the small-scale tea farmers. Knowledge mobilisers (including creators, champions, and consumers) were also recognised for their vital role in disseminating, coordinating, and promoting agribusiness knowledge and practices. Knowledge champions were acknowledged as influential actors who motivate and support small-scale tea farmers to acquire, share, exchange, adopt, and apply agribusiness knowledge. Lastly, knowledge consumers, represented by small-scale tea farmers, were seen as active participants responsible for adopting and utilising tea farming knowledge and innovations. The study found that the farmers engage in KMb through co-creating and implementing new farming practices.

7.3.3 KMb strategies for small-scale tea farmers.

Insofar as the strategies employed to mobilise agribusiness knowledge for small-scale tea farmers are concerned, the study found that knowledge collaborators implement various strategies to facilitate the processes of knowledge creation, mobilisation, sharing, and utilisation. The study findings revealed that handbooks, scholarly articles, and educational materials were the most used knowledge products. These products were recognised for their effectiveness in providing structured and reliable information to the farmers. The study also revealed that Frequently Asked Questions (FAQs) and blogs were also popular, whereas press

releases, podcasts, and stories or lessons learned were less utilised. The study likewise revealed that traditional media platforms (such as newspapers, radio, television, and podcasts), communities of practice (CoP), and social media were the most effective knowledge networks supporting information flow and peer learning. However, expert blogs, listservs, and discussion boards were less used, indicating a gap that knowledge mobilisers could address by integrating more interactive digital engagement platforms.

In addition, workshops, training sessions, and project reviews emerged as the most preferred knowledge events, esteemed for enabling direct interaction and collaborative learning among the small-scale tea farmers and agribusiness experts. On the other hand, events such as conferences, forums, and talk shows were moderately acknowledged in this study. Lastly, the study revealed that technological tools were widely adopted by small-scale tea farmers and used not only for agribusiness-related activities but also for social interaction and communication. This indicates that digital technologies are becoming integral to farmers' daily practices, serving as both knowledge-sharing and networking tools. Overall, the findings suggest that effective KMb strategies should integrate traditional and modern tools in ways that align with farmers' capacities and needs, while enhancing the accessibility, reach, and relevance of underutilised knowledge-sharing channels.

7.3.4 Indicators of KMb for small-scale tea farmers

Assessing KMb indicators is essential for determining their effectiveness and impact on the small-scale tea farmers. This section examines the indicators used to measure KMb practices for these farmers. The study established that assessing the KMb indicators can enable knowledge mobilisers to understand how small-scale tea farmers measure the success and impact of KMb initiatives. The following indicators were applied: dissemination indicators, which captured the flow and sharing of knowledge among farmers; use indicators, which reflected how effectively mobilised knowledge was applied in tea farming practices; usefulness indicators, which encompassed the acquisition of new knowledge, perceived utility of information, shifts in perspective, and user satisfaction; and collaboration indicators, which measured stakeholder engagement and capacity-building initiatives. By actively applying these indicators, small-scale tea farmers contribute significantly to evaluating and enhancing the effectiveness of KMb initiatives within the tea farming sector.

7.3.5 Factors influencing KMb for small-scale tea farmers.

Regarding the factors that influence KMb practices, the study revealed that various factors either facilitated or constrained KMb practices for small-scale tea farmers. The study found that resources such as information technology, establishing collaborative networks, and financial support are important. Similarly, the active involvement of knowledge users (the small-scale tea farmers) was found to be crucial, as their willingness and capacity to adopt new knowledge can have a considerable impact on the effectiveness of KMb initiatives. However, the study found that the technical complexity of knowledge often obstructed effective mobilisation and usage, especially when the content was too complex for the farmers' immediate information needs. Additionally, management support proved vital, with the study pinpointing that when leadership provide strategic, policy, and financial support, it can foster a culture of knowledge sharing and practical application among the small-scale tea farmers. Collectively, these factors were recognised as pivotal in strengthening the framework and sustainability of KMb for small-scale tea farmers.

7.4 Conclusions

This section presents the conclusions of the study, based on the findings as discussed in the previous chapter. The conclusions are further drawn consistent with the study's objectives and key concepts. To formulate these conclusions, both quantitative and qualitative data were synthesised, offering a clear and coherent response to each research question. Only the major findings that directly addressed the research objectives were considered, ensuring a focused and concise conclusion for each.

7.4.1 Types of knowledge produced and mobilised for small-scale tea farmers

Based on the first objective, the study demonstrated that various types of knowledge are mobilised, shared, and utilised among small-scale tea farmers. These include tacit knowledge related to land preparation, tea leaf harvesting, pest and weed management, seeds and seedlings, and farming technologies and innovations. Explicit knowledge covers research reports, handbooks, and online resources such as blogs, portals, websites, newspapers, and magazine articles. Additionally, embedded knowledge, such as operational procedures and products, was found to play a significant role. The study concludes that small-scale tea farmers recognise the importance of these different types of knowledge and understand how to access, mobilise, share, and apply them effectively in their farming practices.

7.4.2 Collaborators involved in KMb for small-scale tea farmers

Matched with the second objective, the study identified key knowledge collaborators involved in mobilising agribusiness knowledge for small-scale tea farmers. These collaborators include agribusiness researchers, academics, and tea research and development organisations, whose role is to generate new knowledge and innovations. Knowledge creators, champions, and consumers serve as the primary knowledge mobilisers, acting as intermediaries in the creation, distribution, sharing, and promotion of agribusiness knowledge among farmers. Knowledge champions play an influential role in helping farmers acquire, exchange, adopt, and apply knowledge. Small-scale tea farmers were identified as the key beneficiaries of knowledge, who actively adopt and utilise agribusiness knowledge and innovations. The study concludes that there is an in-depth understanding of the knowledge collaborators and their roles in promoting knowledge exchange, uptake and application among the small-scale tea farmers. Furthermore, the study concludes that it is pertinent to develop strategies that can maximise the effectiveness of these collaborators in improving KMb practices.

7.4.3 KMb strategies for small-scale tea farmers

On the matter of strategies employed to mobilise knowledge for small-scale tea farmers (aligned to the third objective), the study found that knowledge was viewed as a vital resource that required structured mobilisation strategies to enhance its creation, dissemination, and use. The findings revealed that knowledge collaborators adopted multiple strategies, including knowledge products, networks, and events relevant to the agribusiness sector. Also, the role of technology in enhancing KMb was explored. The results showed that knowledge is considered a key asset; thus, effective mobilisation structures are needed to support its creation, dissemination, adoption, and use. In particular, the research revealed that knowledge collaborators utilised strategies such as knowledge resources (guidebooks, academic papers, and educational resources), knowledge networks (mainstream media, social media, and professional groups), and knowledge events (seminars, courses, and conventions). Furthermore, technology was identified as a significant enabler of KMb for small-scale tea farmers. The study therefore concludes that the success of KMb practices for small-scale tea farmers largely depends on the deliberate integration of these strategies, supported by technological adoption and collaborative engagement.

7.4.4 Indicators of KMb for small-scale tea farmers

Concerning the indicators used to assess KMb practices for small-scale tea farmers, the study established that dissemination, use, usefulness, and collaboration were the most significant

measures for evaluating the effectiveness of KMb practices. The first indicator was the "dissemination indicator", which reflected the extent to which knowledge was effectively distributed to the small-scale tea farmers across various channels and platforms. The second indicator, "use indicator", demonstrated how mobilised knowledge influenced farming decisions, programmes, and practices, and translated the information into action. The third was "usefulness indicator", which emphasised that small-scale tea farmers valued knowledge that enhanced their productivity, decision-making, and problem-solving capacities. The last indicator was the "collaboration indicator", which underlined the importance of stakeholder participation, collective learning, and capacity-building in improving KMb outcomes. Overall, the study concluded that these four indicators constitute a reliable framework for evaluating the performance, impact, and sustainability of KMb initiatives for small-scale tea farmers.

7.4.5 Factors influencing KMb for small-scale tea farmers.

In line with the fifth objective, to examine the factors that impact KMb for small-scale tea farmers, the study assessed four key elements: knowledge resources, knowledge users, knowledge complexity, and management support. The findings revealed that the availability of resources (such as information technology, collaborative networks, and financial support) predominantly influenced the mobilisation, sharing, and utilisation of knowledge for the small-scale tea farmers. The capacity and willingness of knowledge users to adopt and apply new information were also identified as critical to effective KMb. However, the complexity of knowledge was identified as a barrier to efficient mobilisation, transfer, and hands-on application, which may restrain opportunities for the small-scale tea farmers. Leadership and management support were found to be crucial in creating an environment that fosters knowledge sharing and utilisation. Top management was found to play a key role in providing necessary policy guidance, coordinating programmes, and financial investment. The study, therefore, concludes that knowledge mobilisers should design strategies that holistically address these interrelated factors to enhance knowledge mobilisation, sharing, transfer, and application.

7.5 Recommendations

To strengthen KMb practices and enhance knowledge utilisation among small-scale tea farmers in Murang'a County, the study identified the following recommendations for the purpose of providing solutions to the identified gaps and challenges revealed in the findings and conclusion sections. These recommendations are to accomplish the following: improve the creation, dissemination, and application of agribusiness knowledge among the small-scale tea farmers, enhance collaboration among the key stakeholders, promote the effective use of technology in

the tea farming sector, and enhance capacity-building initiatives. Ultimately, the implementation of these recommendations is expected to add value to small-scale tea agricultural practices, foster evidence-based decision-making, and guide future research on KMb within the agricultural sector.

7.5.1 Types of knowledge produced and mobilised for small-scale tea farmers

To improve knowledge sharing and use, the study suggests that knowledge collaborators should focus on combining traditional farming practices (tacit knowledge) with modern scientific and technological innovations. This combination is key to making agribusiness knowledge more relevant and useful to small-scale tea farmers. The process ought to start with formalising and contextualising tacit knowledge to preserve indigenous practices and connect them with current agronomic advancements, as anchored by the SECI model (Adesina & Ocholla, 2019).

Additionally, the study recommends that explicit knowledge (such as research reports and technical manuals) should be simplified, translated, and shared through accessible channels to ensure a wide reach and usage. These channels include farmer cooperative societies, agribusiness portals, and social media platforms. On embedded knowledge, the study recommends that knowledge embedded in products and operational procedures should be standardised and distributed through mobile-based tutorials and structured training programmes. This approach promotes scalability and consistent practices. The findings also highlight the need to institutionalise training on tacit knowledge through farmer-led demonstrations, peer-learning exchanges, and community workshops that encourage hands-on learning. Lastly, agribusiness stakeholders should invest in integrated digital platforms and mobile applications that centralise agribusiness knowledge, offer interactive learning features, and have user-friendly designs to support farmers with various literacy and technological skills.

7.5.2 Collaborators involved in KMb for small-scale tea farmers

There is a need to develop strong collaborations among small-scale tea farmers, researchers, and knowledge mobilisers. The study recommends that strategic partnerships should be established and strengthened through the coordinated efforts of specific stakeholders in the tea farming sector. The Kenya Tea Development Agency (KTDA), the Tea Research Foundation, and county agricultural departments should take the lead in developing structured partnerships that link agribusiness researchers with small-scale tea farmers. These bodies should jointly establish continuous feedback mechanisms to ensure that the knowledge generated is demand-driven, relevant, and easily applicable by farmers. The study also recommends that research

institutions and universities should be responsible for generating and translating agribusiness knowledge into user-friendly formats, while tea boards (such as KTDA) and agricultural extension officers should disseminate and monitor its application at the community level. Furthermore, agricultural extension officers should identify and train knowledge champions within farmer groups to serve as intermediaries who can promote peer-to-peer learning and ensure that knowledge is effectively mobilised and utilised at the grassroots level.

