

Department of Marketing

Innovation Practices at Established SMEs

Examining Leadership Approach, Cross-Functional Integration, and
Inter-Organisational Collaboration as Key Drivers of Innovation.

Gabriela Długołęcka

A thesis presented in fulfilment of the requirements for the degree of
Doctor of Philosophy

2024

Copyright Statement

This thesis is the result of the author's original research. It has been composed by the author and has not been previously submitted for examination, leading to the award of a degree.

The copyright of this thesis belongs to the author under the terms of the United Kingdom Copyright Acts as qualified by the University of Strathclyde Regulation 3.50. Due acknowledgement must always be made of using any material contained in or derived from this thesis.

Signed: G.Długołęcka

Date:18.10.2024

Acknowledgements

This has undoubtedly been the most challenging, tumultuous, and emotionally charged journey I have ever experienced. However, it has also been an incredible learning experience that has brought me immense joy and fulfilment. I owe a debt of gratitude to all the people who supported me along the way, and I thank them from the bottom of my heart. The following work is the culmination of this journey and is a testament to the dedication and perseverance that brought me to this point.

I am grateful to my academic advisors, Professor Beverly Wagner of the Department of Marketing and Professor John Liggat of Pure and Applied Chemistry, for their unwavering guidance and support. Their vast knowledge, experience, and willingness to explore new ideas were instrumental in creating this work, making its completion possible. Working with interdisciplinary supervisors helped me broaden my scientific perspective, allowing me to view the world through the lens of different disciplines, languages, research methods, and cultures. I am genuinely grateful for their unwavering faith in me, motivation, and encouragement to push beyond what I thought was impossible.

I would like to express my sincere gratitude to the University of Strathclyde and all the wonderful colleagues I had the pleasure of meeting there. The academics who provided me with guidance and the administrative and teaching team who were always there to lend a helping hand, I cannot thank you enough. I am also thankful to my fellow PhDs, who stood by me throughout the research, presentations, and teaching. Our shared struggles, complaints, and moments of laughter have made this journey unforgettable. Your unwavering support, listening ear, and endless motivation have been invaluable to me.

I thank my husband, Łukasz, for his unwavering support throughout my arduous journey. He remained patient and understanding, providing comfort during my moments of stress, panic, and frustration. I genuinely appreciate his unwavering belief in me and his tireless efforts to help me seize this opportunity. I would also like to express my sincere appreciation to my offspring, Liliana and Leon, for allowing me to maintain a healthy balance between my academic pursuits and my familial responsibilities. I want to take a moment to express my heartfelt gratitude to my

parents, who instilled in me the invaluable trait of perseverance and encouraged me to pursue my dreams with unwavering determination.

I would like to express my heartfelt appreciation to the participants in this study, who were so generous with their time and gracious in sharing their experiences with me. Their contributions were essential to the success of this thesis, and without them, this study would never have been possible. Despite their busy schedules, they took the time to meet with me over coffee, lunch, and doughnuts, and they were always willing to share their thoughts and insights. I am genuinely grateful for their invaluable assistance.

Thank you all!