7.5.3 KMb strategies for small-scale tea farmers

The findings of the study on the strategies for enhancing KMb for small-scale tea farmers emphasise the need for agribusiness stakeholders to strengthen KMb strategies (products, networks, and events) to improve their overall effectiveness. The study recommends that the Kenya Tea Development Agency (KTDA), in partnership with county agricultural departments, research institutions, and tea farmer cooperatives, take a leading role in organising regular seminars, workshops, and conferences at both local and regional levels. These platforms should bring together key knowledge collaborators (agricultural extension officers, agribusiness researchers, and small-scale tea farmers) to foster the continuous exchange of knowledge, innovations, and practical experiences. Furthermore, tea farmer cooperatives should capitalise on existing farmer networks and utilise local media channels (such as community radio) to promote tea farming activities and disseminate new knowledge. To improve access to new knowledge, tea cooperatives and agricultural organisations should expand the scope and frequency of professional associations, social media groups, and farmer-based seminars to ensure that best practices and innovations are widely disseminated.

Regarding the use of technology to enhance KMb, the study recommends that agribusiness stakeholders should integrate digital technologies (such as mobile applications, SMS platforms, and online knowledge portals) to facilitate the dissemination and adoption of knowledge and innovations. Extension officers and research institutions should play a leading role in training farmers on the effective use of these digital tools to ensure knowledge is translated into practice. Additionally, the Kenyan government (national and county governments) should invest in expanding and upgrading rural digital infrastructure to provide equitable, affordable, and reliable access to technological resources. Strengthening these technological systems will not only enhance connectivity but also support continuous learning, innovation, and collaboration among small-scale tea farmers and other agribusiness actors.

7.5.4 Indicators of KMb for small-scale tea farmers

To effectively measure the impact of KMb initiatives, the study recommended the following: Agribusiness stakeholders (Ministry of Agriculture and Livestock Development, Kenya Tea Development Agency (KTDA), Tea Research Institute, and Murang'a County agricultural department) should develop comprehensive monitoring and evaluation (M&E) infrastructure to track key KMb indicators such as dissemination levels, usage, collaboration, and the practical application of tea farming knowledge. These agencies should also jointly work with institutions of higher education and agricultural extension officers to design and implement continuous monitoring strategies that continuously assess the progress of knowledge-sharing activities, evaluate outcomes, and adjust strategies. Furthermore, tea farmer cooperatives and knowledge mobilisers should participate in regular surveys, structured feedback sessions, and participatory evaluations to ensure that the experiences of small-scale tea farmers inform the ongoing improvement of KMb practices.

7.5.5 Factors influencing KMb for small-scale tea farmers.

The research uncovered various elements that affect KMb, such as knowledge complexity, availability of resources, and leadership support. Based on these findings, the study recommends that the key knowledge collaborators (research institutions, institutions of higher education, and agricultural extension officers) should take the lead in simplifying complex agribusiness knowledge through converting it into formats that are user-friendly to the farmers. This simplification can be achieved by using visual aids, infographics, and step-by-step guides. The Kenyan national government (through the Ministry of Agriculture and Livestock Development) and Murang'a County Governments should also formulate and implement policies that enhance funding for KMb initiatives and strengthen technological infrastructure in rural farming areas. Additionally, agribusiness stakeholders should provide strategic leadership at both organisational and community levels by developing incentives that promote sustained knowledge sharing and collaborative learning among small-scale tea farmers. Strengthening these dimensions would help bridge the gap between research and practice, promote knowledge-sharing activities, and ensure these initiatives are sustained over time.

7.6 The proposed framework

The final objective of the study was to enhance KMb practices for the benefit of small-scale tea farmers, through the development of an integrated framework. The proposed framework comprises five key components: knowledge types, knowledge collaborators, KMb strategies, KMb indicators, and KMb factors. Derived from the results of the Exploratory Factor Analysis

(EFA), the framework illustrates the interdependent relationships among the constructs, with respective lines and arrows indicating directions of influence. This structure enhances the conceptual clarity, empirical validity, and practical applicability of the KMb framework and demonstrates how different elements of the framework interact to support effective knowledge creation, dissemination, and utilisation. The final KMb framework is presented below (see Figure 7.1).

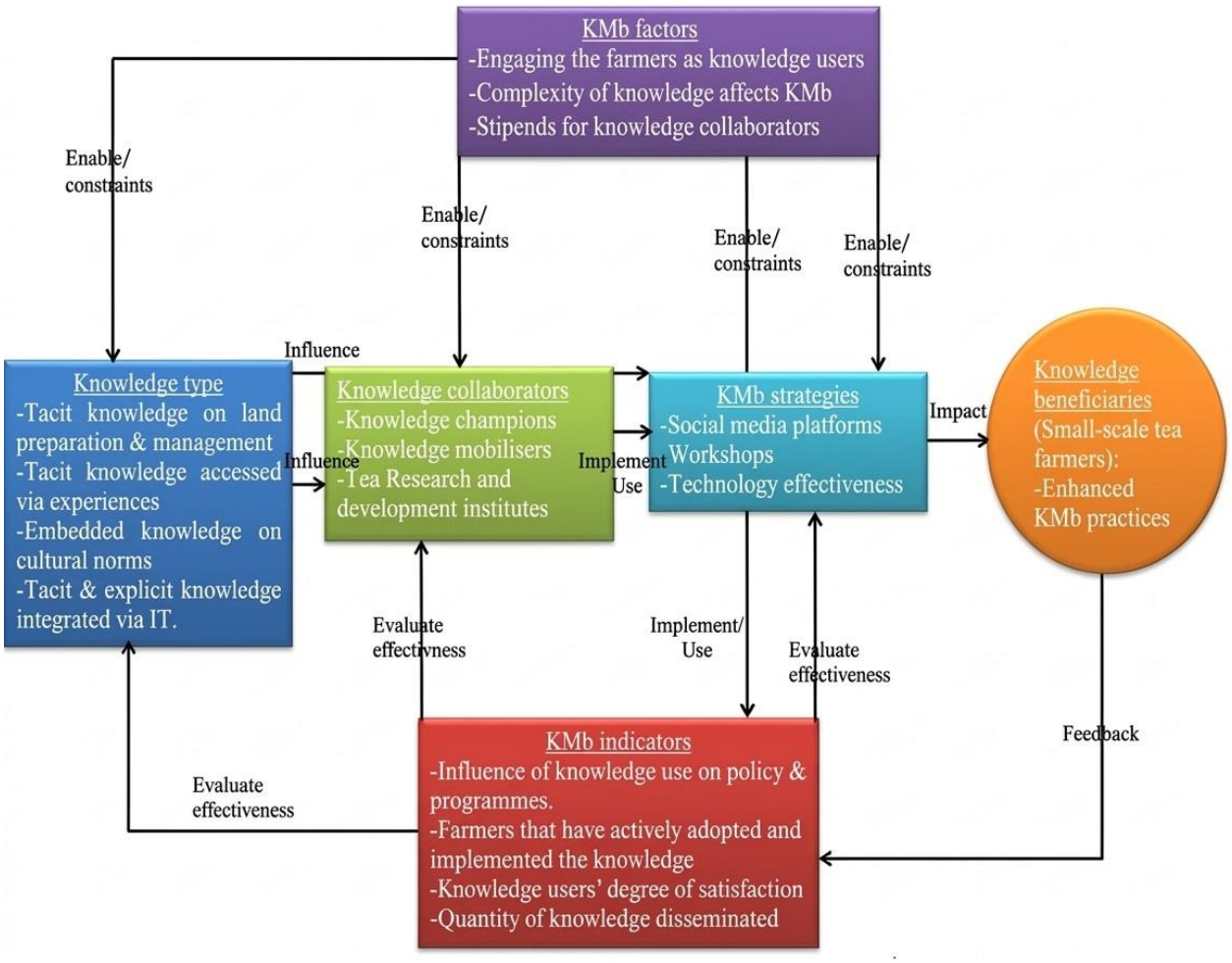


Figure 7.1: Proposed framework for KMb for small-scale tea farmers

The final framework for enhancing KMb practices for small-scale tea farmers comprises six key constructs that collectively explain how knowledge is created, shared, transferred, and applied to improve small-scale tea farming practices. The constructs comprise knowledge types, knowledge collaborators, KMb strategies, KMb indicators, KMb factors and knowledge beneficiaries. The arrows that connect these constructs indicate the direction of influence, showing the ensuing relationships that hold the KMb process. Knowledge types determine the nature of mobilisation activities, collaborators operationalise knowledge transfer, strategies facilitate dissemination, indicators measure effectiveness, factors provide enabling or

constraining conditions, and beneficiaries represent the outcome of the entire process through knowledge adoption and utilisation. The developed KMb framework illustrates the processes through which knowledge is created, shared, applied, and evaluated to improve small-scale tea farming practices in Murang'a County. The framework incorporates six key constructs, namely knowledge types, knowledge collaborators, KMb strategies, KMb indicators, KMb factors, and knowledge beneficiaries (small-scale tea farmers), which collectively explain how KMb occur in practice and leads to improved agribusiness practices. The arrows in the framework depict the directional relationships between constructs, showing both the enabling conditions and the pathways through which knowledge flowed from its sources to end users.

At the core of the framework is the knowledge-type construct, which represents the content used for the KMb process. In this study, this construct includes tacit knowledge on land preparation and management, embedded knowledge rooted in cultural norms, and tacit and explicit knowledge integrated through information technology (IT). These forms of knowledge determine the relevance and applicability of information shared with the small-scale tea farmers. Importantly, knowledge types influence the selection of both knowledge collaborators and KMb strategies, as different forms of knowledge require distinct expertise and dissemination mechanisms. The construct of knowledge collaborators serves as intermediaries who translate, adapt, and communicate knowledge into accessible formats for the farmers. In this study, the framework comprised collaborators who were knowledge champions, knowledge mobilisers, and tea research and development institutes. These knowledge collaborators play a pivotal role in bridging the gap between the knowledge creators and knowledge beneficiaries (small-scale tea farmers). They also ensure that the knowledge created is accessible and relevant for the small-scale tea farmers. Through their efforts, the collaborators operationalise the identified KMb strategies and facilitate knowledge transfer.

The construct KMb strategies represents the channels and methods through which knowledge is disseminated, transferred, and shared. Within the framework, components such as social media platforms, workshops, and the use of effective technologies emerged as important tools in this study that facilitate knowledge uptake and utilisation. These approaches provide flexible and scalable means for knowledge collaborators to engage small-scale tea farmers and promote the effective flow of agribusiness information and innovations. The successful implementation of these strategies, however, is contingent upon an enabling environment shaped by the underlying KMb factors. The framework also incorporates the construct KMb indicators, whose role is to assess the effectiveness of the KMb process. The indicators that qualified to be

included in the framework include the influence of knowledge use on policy and programmes, the extent of adoption and implementation of knowledge by the farmers, the level of user satisfaction, and the volume of knowledge disseminated. These indicators also serve as feedback mechanisms, which could enable knowledge collaborators to use the framework to assess whether mobilisation efforts were achieving their intended objectives. This also ensures continuous improvement and alignment with the needs of the small-scale tea farmers.

The final KMb framework also looked at factors. In this study, the KMb factors captured the conditions that either enable or constrain the KMb process. These factors include engaging farmers as active knowledge users, addressing the complexity of knowledge, and providing stipends to knowledge collaborators. The KMb factors influence the effectiveness of all other constructs within the framework and shape how knowledge types are mobilised, how collaborators execute their roles, and how strategies are implemented. The framework indicates that when enabling conditions prevail, they facilitate and strengthen the flow of knowledge across stakeholders. Conversely, constraining factors hinder the mobilisation process and limit the adoption and utilisation of knowledge. At the outcome stage, the knowledge beneficiaries, represented by small-scale tea farmers, act as both the recipients and co-producers of knowledge. Their engagement signifies the successful translation of knowledge into practice. The framework positions them as active participants whose experiences and insights reinforce the iterative nature of the KMb process. The goal of the framework is to enhance tea farming practices and improve productivity. The improved practices may strengthen the small-scale tea farmers' capacity to acquire, internalise, and apply knowledge effectively.

This framework presents KMb as an interdependent system, where constructs dynamically influence one another. In the proposed framework, knowledge types determine or influence the choice of knowledge collaborators and strategies, which, in other words, means that different knowledge types require different collaborators and strategies. At the same time, strategies operationalise the transfer of knowledge to beneficiaries. Collaborators influence the effectiveness of strategies. The role of knowledge collaborators in the framework is to implement or use KMb strategies. Similarly, KMb strategies operationalise the dissemination of knowledge to the knowledge beneficiaries (small-scale tea farmers). In other words, strategies ensure the delivery of knowledge that impacts the activities of small-scale tea farmers. KMb factors function as enabling or constraining conditions that influence the effectiveness of knowledge types, collaborators, strategies, and indicators. The indicators measure the performance and impact of these constructs while providing evaluative feedback from

beneficiaries, which informs continuous refinement of knowledge types, collaborator roles, and dissemination approaches. Overall, the framework operates as a holistic system where the alignment of appropriate knowledge types, collaborators, strategies, factors, and indicators is essential for strengthening KMb and enhancing farmers' capacity for knowledge uptake and application.

7.7 Implications for theory, policy and practice

The findings of this study hold considerable potential for shaping policies and strategies on KMb and, more broadly, KM in the agricultural sector. If the recommendations outlined in the proposed framework are implemented, they may enable stakeholders in Kenya's agricultural landscape to strengthen KMb practices and enhance the uptake of research outputs among small-scale tea farmers. Central to this study was the objective of enhancing the utilisation of research knowledge generated by higher education institutions within small-scale tea production systems to improve decision-making, productivity, and sustainability. The KMb framework underscores the need for stakeholders to refine their strategies, roles, and policies to foster a more systematic, inclusive, and sustainable approach to KMb.

Anchored in established theoretical and conceptual models (SECI Model, Ward Model, Phipps and Shapson Model, and the Co-Produced Pathway to Impact Model), this study contributes to addressing key theoretical and contextual questions on how knowledge is created, mobilised, shared, and applied within the agricultural sector. Thus, this framework contributes specifically to both theoretical understanding and practical implementation. Theoretically, the framework broadens the use of established KMb models within the tea industry, showcasing their importance in the context of rural areas and among small-scale farmers. On a practical level, the framework lays out a clear path for Kenyan tea agribusiness stakeholders to enhance and solidify their KMb practices. By embracing the strategies and suggestions outlined in the proposed framework, the researcher anticipates a boost in knowledge utilisation, better farmer involvement, and a sustainable drive for innovation in the sector.

7.8. Limitations of the research

Understanding the limitations inherent in any scholarly research is critical for appropriately interpreting and applying its findings. This study focused on examining KMb practices for small-scale tea farmers in Murang'a County, Kenya. The researcher acknowledges that the findings should be interpreted and used cautiously. The limitations outlined in the ensuing

sections of this study relate to factors that were beyond the researcher's control during the data collection process.

The study was confined to developing a framework for mobilising agribusiness knowledge from researchers at Murang'a University of Technology (MUT) to small-scale tea farmers within Murang'a County. Consequently, the findings may not be directly transferable to other agricultural contexts or sectors. Future research should therefore focus on extending the study to include small-scale tea farmers across different counties and researchers from other universities in Kenya.

Due to logistical constraints and challenging terrain, data collection was limited to two locations (Kigumo and Kaigama). These locations were selected for their proximity to the MUT Mariira Campus, where most agribusiness researchers are based. This geographic concentration implies that caution should be exercised when generalising the findings to other regions.

Quantitative data were collected from chairpersons representing small-scale tea farmers rather than from the farmers themselves. While these individuals are elected representatives, engaging farmers directly may have provided richer, more nuanced insights. Future research is therefore encouraged to capture the views of end-users more directly.

The study was confined to only three institutions: two tea-processing factories and one higher education institution in Murang'a County. Thus, the findings should be interpreted within the context of the small-scale tea farming sector in Murang'a County. Future studies could broaden the scope to include additional tea factories and higher education institutions across different counties to provide a more comprehensive understanding of KMb practices within Kenya's small-scale tea industry. Another limitation of this study was the limited availability of comparative empirical studies on knowledge mobilisation (KMb) within the small-scale tea farming sector. This restricted the extent to which the findings could be corroborated or contrasted with the existing literature in the discussion chapter.

The quantitative survey was limited to a small number of participants (researchers and chairpersons of small-scale tea farmers). These participants were selected due to their proximity to the study area. This limited scope implies that caution should be exercised when generalising the findings to broader populations in the tea sector.

One more limitation of this study is that the qualitative data derived from semi-structured interviews was not sufficiently integrated to elaborate on the specific aspects of the qualitative

analysis (such as tacit knowledge) reported by the respondents (factory managers and agricultural extension officers). Although the section links the qualitative findings to the literature on KMb, it does not clearly show how the interview data supported or challenged the survey results. This limited the depth of triangulation and reduced the analytical contribution of the qualitative findings.

Another shortcoming of this study was that, despite the conceptual coverage of trustworthiness, the procedural details regarding how rigour was operationalised in both the qualitative and quantitative strands were not clearly articulated. Specifically, the description of the steps taken to ensure credibility, dependability, confirmability, and transferability, as well as the integration of datasets achieved through triangulation in the convergent design, could have been more clearly explained.

The KMb framework was more dependent on the quantitative findings than qualitative findings. The quantitative analysis was not sufficiently rigorous to meaningfully contribute to the KMb framework. This limited scope implies that caution should be exercised when interpreting the framework as a fully integrated mixed-methods product, since it reflects more statistical patterns than thematic analysis.

Basically, participation in both the study (survey and interviews) was limited by institutional willingness and availability. The survey yielded 43 respondents, while 13 took part in qualitative interviews. Due to these relatively small sample responses, the researcher suggests cautious interpretation and highlights the need for larger future studies.

7.9 Recommendations for future research

The researcher offers the following additional recommendations for future studies to expand the body of knowledge in the fields of KM and agriculture: The study concluded that tacit and embedded knowledge are perceived as complex. It is therefore suggested that future research should focus on how tacit and embedded knowledge develop among small-scale tea farmers. Such studies could investigate the mechanisms through which farmers acquire, transmit, and utilise agribusiness-related tacit and embedded knowledge. Additionally, a comparative analysis of tacit and embedded knowledge transfer across different disciplines, regions, or societies could help identify best practices for enhancing localised KMb. This research primarily focused on formal knowledge creators, such as researchers and extension officers, rather than small-scale tea farmers, who also have the potential to generate informal knowledge. Future research could explore the impact of informal knowledge collaborators, such as

experienced farmers and community leaders. These individuals often play a crucial role in grassroots knowledge dissemination, and understanding their influence and methods would provide a more comprehensive view of the KMb ecosystem.

Given the growing role of information technology (IT) in knowledge mobilisation, future studies should examine the effectiveness of IT-based digital platforms, such as mobile applications, SMS services, and online tools. Researchers could assess how well these tools meet the needs of farmers and investigate barriers to their adoption. The study highlighted knowledge networks and events as critical KMb strategies. Future research could explore which types of KMb events and networks yield the highest levels of knowledge sharing, utilisation, and application. Additionally, research could investigate how to keep these events and networks active and accessible over time. Future studies could also evaluate the validity of the knowledge indicators identified in this study, including dissemination, use, usefulness, and collaboration levels.

Researchers could examine these indicators in various contexts and determine whether additional indicators are needed for a more accurate assessment of KMb. For instance, exploring behavioural changes in farming practices or the long-term economic impacts of knowledge adoption could offer deeper insights into the effectiveness of mobilisation efforts. Finally, while the proposed KMb framework is tailored to small-scale tea farmers, further research could explore the development and implementation of multi-level frameworks applicable to different sectors within agriculture. Future studies could investigate how this framework could be adapted to different crops or regions, identifying context-specific challenges and opportunities. Additionally, researchers could assess the framework's scalability and impact across various agricultural value chains, evaluating its effectiveness in fostering sustainable farming practices and improving livelihoods.

7.10 Final conclusion

This study aimed to investigate whether KMb practices enhance knowledge utilisation among small-scale tea farmers in Murang'a County. It also explored whether KMb enables researchers, knowledge mobilisers, and farmers to create, capture, share, and apply agribusiness knowledge, thereby impacting the tea agribusiness value chain, policy, environment, health, and competitive advantage. The qualitative and quantitative data revealed a good understanding of KMb among participants. However, there remains room for improvement, particularly in

developing strategies to further sensitise small-scale farmers on maximising the use and application of agribusiness knowledge in their farming practices.

KMb was examined through six core variables: knowledge products, collaborators, strategies, indicators, influencing factors, and an enhancement framework. The study revealed that tacit knowledge was the most widely shared and applied among farmers, particularly in land preparation, tea leaf harvesting, processing, and pest management. Explicit knowledge, accessed through research reports, manuals, and online platforms such as blogs and portals, was also actively utilised, while embedded knowledge was transferred through operational processes and products. Information technology (IT) played a central role in supporting effective KM among farmers. Regarding collaborators, knowledge creators, mobilisers, champions, and consumers were identified as key actors in generating, disseminating, and promoting new knowledge and innovations. Concerning KMb strategies such as knowledge products, networks, and events, the findings indicated that these approaches effectively facilitated knowledge sharing, utilisation, and application in tea farming practices, with IT serving as a vital enabler of mobilisation, dissemination, and transfer.

The study's conclusions on KMb indicators (dissemination, use, usefulness, and collaboration) underscored their importance in enabling the small-scale tea farmers to assess the impact of KMb practices on their agribusiness activities. Moreover, factors influencing KMb (including availability of knowledge resources, user characteristics, knowledge complexity, and management support) were found to significantly shape the success of KMb initiatives for the small-scale tea farmers. The study, therefore, concluded that an effective KMb framework must be context-specific and responsive to the unique knowledge needs of small-scale farmers. Such a framework would strengthen the sharing, utilisation, and application of agribusiness knowledge, thereby enhancing the overall effectiveness and sustainability of KMb practices within the tea farming sector.

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APPENDICES

Appendix A: Questionnaire distributed to chairpersons of tea leaf buying centres

TOPIC: KNOWLEDGE MOBILISATION PRACTICES FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY, KENYA

Dear Respondent,

My name is Richard Khamali, a Doctor of Philosophy student in the Department of Information Science at the University of South Africa. I am currently conducting a survey as part of my studies. This questionnaire is being sent to you to gather information on the subject "*Knowledge Mobilisation Practices for Small-Scale Tea Farmers in Murang'a County, Kenya*." This study aims to explore and develop a framework for knowledge mobilisation for small-scale tea farmers in Murang'a County, Kenya.

Your voluntary involvement in this study is vital to the success of this study and is much appreciated. It will take you less than 30 minutes to complete the questionnaire. Please return the questionnaire as soon as it is completed. Additionally, this research solely serves academic purposes. Your responses will be treated with the utmost confidentiality, and you are at liberty to withdraw your participation at any point in the study. If you have any inquiries, comments, or suggestions concerning this research, please feel free to contact me via email at 41070097@mylife.unisa.ac.za.

Thank you very much for your cooperation.

Richard Khamali

PhD CANDIDATE, UNISA

SECTION A: BIO-DATA OF RESPONDENTS.

- Please indicate your preferred choice by selecting (ticking) the option that best applies to you.
- Please use the spaces provided to write your answers to the open-ended questions.