Table of Contents

<i>Abstract</i>	ix
1 Introduction	11
1.1 Context of the Study.....	11
1.2 Thesis Aim	12
1.3 Research Objectives	13
1.4 Research Design.....	15
1.5 Thesis Overview.....	15
2 Literature Review	19
2.1 Small and Medium-Sized Enterprises (SMEs).....	20
2.1.1 Defining Small and Medium-Sized Enterprises.....	21
2.1.2 Enterprise Life Cycle	25
2.2 Innovation.....	31
2.2.1 Concept of Innovation.....	32
2.2.2 Drivers of Innovation	34
2.2.3 Innovation Process: Stages.....	34
2.2.4 Innovation Strategy	40
2.2.5 Characteristics of Innovation at SMEs.....	46
2.2.6 Innovation Capabilities (IC).....	48
2.3 Leadership Approaches	51
2.3.1 Leadership Approach in Small and Medium-Sized Enterprises	53
2.3.2 Leader vs Owner Manager vs Entrepreneur.....	54
2.3.3 Leadership, Innovation and Creativity	55
2.3.4 Creative Leadership	56
2.4 Cross-Functional Integration (CFI).....	64
2.4.1 Defining Cross-Functional Integration	65
2.4.2 Beneficial Effects of Cross-Functional Integration.....	66
2.4.3 Integration Level	69
2.5 Inter-Organisational Collaboration (IOC)	72
2.5.1 Reason for Collaboration	73
2.5.2 Effects of Networking.....	74
2.5.3 Networking Patterns.....	75
2.6 Theoretical Underpinning	82
2.6.1 Resource-Based View (RBV)	83
2.6.2 Social Capital Theory (SCT).....	86
2.7 Research Gap	88
2.7.1 Leadership Approach	89
2.7.2 Cross-Functional Integration.....	90
2.7.3 Inter-Organisational Collaboration	91

3	Research Framework	93
3.1	<i>Introduction.....</i>	93
3.2	<i>Aims and Objectives of the Study</i>	95
3.3	<i>Research Philosophy and Research Approach.....</i>	97
3.3.1	Paradigm of Choice.....	99
3.3.2	Ontological Realism.....	100
3.3.3	Epistemological Relativism	103
3.3.4	Theory and philosophy integration.	104
3.4	<i>Research Methodology.....</i>	105
3.4.1	A Qualitative Multi-Method Approach.....	106
3.4.2	A Cross-Sectional Research.....	107
3.5	<i>Research Methods</i>	108
3.5.1	Qualitative Data Collection Techniques	109
3.5.2	Sampling	111
3.5.3	Ethical Consideration.....	113
3.5.4	Implementation of Data Collection.....	114
3.6	<i>The Credibility of Research Findings</i>	117
4	Analysis.....	119
4.1	<i>Preparatory Activities</i>	120
4.1.1	Pilot Study.....	120
4.1.2	Critical Literature Review.....	121
4.1.3	Interim Review.....	123
4.2	<i>Main Analysis. Thematic Analysis.....</i>	123
4.2.1	Familiarisation with the Data.....	125
4.2.2	Generating Initial Codes	126
4.2.3	Searching for Themes. Merging Codes into Sub-Themes and Themes 128	
4.2.4	Reviewing Themes.....	129
4.2.5	Defining Themes.....	130
4.2.6	Reporting Findings.....	130
4.3	<i>Conclusion.....</i>	130
5	Findings and Discussion: Leadership Approach.	132
5.1	<i>Leader Competencies</i>	133
5.1.1	Personal Competencies	134
5.1.2	Interpersonal Competencies	143
5.1.3	Business Competencies.....	151
5.2	<i>Linking Leadership Competencies to Creative Leadership Approaches. .</i>	168
5.2.1	Creative Leadership and Mainemelis' Typology	170
5.3	<i>Conclusion.....</i>	186