1.	**Please indicate your gender**	
	a. Male	[ ]
	b. Female	[ ]
	c. Other, please specify: ……..	
2.	**Please select your age range**	
	a. Below 20 years	[ ]
	b. 21 - 30 years	[ ]
	c. 31 - 40 years	[ ]
	d. 41 - 50 years	[ ]
	e. 51 - 60 years	[ ]
	f. 61 years and above	[ ]
3.	**Please specify your number of years in tea farming (for small-scale farmers).**	
	a. 1 - 5 years	[ ]
	b. 6 - 10 years	[ ]
	c. 11 - 15 years	[ ]
	d. 16 - 20 years	[ ]
	e. Over 21 years	[ ]
4.	**Please indicate your highest level of education.**	
	a. I did not complete my primary education	[ ]
	b. Primary school education (KCPE, CPE)	[ ]
	c. Secondary school education (O-level or A-level)	[ ]

	d. College education (diploma or certificate	[ ]
	e. Bachelor's degree from a university	[ ]
	f. Postgraduate degree (Master or PhD) from a university	[ ]

SECTION B: TYPES OF KNOWLEDGE PRODUCED AND UTILISED AMONG SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

Objective 1: To ascertain the types of knowledge present among small-scale tea farmers, and how they are generated and utilised.

5a.	**Tacit knowledge** is knowledge that exists in people's minds and is learned through practical experience. Please provide examples of tacit knowledge applicable to your tea farming and agribusiness practices. **(Tick all that apply).**	**Please tick**
	a. Knowledge of land preparation and management	[ ]
	b. Knowledge of seeds and seedlings	[ ]
	c. Knowledge of tea leaf harvesting, processing and marketing.	[ ]
	d. Knowledge of tea farming technology, innovation and value addition.	[ ]
	e. Knowledge of weed and pest management.	[ ]
	f. Knowledge of environmental management.	[ ]
	g. Other types of knowledge…… ……..	[ ]
5b.	Which of this tacit knowledge do you create, share, and apply in your tea farming and agribusiness practices? **(Tick all that apply).**	**Please tick**
	a. Land preparation and management	[ ]
	b. Tea seeds and seedlings	[ ]
	c. Tea leaf harvesting, processing and marketing.	[ ]
	d. Tea farming technology, innovation and value addition.	[ ]

	e. Weed and pest control and management.	[ ]
	f. Environmental management	[ ]
	g. Frequently Asked Questions (FAQ)	[ ]
	h. Other, please specify ……... …….	[ ]
5c.	How do you **access tacit knowledge** related to tea agribusiness and farming practices? **(Tick all that apply).**	**Please tick**
	a. Via experience and lessons learned	[ ]
	b. Via storytelling events	[ ]
	c. Via podcasts, forums and talk shows	[ ]
	d. Via communities of practice	[ ]
	e. Via tutoring and mentoring	[ ]
	f. Any other, please specify……. …….	[ ]
6a.	**Explicit knowledge** refers to tangible and formal knowledge found in documents, databases, websites, and portals. Which sources do you use to access explicit knowledge related to tea agribusiness and farming practices? **(Tick all that apply).**	**Please tick**
	a. Research reports	[ ]
	b. Scholarly journal articles	[ ]
	c. Handbooks and manuals	[ ]
	d. Newspaper and magazine articles	[ ]
	e. Online platforms such as Blogs, websites and portals	[ ]
	f. Any other, please specify……. ……	[ ]

6b.	How do you **access explicit knowledge** related to tea agribusiness and farming practices? **(Tick all that apply).**	**Please tick**
	a. Through workshops, seminars and conferences.	[ ]
	b. Thru intranet and extranets	[ ]
	c. Through knowledge fairs and exhibitions	[ ]
	d. Thru project reviews	[ ]
	e. Through online platforms such as Blogs, websites and portals	[ ]
	e. Through other sources, please specify…….…. ……..	[ ]
7a.	How do you **integrate both tacit and explicit knowledge** into your daily tea agribusiness and farming practices? **(Tick all that apply).**	**Please tick**
	a. Through entrenching them in processes and routines.	[ ]
	b. Through integrating them using information technologies (IT) tools	[ ]
	c. Through entrenching them in products.	[ ]
	d. Through integrating the culture of developing, sharing and utilisation of both types of knowledge.	[ ]
	e. Other, please specify……..... ……..	[ ]
8a.	**Embedded knowledge** exists in various forms, such as **processes, products, cultural norms, routines, artefacts, and structures**. Which sources do you utilise to access embedded knowledge relevant to tea agribusiness and farming practices? **(Please select all that apply).**	**Please tick**
	a. Processes	[ ]
	b. Products	[ ]
	c. Cultural norms	[ ]

	d. Routines	[ ]
	e. Artefacts	[ ]
	f. Structures	[ ]
	g. Other, please specify…….. ……..	[ ]
9a.	How do you perceive the **role of information technology (IT**) tools in aiding **the management of tacit, explicit, and embedded knowledge** within the tea agribusiness and farming sector? **(Please select all that apply).**	**Please tick**
	a. They aid in mapping the diverse knowledge domains within an organisation	[ ]
	b. They serve as a supportive platform for facilitating and enhancing organizational processes and cultures	[ ]
	c. They support the reverse engineering of products to unveil concealed embedded knowledge	[ ]
	d. They integrate both tacit and explicit knowledge to form embedded knowledge	[ ]
	e. Other, please specify…….... ……..	[ ]
9b.	Do you actively participate in **knowledge-sharing activities** within your local tea-farming community?	**Please tick**
	a. Yes	[ ]
	b. No	[ ]
9c.	What **methods or platforms** do you utilise to disseminate knowledge among small-scale tea farmers? **(Please select all that apply).**	**Please tick**
	a. Intranet and extranets	[ ]

	b. Online platforms such as Blogs, websites, portals and repositories	[ ]
	c. Communities of practice (CoP)	[ ]
	d. Storytelling and mentoring	[ ]
	e. Training and learning platforms	[ ]
	f. Other, please specify……..... ……..	[ ]

SECTION C: COLLABORATORS INVOLVED IN KNOWLEDGE MOBILISATION FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

10.	Can you pinpoint **persons or entities** that play an active role in generating new knowledge or innovative practices within the tea farming sector in Murang'a County? **(Please select all that apply).**	**Please tick**
	a. Agribusiness researchers and scholars	[ ]
	b. Small-scale tea farmers	[ ]
	c. Agricultural extension officers	[ ]
	d. Managers of institutions of higher learning	[ ]
	e. Tea Research and Development Institutes	[ ]
	f. Other, please specify……..... ……...	[ ]
11.	**How do these knowledge creators contribute to generating new knowledge for the benefit of small-scale tea farmers? (Please select all that apply).**	**Please tick**
	a. Creating or generating new knowledge	[ ]
	b. Sharing and exchanging knowledge	[ ]
	c. Combining and converting various knowledge types.	[ ]
	d. Establishing collaborations and partnerships with farmers.	[ ]

	e. Utilising knowledge and user feedback to generate new knowledge.	[ ]
	f. Other, please specify…… ……...	[ ]
12.	Who do you perceive as **the key facilitators or agents** responsible for disseminating knowledge among small-scale tea farmers in Murang'a County? **(Please select all that apply).**	**Please tick**
	a. Knowledge creators	[ ]
	b. Knowledge mobilisers	[ ]
	c. Knowledge champions	[ ]
	d. Knowledge consumers	[ ]
	e. Other, please specify……..... ……...	[ ]
13.	How do these **knowledge mobilisers** engage with the small-scale tea farmers to effectively share and disseminate knowledge? **(Please select all that apply).**	**Please tick**
	a. They drive knowledge into actionable practice.	[ ]
	b. They promote knowledge exchange among researchers, policymakers, and farmers.	[ ]
	c. They bridge the gap between researchers and small-scale tea farmers.	[ ]
	d. They develop guidelines for agribusiness researchers and small-scale tea farmers to create, exchange, and use knowledge.	[ ]
	e. Other, please specify……..... ……...	[ ]
14.	Have any **persons been acknowledged** for advocating or promoting knowledge mobilisation practices within the tea farming community? **(Please select all that apply).**	**Please tick**

	a. Yes	[ ]
	b. No	[ ]
15.	What actions or initiatives do this knowledge **champions implement** to encourage knowledge sharing and uptake among small-scale tea farmers? **(Please select all that apply).**	**Please tick**
	a. They facilitate small-scale tea farmers to acquire and exchange knowledge.	[ ]
	b. They promote knowledge creation, exchange and uptake.	[ ]
	c. They facilitate training, coaching and learning initiatives for the farmers.	[ ]
	d. They manage knowledge (physical and automated).	[ ]
	e. Other, please specify…… ……..	[ ]
16.	How do you view the role of **small-scale tea farmers** in the process of mobilising knowledge? **(Please select all that apply).**	**Please tick**
	a. Partaking and utilising knowledge	[ ]
	b. Accessing, sharing, and exchanging knowledge	[ ]
	c. Integration of knowledge into their daily tea farming practices	[ ]
	d. Acquiring and learning new knowledge and innovations.	[ ]
	e. Other, please specify……..... ……...	[ ]

SECTION D: KNOWLEDGE MOBILISATION STRATEGIES FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

Objective: To explore the strategies utilised for knowledge mobilisation among small-scale tea farmers.

17.	What **knowledge products, networks, and events** are developed or utilised to aid small-scale tea farmers in Murang'a County in adopting knowledge? **(Please indicate by selecting the applicable strategies below).**

17a.	**Knowledge products**	**Please tick**
1.	Blogs	[ ]
2.	Case study	[ ]
3.	Scholarly journal articles	[ ]
4.	Magazine articles	[ ]
5.	Newspaper articles	[ ]
6.	Handbook	[ ]
7.	Frequently Asked Questions (FAQs)	[ ]
8.	Podcast	[ ]
9.	Press release	[ ]
10.	Promotional literature	[ ]
11.	Reports	[ ]
12.	Lessons learned	[ ]
13.	Stories	[ ]
14.	Other, please specify……..... …….....	[ ]
17b.	**Knowledge events**	**Please tick**
1.	Workshops	[ ]
2.	Seminars	[ ]
3.	Conferences	[ ]
4.	Knowledge fairs	[ ]
5.	Talk shows	[ ]

6.	Forums	[ ]
7.	Storytelling events	[ ]
8.	Project reviews	[ ]
9.	Peer assist	[ ]
10.	Other, please specify…… ……	[ ]
17c.	**Knowledge networks**	**Please tick**
1.	Chatroom	[ ]
2.	Media (Newspapers, Radio, TV, Podcasts)	[ ]
3.	Community of practice	[ ]
4.	Discussion board	[ ]
5.	Listserv	[ ]
6.	Online forum	[ ]
7.	Social media	[ ]
8.	Expert blogs	[ ]
9.	Other, please specify…… ……	[ ]

18.	To what extent do you agree that these knowledge products, events, and networks have facilitated the dissemination, sharing, and transfer of knowledge within the small-scale tea farming community? **Instructions**: On a Likert scale of 1–5, where 1 **= strongly disagree**, **2 = disagree**, **3 = neither agree nor disagree**, **4 = agree**, and **5 = strongly agree,** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.					
18a.	**Knowledge products**	**Strongly Agree [5]**	**Agree [4]**	**Neither agree nor disagree [3]**	**Disagree [2]**	**Strongly disagree [1]**

1.	Blogs	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Case study	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Scholarly journal articles	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Magazine articles	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Newspaper articles	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Handbook	[ ]	[ ]	[ ]	[ ]	[ ]
7.	Frequently Asked Questions (FAQs)	[ ]	[ ]	[ ]	[ ]	[ ]
8.	Podcast	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Press release	[ ]	[ ]	[ ]	[ ]	[ ]
10.	Promotional literature	[ ]	[ ]	[ ]	[ ]	[ ]
11.	Reports	[ ]	[ ]	[ ]	[ ]	[ ]
12.	Lessons learned	[ ]	[ ]	[ ]	[ ]	[ ]
13.	Stories	[ ]	[ ]	[ ]	[ ]	[ ]
14.	Others (specified in 18)	[ ]	[ ]	[ ]	[ ]	[ ]
18b.	**Knowledge events**	**Strongly Agree [5]**	**Agree [4]**	**Neither agree nor disagree [3]**	**Disagree [2]**	**Strongly Disagree [1]**
1.	Workshops	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Seminars	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Conferences	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Knowledge fairs	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Talk shows	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Forums	[ ]	[ ]	[ ]	[ ]	[ ]

7.	Storytelling events	[ ]	[ ]	[ ]	[ ]	[ ]
8.	Project reviews	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Peer assist	[ ]	[ ]	[ ]	[ ]	[ ]
10.	Others (specified in 18)	[ ]	[ ]	[ ]	[ ]	[ ]
18c.	**Knowledge networks**	**Strongly Agree [5]**	**Agree [4]**	**Neither agree nor disagree [3]**	**Disagree [2]**	**Strongly Disagree [1]**
1.	Chatroom	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Media (Newspapers, Radio, TV, Podcasts)	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Community of practice	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Discussion board	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Listserv	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Online forum	[ ]	[ ]	[ ]	[ ]	[ ]
7.	Social media	[ ]	[ ]	[ ]	[ ]	[ ]
8.	Expert blogs	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Others (specified in 18)	[ ]	[ ]	[ ]	[ ]	[ ]
19.	How effective is technology in enhancing knowledge mobilization efforts within the small-scale tea farming community? **Instructions**: On a Likert scale of 1–5, where 1 **= extremely not effective**, **2 = not effective 3 = neutral**, **4 = effective**, and **5 = very effective.** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.					
1.	Very effective [5]					[ ]
2.	Effective [4]					[ ]
3.	Neutral [3]					[ ]
4.	Not effective [2]					[ ]

5.	Extremely not effective [1]	[ ]

SECTION E: INDICATORS OF KNOWLEDGE MOBILISATION FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

Objective: To determine the indicators of knowledge mobilisation among small-scale tea farmers.						
20.	Do you agree with the statements concerning the evaluating indicators for successful knowledge mobilisation for small-scale tea farmers in Murang'a County? **Instructions**: On a Likert scale of 1–5, where 1 **= strongly disagree**, **2 = disagree**, **3 = Neither agree or disagree**, **4 = agree**, and **5 = strongly agree.** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.					
20a.	**Dissemination or reach indicator**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The number of requests for knowledge requests	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The quantity of knowledge disseminated.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	The number of downloads or hits	[ ]	[ ]	[ ]	[ ]	[ ]
4.	The extent of media and social media exposure	[ ]	[ ]	[ ]	[ ]	[ ]
	The total number of beneficiaries who have					

5.	accessed and benefited from the knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
20b.	**Use indicator**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The number of consumers who demonstrate intent to use the knowledge	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The consumers who have actively adapted and implemented the knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	The influence of knowledge use on policies, programs, training, education and research.	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Tangible impact of knowledge utilisation on improving overall practices and performance.	[ ]	[ ]	[ ]	[ ]	[ ]
20c.	**Usefulness indicator**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The quantity of documents read or browsed.	[ ]	[ ]	[ ]	[ ]	[ ]

2.	The degree of satisfaction expressed by knowledge users.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	The perceived utility of the information.	[ ]	[ ]	[ ]	[ ]	[ ]
4.	The acquisition of new knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Shifts in perspective resulting from the application of the knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
20d.	**Collaboration/ partnership indicator**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The range of knowledge products or services that have been created or shared in collaboration with partners.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The types of capacity-building efforts undertaken.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	The expansion of social networks	[ ]	[ ]	[ ]	[ ]	[ ]
4.	The enhancement of influence capacity	[ ]	[ ]	[ ]	[ ]	[ ]
5.	The extent of collaboration attained	[ ]	[ ]	[ ]	[ ]	[ ]

	within the process of knowledge mobilisation.					

SECTION F: FACTORS IMPACTING KNOWLEDGE MOBILISATION FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

Objective: To investigate the factors that influence knowledge mobilisation (KMb) among small-scale tea farmers in Murang'a County.						
21.	To what extent do you agree with the statements concerning the impact of the following factors on knowledge mobilisation (KMb) among small-scale tea farmers in Murang'a County? **Instructions**: On a Likert scale of 1–5, where 1 **= strongly disagree**, **2 = disagree**, **3 = Neither agree or disagree**, **4 = agree**, and **5 = strongly agree.** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.					
21a.	**Knowledge resources**	**Strongly agree (5)**	**Agree (4)**	**Neither agree or disagree (3)**	**Disagree (2)**	**Strongly disagree (1)**
1.	Budgetary allocations influence KMb initiatives	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Stipends for knowledge collaborators influence KMb initiatives	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Information technology support	[ ]	[ ]	[ ]	[ ]	[ ]

	influences KMb initiatives					
4.	Collaborative Knowledge networks such as community of practice influence KMb initiatives	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Other resources such as materials, meeting expenditures, human resources, travel logistics, and volunteer contributions influence KMb initiatives.	[ ]	[ ]	[ ]	[ ]	[ ]
21b.	**Knowledge users**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	Small-scale tea farmers are the primary users of tea agribusiness knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Small-scale tea farmers are a critical resource	[ ]	[ ]	[ ]	[ ]	[ ]

	in the KMb process.					
3.	Engaging small-scale tea farmers as knowledge users impacts the effectiveness of knowledge mobilisation initiatives.	[ ]	[ ]	[ ]	[ ]	[ ]
21c.	**Knowledge complexity**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The complexity of knowledge affects its mobilisation, transfer and application for small-scale tea farmers.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The complexity of knowledge has presented challenges and restricted opportunities for small-scale tea farmers in their farming practices.	[ ]	[ ]	[ ]	[ ]	[ ]

21d.	Management support	Strongly agree (5)	Agree [4]	Neither agree or disagree [3]	Disagree (2)	Strongly disagree (1)
1.	Management support is significant in knowledge mobilisation activities for small-scale tea farmers.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Strong management support can improve KMb activities for small-scale tea farmers	[ ]	[ ]	[ ]	[ ]	[ ]

SECTION G: A FRAMEWORK FOR ENHANCING KNOWLEDGE MOBILISATION FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

		Objective: To propose a framework aimed at enhancing knowledge mobilisation (KMb) for small-scale tea farmers.
22.		Please assess the importance of the following elements in developing a framework to improve knowledge mobilisation for small-scale tea farmers. **Instructions**: On a Likert scale of 1–5, where 1 **= very insignificant**, **2 = insignificant**, **3 = uncertain**, **4 = significant**, and **5 = very significant.** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.

The components of a framework for enhancing knowledge mobilisation for small-scale tea farmers.		**Extremely Significant (4)**	**Significant (3)**	**Neutral**	**Slightly significant (2)**	**Not significant at all (1)**
1.	Knowledge products (see 18a)	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Collaborators (see section C)	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Strategies (see section D)	[ ]	[ ]	[ ]	[ ]	[ ]
4.	KMb Indicators	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Implementation timelines	[ ]	[ ]	[ ]	[ ]	[ ]

Appendix B: Questionnaire distributed to agribusiness researchers

TOPIC: KNOWLEDGE MOBILISATION PRACTICES FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY, KENYA

Dear Respondent,

My name is Richard Khamali, a Doctor of Philosophy student in the Department of Information Science at the University of South Africa. I am currently conducting a survey as part of my studies. This questionnaire is being sent to you to gather information on the subject "*Knowledge Mobilisation Practices for Small-Scale Tea Farmers in Murang'a County, Kenya*." This study aims to explore and develop a framework for knowledge mobilisation for small-scale tea farmers in Murang'a County, Kenya.

Your voluntary involvement in this study is vital to the success of this study and is much appreciated. It will take you less than 30 minutes to complete the questionnaire. Please return the questionnaire as soon as it is completed. Additionally, this research solely serves academic purposes. Your responses will be treated with the utmost confidentiality, and you are at liberty to withdraw your participation at any point in the study. If you have any inquiries, comments, or suggestions concerning this research, please feel free to contact me via email at 41070097@mylife.unisa.ac.za.

Thank you very much for your cooperation.



Richard Khamali

PhD CANDIDATE, UNISA

SECTION A: BIO-DATA OF RESPONDENTS.

- Please indicate your preferred choice by selecting (ticking) the option that best applies to you.
- Please use the spaces provided to write your answers to the open-ended questions.

1.	**Please indicate your gender**	
	a. Male	[ ]
	b. Female	[ ]
2.	**Please select your age range**	
	a. 20 - 30 years	[ ]
	b. 31 - 40 years	[ ]
	c. 41 - 50 years	[ ]
	d. 51 - 60 years	[ ]
	e. 61 – 70 years	[ ]
3.	**Please indicate your number of years in the agribusiness sector and research**	
	a. 1 - 5 years	[ ]
	b. 6 - 10 years	[ ]
	c. 11 - 15 years	[ ]
	d. 16 - 20 years	[ ]
	e. Over 20 years	[ ]
4.	**Please indicate your highest level of education.**	
	a. Secondary school certificate (O-level or A-level)	[ ]
	b. College level	[ ]
	c. Bachelor's degree from a university	[ ]
	d. Masters from a university	[ ]
	e. PhD from a university	[ ]

SECTION B: TYPES OF KNOWLEDGE PRODUCED AND UTILISED AMONG SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

Objective 1: To ascertain the types of knowledge present among small-scale tea farmers, and how they are generated and utilised.

5a.	**Tacit knowledge** is defined as knowledge that resides in people's minds and is acquired through practical experience. In your view, what are examples of tacit knowledge relevant to small-scale tea farmers? **(Tick all that apply).**	**Please tick**
	a. Knowledge of land preparation and management	[ ]
	b. Knowledge of seeds and seedlings	[ ]
	c. Knowledge of tea leaf harvesting, processing and marketing.	[ ]
	d. Knowledge of tea farming technology, innovation and value addition.	[ ]
	e. Knowledge of weed and pest management.	[ ]
	f. Knowledge of environmental management.	[ ]
	g. Other types of knowledge…… ……..	[ ]
5b.	Which of this tacit knowledge do you create, share, and apply in your agribusiness and research practices? **(Tick all that apply).**	**Please tick**
	a. Land preparation and management	[ ]
	b. Tea seeds and seedlings	[ ]
	c. Tea leaf harvesting, processing and marketing.	[ ]
	d. Tea farming technology, innovation and value addition.	[ ]
	e. Weed and pest control and management.	[ ]
	f. Environmental management	[ ]
	g. Frequently Asked Questions (FAQ)	[ ]
	h. Other, please specify ……...	[ ]

	……..	
5c.	How do you **access tacit knowledge** related to small-scale tea agribusiness research practices? **(Tick all that apply).**	**Please tick**
	a. Via experience and lessons learned	[ ]
	b. Via storytelling events	[ ]
	c. Via podcasts, forums and talk shows	[ ]
	d. Via communities of practice	[ ]
	e. Via tutoring and mentoring	[ ]
	f. Any other, please specify……. ……..	[ ]
6a.	**Explicit knowledge** refers to tangible and formal knowledge found in documents, databases, websites, and portals. In your opinion, what are examples of explicit knowledge relevant to small-scale tea farmers? **(Tick all that apply).**	**Please tick**
	a. Research reports	[ ]
	b. Scholarly journal articles	[ ]
	c. Handbooks and manuals	[ ]
	d. Newspaper and magazine articles	[ ]
	e. Online platforms such as Blogs, websites and portals	[ ]
	f. Any other, please specify……. ……	[ ]
6b.	How do you **access explicit knowledge** related to small-scale tea agribusiness and research practices? **(Tick all that apply).**	**Please tick**
	a. Through workshops, seminars and conferences.	[ ]
	b. Thru intranet and extranets	[ ]
	c. Through knowledge fairs and exhibitions	[ ]

	d. Thru project reviews	[ ]
	e. Through online platforms such as Blogs, websites and portals	[ ]
	f. Through other sources, please specify……..…. …….	[ ]
7.	How do you **integrate both tacit and explicit knowledge** into your agribusiness and research practices? **(Tick all that apply).**	**Please tick**
	a. Through entrenching them in processes and routines.	[ ]
	b. Through integrating them using information technologies (IT) tools	[ ]
	c. Through entrenching them in products.	[ ]
	d. Through integrating the culture of developing, sharing and utilisation of both types of knowledge.	[ ]
	e. Other, please specify……..... ……..	[ ]
8.	**Embedded knowledge** exists in various forms, such as processes, products, cultural norms, routines, artefacts, and structures. In your opinion, what are sources of embedded knowledge relevant to small-scale tea farmers? **(Tick all that apply).**	**Please tick**
	a. Processes	[ ]
	b. Products	[ ]
	c. Cultural norms	[ ]
	d. Routines	[ ]
	e. Artifacts	[ ]
	f. Structures	[ ]
	g. Other, please specify……..... ……..	[ ]