5.4	<i>Limitations and Future Research</i>	188
6	Findings and Discussion: Cross-Functional Integration (CFI)	190
6.1	<i>Cross-Functional Integration (CFI)</i>	191
6.1.1	Cross-Functional Communication	192
6.1.2	Cross-Functional Collaboration	206
6.1.3	Cross-Functional Coordination	210
6.1.4	Cross-Functional Integration Level.....	216
6.2	<i>Internal Integration: Activities, Behaviours, and Actions Across SMEs...</i>	221
6.2.1	Comparative Reflections on Cross-Functional Integration.....	225
6.3	<i>Cross-Functional Integration Model (CFIM)</i>	227
6.4	<i>Conclusion</i>	231
6.5	<i>Limitations and Future Research</i>	233
7	Findings and Discussion: Inter-Organisational Collaboration (IOC)	235
7.1	<i>Driving Forces for External Collaborations</i>	235
7.1.1	Internal Constraints	236
7.1.2	Validation.....	246
7.1.3	Corporate Social Responsibility (CSR)	248
7.2	<i>Network Portray</i>	249
7.2.1	Search for the Partners	249
7.2.2	Networking Partners.....	250
7.2.3	Point of Engagement.....	257
7.3	<i>Factors Facilitating External Collaboration</i>	258
7.3.1	Partners' Attitudes and Perceptions	259
7.3.2	SMEs' Attitudes and Perceptions	264
7.4	<i>Factors Impeding External Collaboration</i>	266
7.4.1	Collaborator Size.....	266
7.4.2	Collaborator Personality	268
7.5	<i>Network Utilisation Metric</i>	269
7.6	<i>Conclusion</i>	273
7.7	<i>Limitations and Future Research</i>	275
8	Conclusions.....	277
8.1	<i>Answering the Aim</i>	280
8.2	<i>Contributions</i>	293
8.2.1	Theoretical Contributions	294
8.2.2	Practical Implications.....	295
8.3	<i>Final Reflections</i>	297
8.4	<i>Limitations and Future Research</i>	300

9 List of References.....	304
Appendix 1: Participant Information Sheet	328
Appendix 2: Interview Protocol.....	331
Appendix 3: Interim Review -Mind Map	334
Appendix 4: List of Collaborators.....	335
Appendix 5: Member Checking Coding Exercise	338

List of Tables

Table 2.1 The 2003 EU SME definition (adapted from European Commission (2003), modified by author).	22
Table 2.2 Key differences between SMEs and Large organisations (adapted from Nicholas et al., 2011 and Ledwith, 2014; modified by author).....	23
Table 2.3 Enterprises' life cycle. Source: The author's construction is based on a literature review.	27
Table 2.4 Activities at different stages of the innovation process (author's own creation based on a literature review).	36
Table 2.5 Innovation Capabilities: Intra-Organisational Determinants (based on Mendoza-Silva, 2020).	49
Table 2.6 Innovation Capabilities: Inter-Organisational Determinants (based on Mendoza-Silva, 2020).	51
Table 2.7 A general conceptualisation of creative leadership was delivered by Mainemelis et al. (2015).	61
Table 3.1 Research interviewee list.	112
Table 4.1 Author adaptation of the steps undertaken for thematic analysis based on Braun & Clarke (2006).	125
Table 4.2 Research data time.	125
Table 4.3 Examples of coding.....	128
Table 5.1 Leader personal competencies.	134
Table 5.2 Leader interpersonal competencies.	143
Table 5.3 Leader Business Competencies.....	151
Table 5.4 Business vision components.	151
Table 5.5 Resource Management.	162
Table 5.6 Summary of leadership behaviours and formation of leadership approaches.....	169
Table 6.1 Components of internal integration.	192
Table 6.2 MDs and employee involvement in CFI across the SMEs.	215
Table 6.3 Summary of approaches to cross-functional integration.....	225
Table 7.1 Driving forces' themes for networking.....	236
Table 7.2 Internal constraints.....	236
Table 7.3 Non-financial capital constraints.	237
Table 7.4 Financial capital.	243

Table 7.5 Validation factor.	246
Table 7.6 Corporate Social Responsibility.....	248
Table 7.7 Networking partners for small and medium-sized enterprises.....	251
Table 7.8 The role of public sector organisations in collaboration with SMEs.....	251
Table 7.9 The role of private sector organisations in collaboration with SMEs.....	254
Table 7.10 Collaborative relationship at certain stages of the innovation process. .	258
Table 7.11 Factor facilitating external collaboration.	259
Table 7.12 Partner’s attitudes and perceptions.	259
Table 7.13 Attitudes and perceptions of small and medium-sized enterprises.....	264
Table 7.14 Challenges to External Collaboration	266