9a.	How do you perceive the **role of information technology (IT**) tools in aiding **the management of tacit, explicit, and embedded knowledge** relevant to tea agribusiness and farming? **(Please select all that apply).**	**Please tick**
	a. They aid in mapping the diverse knowledge domains within an organisation	[ ]
	b. They serve as a supportive platform for facilitating and enhancing organizational processes and cultures	[ ]
	c. They support the reverse engineering of products to unveil concealed embedded knowledge	[ ]
	d. They integrate both tacit and explicit knowledge to form embedded knowledge	[ ]
	e. Other, please specify……..... ……..	[ ]
9b.	Do you actively participate in knowledge-sharing activities within your institution of higher learning and with small-scale tea farmers?	**Please tick**
	a. Yes	[ ]
	b. No	[ ]
9c.	What **methods or platforms** do you utilise to share and disseminate knowledge with small-scale tea farmers? **(Please select all that apply).**	**Please tick**
	a. Intranet and extranets	[ ]
	b. Online platforms such as Blogs, websites, portals and repositories	[ ]
	c. Communities of practice (CoP)	[ ]
	d. Storytelling and mentoring	[ ]
	e. Training and learning platforms	[ ]
	f. Other, please specify…….....	[ ]

	……..	

SECTION C: COLLABORATORS INVOLVED IN KNOWLEDGE MOBILISATION FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

10.	Can you pinpoint **persons or entities** that play an active role in generating new knowledge or innovative practices within the tea farming sector in Murang'a County? **(Please select all that apply).**	**Please tick**
	a. Agribusiness researchers and scholars	[ ]
	b. Small-scale tea farmers	[ ]
	c. Agricultural extension officers	[ ]
	d. Managers of institutions of higher learning	
	e. Tea Research and Development Institutes	[ ]
	f. Other, please specify……... ……	[ ]
11.	How do these knowledge creators contribute to generating new knowledge for the benefit of small-scale tea farmers? **(Please select all that apply).**	**Please tick**
	a. Creating or generating new knowledge	[ ]
	b. Sharing and exchanging knowledge	[ ]
	c. Combining and converting various knowledge types.	[ ]
	d. Establishing collaborations and partnerships with farmers.	[ ]
	e. Utilising knowledge and user feedback to generate new knowledge.	[ ]
	f. Other, please specify……..... ……..	[ ]

12.	Who do you perceive as **the key facilitators or agents** responsible for disseminating knowledge among small-scale tea farmers in Murang'a County? **(Please select all that apply).**	**Please tick**
	a. Knowledge creators	[ ]
	b. Knowledge mobilisers	[ ]
	c. Knowledge champions	[ ]
	d. Knowledge consumers	[ ]
	e. Other, please specify……..... ……	[ ]
13.	How do these **knowledge mobilisers** engage with the small-scale tea farmers to effectively share and disseminate knowledge? **(Please select all that apply).**	**Please tick**
	a. They drive knowledge into actionable practice.	[ ]
	b. They promote knowledge exchange among researchers, policymakers, and farmers.	[ ]
	c. They bridge the gap between researchers and small-scale tea farmers.	[ ]
	d. They develop guidelines for agribusiness researchers and small-scale tea farmers to create, exchange, and use knowledge.	[ ]
	e. Other, please specify……..... ……..	[ ]
14.	Have any **persons been acknowledged** for championing or promoting knowledge mobilisation practices within the small-scale tea farming community? **(Please select all that apply).**	**Please tick**
	a. Yes	[ ]
	b. No	[ ]

15.	What actions or initiatives do these **knowledge champions implement** to encourage knowledge sharing and uptake among small-scale tea farmers? **(Please select all that apply).**	**Please tick**
	a. They facilitate small-scale tea farmers to acquire and exchange knowledge.	[ ]
	b. They promote knowledge creation, exchange and uptake.	[ ]
	c. They facilitate training, coaching and learning initiatives for the farmers.	[ ]
	d. They manage knowledge (physical and automated).	[ ]
	e. Other, please specify……..... ……	[ ]
16.	How do you view the role of **small-scale tea farmers** in the process of mobilising knowledge? **(Please select all that apply).**	**Please tick**
	a. Partaking and utilising knowledge	[ ]
	b. Accessing, sharing, and exchanging knowledge	[ ]
	c. Integration of knowledge into their daily tea farming practices	[ ]
	d. Acquiring and learning new knowledge and innovations.	[ ]
	e. Other, please specify……..... ……..	[ ]

SECTION D: KNOWLEDGE MOBILISATION STRATEGIES FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

Objective: To explore the strategies utilised for knowledge mobilisation among small-scale tea farmers.

17.	What **knowledge products, networks, and events** are developed or utilised to aid small-scale tea farmers in Murang'a County in adopting knowledge? **(Please indicate by selecting the applicable strategies below).**

17 a.	Knowledge products	Please tick
1.	Blogs	[ ]
2.	Case study	[ ]
3.	Scholarly journal articles	[ ]
4.	Magazine articles	[ ]
5.	Newspaper articles	[ ]
6.	Handbook	[ ]
7.	Frequently Asked Questions (FAQs)	[ ]
8.	Podcast	[ ]
9.	Press release	[ ]
10.	Promotional literature	[ ]
11.	Reports	[ ]
12.	Lessons learned	[ ]
13.	Stories	[ ]
14.	Other, please specify……..... ……	[ ]

17 b.	Knowledge events	Please tick
1.	Workshops	[ ]
2.	Seminars	[ ]
3.	Conferences	[ ]
4.	Knowledge fairs	[ ]
5.	Talk shows	[ ]
6.	Forums	[ ]
7.	Storytelling events	[ ]

8.	Project reviews	[ ]
9.	Peer assist	[ ]
10.	Other, please specify…… …….	[ ]
17 c.	**Knowledge networks**	**Please tick**
1.	Chatroom	[ ]
2.	Media (Newspapers, Radio, TV, Podcasts)	[ ]
3.	Community of practice	[ ]
4.	Discussion board	[ ]
5.	Listserv	[ ]
6.	Online forum	[ ]
7.	Social media	[ ]
8.	Expert blogs	[ ]
9.	Other, please specify…… …….	[ ]

18	To what extent do you agree that these knowledge products, events, and networks have facilitated the dissemination, sharing, and transfer of knowledge within the small-scale tea farming community? **Instructions**: On a Likert scale of 1–5, where 1 **= strongly disagree**, **2 = disagree**, **3 = neither agree nor disagree**, **4 = agree**, and **5 = strongly agree,** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.					
18a.	**Knowledge products**	**Strongly Agree [5]**	**Agree [4]**	**Neither agree nor disagree [3]**	**Disagree [2]**	**Strongly disagree [1]**
1.	Blogs	[ ]	[ ]	[ ]	[ ]	[ ]

2.	Case study	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Scholarly journal articles	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Magazine articles	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Newspaper articles	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Handbook	[ ]	[ ]	[ ]	[ ]	[ ]
7.	Frequently Asked Questions (FAQs)	[ ]	[ ]	[ ]	[ ]	[ ]
8.	Podcast	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Press release	[ ]	[ ]	[ ]	[ ]	[ ]
10.	Promotional literature	[ ]	[ ]	[ ]	[ ]	[ ]
11.	Reports	[ ]	[ ]	[ ]	[ ]	[ ]
12.	Lessons learned	[ ]	[ ]	[ ]	[ ]	[ ]
13.	Stories	[ ]	[ ]	[ ]	[ ]	[ ]
14.	Others (specified in 18)	[ ]	[ ]	[ ]	[ ]	[ ]
18b.	**Knowledge events**	**Strongly Agree [5]**	**Agree [4]**	**Neither agree nor disagree [3]**	**Disagree [2]**	**Strongly Disagree [1]**
1.	Workshops	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Seminars	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Conferences	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Knowledge fairs	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Talk shows	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Forums	[ ]	[ ]	[ ]	[ ]	[ ]
7.	Storytelling events	[ ]	[ ]	[ ]	[ ]	[ ]

8.	Project reviews	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Peer assist	[ ]	[ ]	[ ]	[ ]	[ ]
10.	Others (specified in 18)	[ ]	[ ]	[ ]	[ ]	[ ]
18c.	**Knowledge networks**	**Strongly Agree [5]**	**Agree [4]**	**Neither agree nor disagree [3]**	**Disagree [2]**	**Strongly Disagree [1]**
1.	Chatroom	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Media (Newspapers, Radio, TV, Podcasts)	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Community of practice	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Discussion board	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Listserv	[ ]	[ ]	[ ]	[ ]	[ ]
6.	Online forum	[ ]	[ ]	[ ]	[ ]	[ ]
7.	Social media	[ ]	[ ]	[ ]	[ ]	[ ]
8.	Expert blogs	[ ]	[ ]	[ ]	[ ]	[ ]
9.	Others (specified in 18)	[ ]	[ ]	[ ]	[ ]	[ ]

19.	How effective is technology in enhancing knowledge mobilisation efforts within the small-scale tea farming community? **Instructions**: On a Likert scale of 1–5, where 1 **= extremely not effective**, **2 = not effective 3 = neutral**, **4 = effective**, and **5 = very effective.** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.	
1.	Very effective [5]	[ ]
2.	Effective [4]	[ ]
3.	Neutral [3]	[ ]

4.	Not effective [2]	[ ]
5.	Extremely not effective [1]	[ ]

SECTION E: INDICATORS OF KNOWLEDGE MOBILISATION FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

Objective: To determine the indicators of knowledge mobilisation among small-scale tea farmers.						
20.	Do you agree with the statements concerning the evaluating indicators for successful knowledge mobilisation for small-scale tea farmers in Murang'a County? **Instructions**: On a Likert scale of 1–5, where 1 **= strongly disagree**, **2 = disagree**, **3 = Neither agree or disagree**, **4 = agree**, and **5 = strongly agree.** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.					
20a.	**Dissemination or reach indicator**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The number of requests for knowledge requests	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The quantity of knowledge disseminated.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	The number of downloads or hits	[ ]	[ ]	[ ]	[ ]	[ ]
4.	The extent of media and social media exposure	[ ]	[ ]	[ ]	[ ]	[ ]

5.	The total number of beneficiaries who have accessed and benefited from the knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
20b.	**Use indicator**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The number of consumers who demonstrate intent to use the knowledge	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The consumers who have actively adapted and implemented the knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	The influence of knowledge use on policies, programs, training, education and research.	[ ]	[ ]	[ ]	[ ]	[ ]
4.	The tangible impact of knowledge utilisation on improving overall practices and performance.	[ ]	[ ]	[ ]	[ ]	[ ]
20c.	**Usefulness indicator**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**

1.	The quantity of documents read or browsed.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The degree of satisfaction expressed by knowledge users.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	The perceived utility of the information.	[ ]	[ ]	[ ]	[ ]	[ ]
4.	The acquisition of new knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Shifts in perspective resulting from the application of the knowledge.	[ ]	[ ]	[ ]	[ ]	[ ]
20d.	**Collaboration/ partnership indicator**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The range of knowledge products or services that have been created or shared in collaboration with partners.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The types of capacity-building efforts undertaken.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	The expansion of social networks	[ ]	[ ]	[ ]	[ ]	[ ]

4.	The enhancement of influence capacity	[ ]	[ ]	[ ]	[ ]	[ ]
5.	The extent of collaboration attained within the process of knowledge mobilisation.	[ ]	[ ]	[ ]	[ ]	[ ]

SECTION F: FACTORS IMPACTING KNOWLEDGE MOBILISATION FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

Objective: To investigate the factors that influence knowledge mobilisation (KMb) among small-scale tea farmers in Murang'a County.						
21.	To what extent do you agree with the statements concerning the impact of the following factors on knowledge mobilisation (KMb) among small-scale tea farmers in Murang'a County? **Instructions**: On a Likert scale of 1–5, where 1 **= strongly disagree**, **2 = disagree**, **3 = Neither agree or disagree**, **4 = agree**, and **5 = strongly agree.** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.					
21a.	**Knowledge resources**	**Strongly agree (5)**	**Agree (4)**	**Neither agree or disagree (3)**	**Disagree (2)**	**Strongly disagree (1)**
1.	Budgetary allocations influence KMb initiatives	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Stipends for knowledge collaborators	[ ]	[ ]	[ ]	[ ]	[ ]

	influence KMb initiatives					
3.	Information technology support influences KMb initiatives	[ ]	[ ]	[ ]	[ ]	[ ]
4.	Collaborative Knowledge networks such as community of practice influence KMb initiatives	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Other resources such as materials, meeting expenditures, human resources, travel logistics, and volunteer contributions influence KMb initiatives.	[ ]	[ ]	[ ]	[ ]	[ ]
21b.	**Knowledge users**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	Small-scale tea farmers are the primary users of	[ ]	[ ]	[ ]	[ ]	[ ]

	tea agribusiness knowledge.					
2.	Small-scale tea farmers are a critical resource in the KMb process.	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Engaging small-scale tea farmers as knowledge users impacts the effectiveness of knowledge mobilisation initiatives.	[ ]	[ ]	[ ]	[ ]	[ ]
21c.	**Knowledge complexity**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	The complexity of knowledge affects its mobilisation, transfer and application for small-scale tea farmers.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	The complexity of knowledge has presented challenges and restricted	[ ]	[ ]	[ ]	[ ]	[ ]

	opportunities for small-scale tea farmers in their farming practices.					
21d.	**Management support**	**Strongly agree (5)**	**Agree [4]**	**Neither agree or disagree [3]**	**Disagree (2)**	**Strongly disagree (1)**
1.	Management support is significant in knowledge mobilisation activities for small-scale tea farmers.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Strong management support can improve KMb activities for small-scale tea farmers	[ ]	[ ]	[ ]	[ ]	[ ]

SECTION G: A FRAMEWORK FOR ENHANCING KNOWLEDGE MOBILISATION FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY.

	Objective: To propose a framework aimed at enhancing knowledge mobilisation (KMb) for small-scale tea farmers.	
22.		Please assess the importance of the following elements in developing a framework to improve knowledge mobilisation for small-scale tea

		farmers. **Instructions**: On a Likert scale of 1–5, where 1 = **very insignificant**, **2 = insignificant**, **3 = uncertain**, **4 = significant**, and **5 = very significant.** Kindly answer by **ticking** the appropriate response that reflects your level of agreement with the statements provided.				
The components of a framework for enhancing knowledge mobilisation for small-scale tea farmers.		**Extremely Significant (4)**	**Significant (3)**	**Neutral**	**Slightly significant (2)**	**Not significant at all (1)**
1.	Knowledge products (see 18a)	[ ]	[ ]	[ ]	[ ]	[ ]
2.	Collaborators (see section C)	[ ]	[ ]	[ ]	[ ]	[ ]
3.	Strategies (see section D)	[ ]	[ ]	[ ]	[ ]	[ ]
4.	KMb Indicators	[ ]	[ ]	[ ]	[ ]	[ ]
5.	Implementation timelines	[ ]	[ ]	[ ]	[ ]	[ ]

Appendix C: Interview guide for collecting data from agricultural extension officers

Dear Respondent,

My name is Richard Khamali. I am a doctoral student at the Department of Information Science, University of South Africa (UNISA). I am required to conduct research as part of my studies. The title of my research is "*Knowledge Mobilisation Practices for Small-Scale Tea Farmers in Murang'a County, Kenya*."

Please note that your participation in this study is entirely voluntary, and you can choose to withdraw at any point during the interview. Rest assured that your responses will only be used for research purposes and will be kept completely anonymous. If you wish to share specific concerns on record, they will be included in the report while preserving your confidentiality and dignity. With your permission, our conversation will be recorded, and notes will be taken to ensure accurate documentation of the information provided.

Thank you very much for your cooperation.

Richard Khamali

PhD CANDIDATE, UNISA

SEMI-STRUCTURED INTERVIEW GUIDE FOR AGRICULTURAL EXTENSION OFFICERS CONTRACTED BY KIRU AND MAKOMBOKI TEA FACTORIES, IN MURANG'A COUNTY.

Date of Interview……

Place of Interview…….

Role of Interviewee…….....

Gender of Interviewee……

Years of experience in the agribusiness industry ……..…….

PURPOSE OF THE STUDY

To explore the knowledge mobilisation (KMb) practices among small-scale farmers in Murang'a County, Kenya, in order to develop a framework for enhancing the KMb practice.

QUESTION NO.	NATURE OF QUESTION	QUESTION
1	**Opening**	Please provide details about yourself, including your age, educational background, and experience in the tea agribusiness sector.
2	**Introduction**	When you encounter the term "knowledge mobilisation, "what comes to mind?
3	**Key Question**	Do small-scale tea farmers utilise your factory for processing their tea products? Please provide further details or explanations regarding your answer.
4	**Key Question**	What role does your department in the factory play in the development of the small-scale tea farming sector?
5	**Key Question**	Please identify the training needs of farmers and individuals directly involved in providing information and knowledge resources and services to small-scale tea farmers.
6	**Key Question**	Are there established policies, strategies, or programs aimed at supporting and enhancing knowledge mobilisation, sharing, and uptake activities among small-scale tea farmers?
7	**Key Question**	What measures has your department implemented to ensure the fair and widespread sharing and distribution of agribusiness information and knowledge among small-scale tea farmers in Murang'a County?
8	**Key Question**	Does your department engage in collaborative efforts with researchers and management to ensure the effective transfer of agribusiness information and knowledge to the small-scale tea farming community in Murang'a County? Kindly explain your response.
9	**Key Question**	Do you think the idea of facilitating access to agribusiness information and knowledge for the mutual benefit of small-scale tea farmers is significant? Please elaborate on your response.

10	**Key Question**	Please specify the networking, partnerships, and collaborations established by your department to aid in the development of small-scale tea farmers in Murang'a County.
11	**Key Question**	Do you have any specific training background in agribusiness? If yes, please specify the types of training you have undergone.
12	**Key Question**	Have you encountered any challenges or barriers in disseminating and transferring knowledge to small-scale tea farmers? If yes, please specify these obstacles.
13	**Key Question**	How do you ensure that the agribusiness knowledge shared among tea farmers is effectively applied in farming practices?

Thank you for your time, feedback, and valuable ideas.

Appendix D: Interview guide for managers

Dear Respondent,

My name is Richard Khamali. I am a doctoral student at the Department of Information Science, University of South Africa (UNISA). I am required to conduct research as part of my studies. The title of my research is "*Knowledge Mobilisation Practices for Small-Scale Tea Farmers in Murang'a County, Kenya*."

Please note that your participation in this study is entirely voluntary, and you can choose to withdraw at any point during the interview. Rest assured that your responses will only be used for research purposes and will be kept completely anonymous. If you wish to share specific concerns on record, they will be included in the report while preserving your confidentiality and dignity. With your permission, our conversation will be recorded, and notes will be taken to ensure accurate documentation of the information provided.

Thank you very much for your cooperation.

Richard Khamali

PhD CANDIDATE, UNISA

SEMI STRUCTURED INTERVIEW GUIDE FOR MANAGEMENT

Date of Interview……

Place of Interview……

Role of Interviewee…….....

Gender of Interviewee……

Years of experience in the agribusiness industry (for tea factory directors) ...……..…

Years of experience in the research/ education sector (for MUT management.…….

PURPOSE OF THE STUDY

To explore the knowledge mobilisation (KMb) practices among small-scale farmers in Murang'a County, Kenya, in order to develop a framework for enhancing the KMb practice.

QUESTION NO.	NATURE OF QUESTION	QUESTION
1	**Opening**	Please provide details about yourself, including your age, educational background, and experience in the tea agribusiness sector.
2	**Introduction**	When you hear the term "knowledge mobilisation," what comes to your mind?
3	**Key Question**	Do small-scale tea farmers use your factory for processing their tea products? Please elaborate on your answer.
4	**Key Question**	Do you set aside a specific budget to promote knowledge sharing, mobilisation, and uptake among small-scale tea farmers?
5	**Key Question**	Are there policies, strategies, or programs in place to support and improve knowledge mobilisation, sharing, and adoption among small-scale tea farmers?
6	**Key Question**	In your view, how crucial is leadership and management support in boosting knowledge mobilisation and sharing efforts among small-scale tea farmers?
7	**Key Question**	Does your organisation offer investment, financial, and information support to small-scale tea farmers?
8	**Key Question**	Do you have dedicated staff or employees to assist small-scale tea farmers in your factory? If yes, are they sufficient in number, and do they have relevant training in agribusiness?
9	**Key Question**	Can you identify the training requirements of staff directly engaged in delivering farming information and knowledge to small-scale tea farmers?
10	**Key Question**	What types of networking and collaboration do you think would be suitable for your organisation to improve the delivery of agribusiness information and knowledge

		resources and services?
11	**Key Question**	Please suggest practical steps that could improve the delivery of agribusiness information and knowledge to small-scale tea farmers.
12	**Key Question**	I'm interested in developing a framework to enhance knowledge mobilisation, sharing, and dissemination among small-scale tea farmers. What recommendations or insights would you provide to assist me in this endeavour?

Appendix E: Ethical clearance approval from UNISA

College of Human Sciences_CREC

NHREC Registration # : (Rec-240816-052)
Ref #: 3056
Name: Mr Richard Khamali
Student #: 41070097

Date: 15/07/2024

Dear: Mr Richard Khamali

Decision: Ethics Approval from 18 July 2024 to 17 July 2025

Researcher: Mr Richard Khamali

Murang'a University of Technology

Nairobi

41070097@mylife.unisa.ac.za +254722485920

Supervisor: Professor Omwoyo Bosire Onyancha onyanob@unisa.ac.za

Knowledge Mobilisation Practices for Small-scale Tea Farmers in Murang'a County, Kenya

Qualification: PhD Information Science

Thank you for the application for research ethics clearance by the College of Human Sciences_CREC for the above-mentioned research study Ethics approval is granted for one year.

The **low-risk application** was **reviewed** by the College of Human Sciences_CREC on **18 July 2024** in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the College of Human Sciences_CREC.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.

6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.

7. No field work activities may continue after the expiry date (**17 July 2025**). Submission of a completed research ethics progress report will constitute an application for renewal, for Ethics Research Committee approval.

Additional Conditions

1. Disclosure of data to third parties is prohibited without explicit consent from Unisa.
2. De-identified data must be safely stored on password protected PCs.
3. Care should be taken by the researcher when publishing the results to protect the confidentiality and privacy of the university.
4. Adherence to the National Statement on Ethical Research and Publication practices, principle 7 referring to Social awareness, must be ensured: "Researchers and institutions must be sensitive to the potential impact of their research on society, marginal groups or individuals, and must consider these when weighing the benefits of the research against any harmful effects, with a view to minimising or avoiding the latter where possible." Unisa will not be liable for any failure to comply with this principle.