List of Figures

Figure 2.1 Innovation stages (authors' creations based on a literature review).	36
Figure 2.2 A Multi-Context Framework of Creative Leadership (Mainemelis et al., 2015).	60
Figure 3.1 ‘The Research Onion’ adapted from Saunders, Lewis, & Thornhill (2019).	94
Figure 3.2 Critical realist stratified ontology (Saunders et al., 2019, p.148).	101
Figure 4.1 Visualisation of the relationship between codes and sub-themes.....	128
Figure 4.2 An example of a theme review using a mind map.....	129
Figure 5.1 Leader competencies (based on Prats & Agulles, 2009, modified by the researcher).	134
Figure 5.2 Visualisation of the primary attribute of facilitating creative leadership.	177
Figure 5.3 Visualisation of the primary attribute of directing creative leadership. .	181
Figure 5.4 Visualisation of the primary attribute of integrating creative leadership..	186
Figure 6.1 Cross-functional Integration Model. The visualisation of cross-functional integration at established small and medium-sized enterprises.	228
Figure 8.1 The relationship between a creative leadership approach and the firm’s innovation strategy.	284
Figure 8.2 The Influence of Leadership Approach and Internal and External Resources on the Innovation Strategy of SMEs.....	285

Abstract

Innovation is the cornerstone of sustained economic growth and prosperity. Over the past few decades, more focus has been placed on innovation in small and medium-sized enterprises (SMEs), which are recognised as the engines of economic growth and social development worldwide. While startups and high-growth firms are the primary contributors to these outcomes, local ecosystems also benefit significantly from established small and medium-sized enterprises, which create job opportunities and foster innovation. Encouraging innovation within established SMEs can help bridge the productivity and wage gaps between SMEs and larger organisations while alleviating poverty in surrounding areas. Despite their importance, there is a distinct lack of research about innovation in established small and medium-sized businesses. Thus, this study aims to fill this gap by investigating and understanding the mechanisms that drive innovation practices in established small and medium-sized manufacturing enterprises, thereby contributing to the existing literature on innovation practices among SMEs.

This study adopts a holistic approach to innovation management, examining it as a process through which businesses develop new concepts to enhance the value of existing products or processes, thereby securing a competitive edge over other companies. The research focuses on firms' innovative capabilities, including managerial, intra-organisational, and inter-organisational determinants, which significantly influence their ability to innovate. The managerial stream examines leadership approaches and how they facilitate innovative behaviour within the firm and encourage the diffusion of innovation. The intra-organisational stream focuses on cross-functional integration, examining how internal actors communicate to transfer knowledge, collaborate to achieve common goals, and coordinate joint activities across functions. Lastly, the inter-organisational stream explores the creation of networks and external collaborations with various actors that facilitate knowledge transfer and diffusion of innovation. This approach emphasises a more holistic understanding of innovation management, unrestricted by the type, result, or subject of innovation.

Since this research focuses on resources and capabilities, two theoretical frameworks—the resource-based view (RBV) and social capital theory (SCT)—were employed to investigate and comprehensively understand the underlying mechanisms that drive innovation in organisations. The RBV provides valuable insight into how a firm's resources and capabilities are organised and managed to enable it to innovate and gain a competitive advantage. The SCT, on the other hand, complements and strengthens this understanding by offering a comprehensive insight into how social relationships and networks within and beyond the firm are leveraged to foster innovative practices.

Furthermore, an abductive research methodology was employed to gain a deeper understanding of the mechanisms that drive innovation and shape the chosen strategies. The approach involved in-depth interviews with owner-managers and employees engaged in innovation practices, as well as personal observations. The research employed a critical realism paradigm, offering a philosophical lens for examining the subject matter.

The research findings provide practical implications and add value to the existing literature on innovation practices among small and medium-sized enterprises. The study establishes a connection between leadership approach, cross-functional integration, and inter-organisational collaboration, leading to three distinct innovation strategies: closed, semi-open, and open. The research also contributes to the literature on creative leadership by exploring inter-organisational collaboration as a valuable resource for creating value. By identifying the causal properties and contingent relations of entities, this study provides actionable insights for managers and policymakers seeking to foster innovation in established SMEs, thereby enhancing their competitiveness and sustainability.