Note

The reference number 3056 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Kind regards,



Prof Khatija Khan
Chair of College of Human Sciences_CREC
E-mail: khankb@unisa.ac.za



Prof Zethu Zerish Nkosi
Executive Dean / By delegation from the Executive Dean of College of Human Sciences_CREC
E-mail: nkosizz@unisa.ac.za

Appendix F: Research permit (NACOSTI)

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **803308**

Date of Issue: **19/April/2024**

RESEARCH LICENSE



This is to Certify that Mr.. Richard N/A Khamali of University of South Africa, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Muranga on the topic: Knowledge Mobilisation Practices for Small-Scale Tea Farmers in Murang'a County, Kenya for the period ending : 19/April/2025.

License No: **NACOSTI/P/24/34759**

803308

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
    i. Endanger national security
    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and
Innovation(NACOSTI),
Off Waiyaki Way, Upper Kabete,
P. O. Box 30623 - 00100 Nairobi, KENYA
Telephone: 020 4007000, 0713788787, 0735404245
E-mail: dg@nacosti.go.ke
Website: www.nacosti.go.ke

Appendix G: Consent to participate in the study



PARTICIPANT INFORMATION SHEET

Ethics clearance reference number: 3056

Research permission reference number (if applicable): 803308

26/08/2024

TITLE: KNOWLEDGE MOBILISATION PRACTICES FOR SMALL-SCALE TEA FARMERS IN MURANG'A COUNTY, KENYA

Dear Prospective Participant

My name is Richard Khamali, and I am doing research with Prof. Bosire Omwoyo Onyancha, a professor in the Department of Information Science, towards a PhD in Information Science at the University of South Africa. We have no funding whatsoever. We are inviting you to participate in a study entitled knowledge mobilisation practices for small-scale tea farmers in Murang'a county, Kenya.

WHAT IS THE PURPOSE OF THE STUDY?

I am conducting this research to investigate knowledge mobilisation practices in quest of developing a framework tailored for small-scale tea farmers in Murang'a County, Kenya. The study seeks to integrate various knowledge mobilisation strategies to create a framework that promotes the use, adoption, and dissemination of agribusiness research knowledge among small-scale tea farmers. This investigation is vital for future research and improving practices related to knowledge uptake, exchange, and sharing. Specifically, exploring how agribusiness research from higher education institutions is mobilised plays a crucial role in facilitating uptake, exchange, and sharing among small-scale farmers.

WHY AM I BEING INVITED TO PARTICIPATE?

You have been invited to participate in my research by myself, Richard Khamali, based on your suitability as a participant. I aim to involve stakeholders from the tea agribusiness sector, including researchers, extension officers, managers, and small-scale tea farmers, who have experience in facilitating the mobilization, uptake, exchange, and sharing of knowledge. Your details have not been provided to me, so I cannot identify you specifically. Additionally, a total of 74 participants have been invited to take part, so you are not alone in this endeavour. Please be aware that you are at liberty to choose whether to participate, and you should not feel pressured in any way.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

If you choose to participate in the study, you will come across two data collection instruments, depending on your category. If you're a tea leaf buying centre chairperson or an agribusiness researcher, you'll receive a questionnaire. The questionnaire is structured, should take about 30 minutes, and will ensure anonymity. If you are an agricultural extension officer or manager, you will be engaged in a 30-minute semi-structured interview, either face-to-face, by phone, or online. Your consent will be sought, and you can ask any question before starting. The interview will be recorded but is informal, and you are free to skip questions or leave anytime. Your input is highly valued.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Your involvement in this study is entirely voluntary. It's your choice whether or not to participate. Should you decide to join, you'll be requested to sign a consent form. You are free to withdraw at any time and without giving a reason. If you withdraw before data collection concludes, your data will be returned to you or destroyed. However, if you're completing a questionnaire, once you have submitted your responses, withdrawal is not feasible as your data will be anonymised and encoded, and your task as a participant will have been deemed complete.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

Participants in this study may gain insight into how the mobilisation of agribusiness knowledge, generated by researchers in higher education, can enhance the adoption, exchange, and dissemination of knowledge among small-scale tea farmers.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

The study instruments will not disclose your identity as a participant in the research, hence there are no identifiable risks involved.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

Your voluntary involvement in this study is critical and much appreciated. Rest assured that this research is strictly for academic purposes, and your comments will be treated with complete anonymity. Only the researcher and supervisors will be able to view the data. You have the option to withdraw from the study at any time, and your identifiable information will not be stored elsewhere. Your responses will be anonymized using a code number or pseudonym for data processing and reporting. If you have any questions or criticism about this research, please contact me via email at 41070097@mylife.unisa.ac.za.

HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

Once the research is completed, your replies will be securely retained for at least three years. Hard copies will be preserved in a locked filing cabinet, while electronic data will be saved on a password-protected computer and in a secure cloud that only I can access. This data retention enables prospective future analysis or use in research publications, for which ethics approval will be obtained. After the retention period, hard copies will be destroyed, and electronic data will be permanently wiped from both computer and cloud storage using suitable software.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

Participants in this study will not receive compensation, and they will not incur any costs or expenses.

HAS THE STUDY RECEIVED ETHICS APPROVAL?

This study has obtained written approval from the Research Ethics Review Committee of the School of Information Science, Unisa. If required, a copy of the approval letter can be provided by the researcher.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to receive updates on the final research findings, please contact Richard Khamali at +254722485920 or 41070097@mylife.unisa.ac.za. For more information, questions, or concerns concerning the study process, please contact Prof. Bosire Omwoyo Onyancha, the principal supervisor, at the Department of Information Science, University of South Africa, Pretoria, at 012 429 6724 or onyanob@unisa.ac.za. You can also contact the research ethics administrators of the College of Human Sciences Research Ethics Committee, Prof. Janice Moodley at moodljk@unisa.ac.za and Mr. Thembinkosi Ngwenya at ngwent@unisa.ac.za.

Thank you for taking the time to read this information sheet and for participating in this study.

Thank you.



Richard Khamali

Appendix H: Consent to participate in this study

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the interview.

I have received a signed copy of the informed consent agreement.

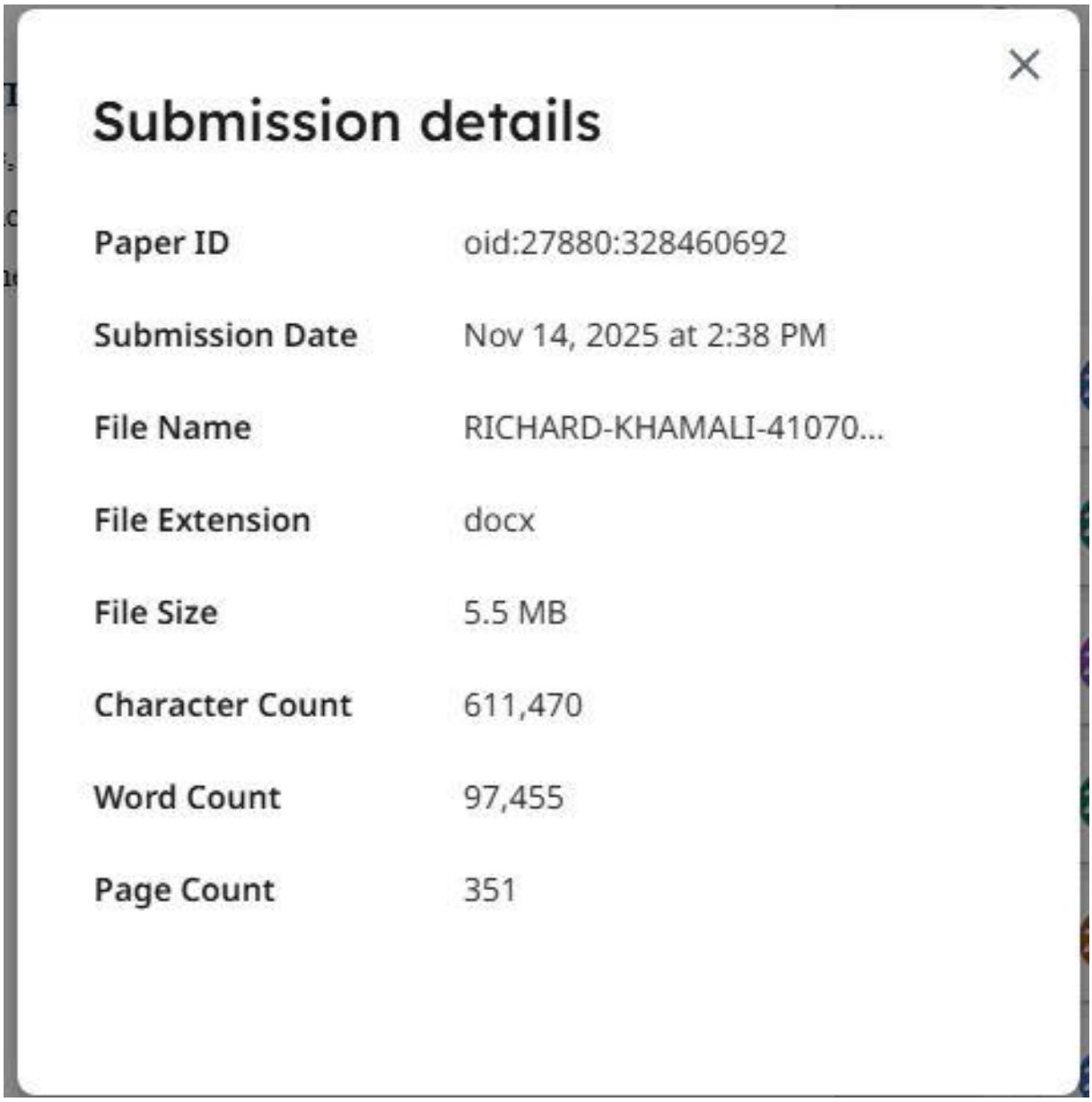
Participant Name & Surname…… (please print)

Participant Signature……. Date……

Researcher's Name & Surname…RICHARD KHAMALI…… (please print)

Researcher's signature…  ……. Date…27/03/2024……

Appendix I: Turnitin digital receipt



Appendix J: Similarity index

Similarity Report

PAPER NAME	AUTHOR
RICHARD-KHAMALI-41070097-THESIS-FINAL-SUBMISSION.docx	RICHARD KHAMALI

WORD COUNT	CHARACTER COUNT
97455 Words	611470 Characters
PAGE COUNT	**FILE SIZE**
351 Pages	5.5MB
SUBMISSION DATE	**REPORT DATE**
Nov 14, 2025 2:38 PM GMT+3	Nov 14, 2025 3:02 PM GMT+3

● 22% Overall Similarity

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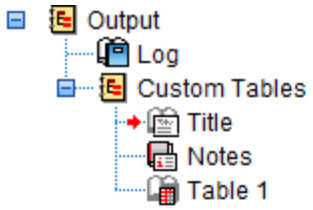
- **11% Internet database**
- **17% Publications database**
- **Crossref database**
- **Crossref Posted Content database**
- **13% Submitted Works database**

● Excluded from Similarity Report

- **Manually excluded sources**

Summary

Appendix K: An example of data generated from SPSS

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Custom Tables

		Count	Column N %
Other	0	43	100.0%
Creating or generating new knowledge	0	2	4.7%
	1	41	95.3%
Sharing and exchanging knowledge	0	2	4.7%
	1	41	95.3%
Combining and converting various knowledge types.	0	6	14.0%
	1	37	86.0%
Establishing collaborations and partnerships with farmers.	0	8	18.6%
	1	35	81.4%
Utilising knowledge and user feedback to generate new knowledge	0	3	7.0%
	1	40	93.0%
Other	0	43	100.0%
Knowledge creators	0	10	23.3%
	1	33	76.7%
Knowledge mobilisers	0	10	23.3%
	1	33	76.7%
Knowledge champions	0	6	14.0%
	1	37	86.0%
Knowledge consumers	1	43	100.0%