1 Introduction

1.1 Context of the Study

Small and medium-sized enterprises (SMEs) are the engines of economic growth and social development worldwide (OECD, 2019). Although the population of small and medium-sized enterprises is very diverse in terms of age, size, business model, entrepreneurial style, offerings and performance (Cusmano et al., 2018), their importance to the economy and society in terms of job creation and economic growth is undeniable (e.g., European Commission/OECD Reports).

According to the European Commission, the SME sector represents 99.8 % of all European companies in the non-financial business sector and has been increasingly viewed as the vital source of new product development, innovation and new technologies in local and national economies (Wynarczyk, 2013; Muller et al., 2016). The non-financial business sector encompasses five key sectors: wholesale and retail trade, manufacturing, construction, business services, accommodation, and food services. Data from the Annual Report on European SMEs (2015) suggest that SMEs in the non-financial business sector generated more than EUR 3.7 trillion of value added (58% of the sector's total value added) and employ almost 90 million people (67% of the sector's total employment) (Muller et al., 2015). This is under Wolff & Pett's (2006) believe that SMEs and entrepreneurial companies are a pivotal segment and driver for most national economies in developing countries and mature regions.

Although start-ups and high-growth firms (HGFs) are the primary contributors to the outcomes mentioned above, as corroborated by the OECD's 2018 report, it is paramount to acknowledge the significant role of steadily growing small and medium-sized enterprises, particularly within the local ecosystem (Cusmano et al., 2018). Recent research has strongly suggested that these enterprises, despite their small size, are deeply entrenched within their respective local ecosystems, operating locally and providing employment opportunities to a diverse range of workers, including those with limited skills. They facilitate incremental innovation while simultaneously enabling the integration of less attractive regions (Cusmano et al., 2018). Therefore, promoting innovation in established small and medium-sized enterprises (SMEs) can serve as a means to address productivity and wage disparities

between SMEs and large organisations and also alleviate poverty in neighbouring regions (Cusmano et al., 2018; OECD, 2018).

Existing literature has indicated that innovation in small and medium-sized enterprises differs from that in large organisations (Ganotakis & Love, 2011). Furthermore, Criscuolo et al. (2012) have demonstrated that innovation in start-ups varies from that in established firms. However, established SMEs have received less attention in the literature regarding their innovation practices than large organisations or start-ups. As a result, there is an opportunity to contribute to the literature stream by empirically exploring how established SMEs innovate.

Innovation is a multifaceted and dynamic phenomenon that requires significant resources, as noted by Guo et al. (2017). Small and medium-sized enterprises must possess certain key elements, such as effective leadership, network integration, and internal resources, to build their capacity for innovation, as noted by Pierre and Fernandez (2018). These assertions were further supported by Mendoza-Silva (2020), who confirmed that managerial skills, intra-organisational factors, and inter-organisational relationships influence a firm's ability to innovate. It is clear that in order to achieve and sustain innovation, firms must prioritise and allocate appropriate resources to these critical elements.

Hence, the present research endeavours to comprehensively analyse innovative practices within established small and medium-sized enterprises. It examines the correlation and impact of leadership approaches, cross-functional integration, and inter-organisational collaboration on a firm's innovation strategy.

1.2 Thesis Aim

The aim of the thesis was to:

‘Explore the nature of innovation practices within established small and medium-sized enterprises’

By asking:

‘How established small and medium-sized enterprises innovate’?

The overarching objective of this study was to deepen our comprehension of the innovative ventures executed by established small and medium-sized enterprises operating within the Scottish manufacturing industry. Through a firm-level analysis, with a particular emphasis on leadership approaches, this research sheds light on how leaders connect, activate, and integrate internal and external resources to facilitate innovation within their companies. Moreover, identifying the challenges and amenities that SMEs face during the innovation process can help them better understand their needs and encourage them to innovate further. Innovation is essential in today's fast-changing and dynamic environment, as there is no guarantee of the safety and stability of '*doing*' business for companies. Even well-established and successful businesses are compelled to adapt their business models in response to rapidly changing environmental dynamics (Chesbrough, 2007, 2010; Lindgardt et al., 2009).

1.3 Research Objectives

The research objectives aim to enhance the understanding of innovative activities carried out by established small and medium-sized enterprises. The focus is on the leadership approach and the endeavour to connect and activate internal and external resources to drive innovation. Following the abductive reasoning approach (Vincent & O'Mahoney, 2014; Saunders et al., 2019) and utilising critical realism as a paradigmatic lens, this study identifies entities (individuals) with structures (knowledge, personality traits) who create mechanisms that lead to events such as innovation under specific conditions through their causal powers and liabilities. The outcome of a mechanism is contextual and dependent on the interplay of other related mechanisms (Bygstad et al., 2016). It is, therefore, imperative to consider all relevant factors, in this case, cross-functional integration and external collaboration, when assessing the innovation practices. This requires a thorough understanding of the underlying mechanisms and their interdependencies, a keen analytical eye and a thoughtful, systematic approach to problem-solving. By carefully examining these determinants, it is possible to gain a more precise and nuanced understanding of the innovation practices employed by established small and medium-sized enterprises. Therefore, this study aimed to expand the current understanding of leadership, cross-

functional integration, inter-organisational collaboration, and innovation practices within small and medium-sized enterprises.

Considering all of the above, three research objectives were formulated as follows:

Objective 1: *To investigate how the leadership approach impacts the way SME organisations approach innovation.*

The primary research objective of this study is to investigate the impact of leadership approaches on the diffusion of innovation practices and behaviour within small and medium-sized enterprises. This encompasses the ability to motivate employees to participate actively in new projects and acquire external resources to facilitate innovation. Understanding how leadership approaches impact a company's innovation efforts is vital for organisations striving to stay competitive in today's rapidly evolving business environment.

Objective 2: *To explore the mechanisms small and medium-sized enterprises utilise to foster internal integration during innovation.*

The second objective of the research is to examine the internal collaboration dynamics within the organisation during the innovation process. The aim is to gain a deeper understanding of how teams emerge, how they collaborate in the innovation process, and how leadership approaches facilitate interactions among participants.

Objective 3: *To explore how small and medium-sized businesses establish and leverage their networks to foster innovation.*

Research has suggested that small and medium-sized enterprises often lack the knowledge to identify and engage with suitable partners and networks offering a wide range of resources (OECD, 2018). As a result, the third research objective concentrates on exploring how such networks are established and how relationships between a firm and external partners can lead to direct and indirect benefits.

1.4 Research Design

These research objectives are explored through a qualitative study, which includes interviews, focus groups, and observations. They are utilising critical realism as a paradigmatic lens to help examine the leadership approach (objective 1) at the firm and improve understanding of how leaders (entities), through their causal powers and mechanisms (decisions), create the necessary conditions (strategies) to initiate, adapt and introduce innovation activities (events, empirically observed). Moreover, interactions of individuals (cross-functional integration), as well as relationships with external partners (networking), are seen as social structures and, thus, ontologically real entities that might change over time due to emergent powers to cause events under certain conditions (Bhaskar, 2008).

Furthermore, the study had a dual purpose: to add to the existing academic literature and to provide insights into industry practices. It specifically aimed to deepen our understanding of how innovation is implemented in established small and medium-sized enterprises by focusing on leadership approach, cross-functional integration, and inter-organisational collaboration. This was accomplished by gathering perspectives from various levels of the organisation, including business owners, directors, managers, and employees.

The study's findings provide valuable insights into innovation practices, internal organisational frameworks, and external partnerships. These insights are particularly relevant to policymakers, trade organisations, and practitioners, as they can inform industry practices and drive positive change. By shedding light on the challenges and opportunities faced by small and medium-sized enterprises, this research has the potential to benefit both the academic community and the wider business world.

1.5 Thesis Overview

The present thesis comprises several chapters, the first of which introduces the theoretical context, aim, and objectives. The subsequent chapter (Ch. 2) is devoted to a review of the literature on Small and Medium-Sized Enterprises (SMEs) and innovation topics. This review examines the roles of leadership, cross-functional integration, and inter-organisational collaboration in facilitating innovation processes. The chapter provides a comprehensive overview of definitional issues and

describes the evolution of the relevant literature. A range of themes is discussed, followed by the identification of gaps and current research opportunities. Furthermore, the theoretical foundations are elucidated.

Chapter 3 of this study presents the research framework and methods for data collection. It begins by recalling the study's aim and objectives, and then explores the philosophical underpinnings of the study. The research methodology is then discussed, with an explanation of the selection of qualitative methods. The chapter examines the data requirements and the two data collection methods employed: interviews, including semi-structured and focus group interviews, as well as personal observation. The ethical considerations are taken into account, and the activities carried out by the researcher during the pilot study stage are explained, followed by a description of the data collection process for the main study.

Chapter 4 outlines the preparatory activities carried out prior to the main study. These activities included a pilot study, a critical literature review, and an interim review, which were necessary to ensure that the study was well-informed and carefully planned to collect the primary data. The subsequent stages of data analysis are also presented, which detail how the data were prepared, classified, interpreted, and concluded. The chapter then explains each step in conducting thematic analysis, including coding and merging data into sub-themes and themes. Finally, the chapter concludes by reiterating the study's aim, which is to provide a comprehensive understanding of the research topic.

This study aims to address three specific research objectives, which will be explored in detail in Chapters 5, 6, and 7. Each chapter will provide comprehensive insights and analyses related to these objectives.

Chapter 5 comprises the initial segment of a three-part study, focusing on the primary research objective: to examine how leadership impacts the implementation and success of innovation. This chapter aims to understand the leadership approach adopted by small and medium-sized enterprises concerning innovation. To accomplish this, the leader's personal, interpersonal, and business competencies were analysed, as these factors are believed to influence leader behaviour. The chapter subsequently concludes by examining the three distinct leadership approaches

identified in the study. This is followed by a presentation of the study's conclusions and a discussion of its limitations and potential avenues for future research.

Chapter 6 of this study explores the second research objective, specifically examining the processes and relationships between different functions in SMEs related to innovation. The goal of this objective was to gain a comprehensive understanding of how various functions within the firm collaborate towards a common goal. The chapter discusses internal integration, which encompasses various activities, as well as the emergence of a project leader and the level of integration achieved. In the subsequent sections, the discussion explores the creation of the Cross-Functional Integration Model, which is based on the behaviours and actions demonstrated by the individuals involved. Following this, the study's conclusions are outlined, along with an examination of its limitations and potential avenues for future research.

In Chapter 7, the study's conclusive findings are presented, emphasising the third objective, which is to investigate the impact of inter-organisational collaboration on innovation practices within small and medium-sized enterprises. The study begins with an examination of the primary drivers of external collaboration, which serve as the foundation for establishing a network. Subsequently, it delineates the criteria for selecting appropriate partners, followed by an examination of the respective roles assumed by different partners in the innovation processes of SMEs. The final segments of the chapter elucidate the factors that facilitate or hinder inter-organisational collaboration. The chapter concludes with a comprehensive discussion that synthesises the findings and highlights the importance of judicious partner selection in the innovation process, followed by a review of limitations and future research prospects.

Chapter 8 concludes the thesis by integrating findings from the three research objectives to address the central question: *How do established small and medium-sized enterprises innovate?* Three key determinants of innovation —leadership approach, internal integration, and inter-organisational collaboration — were explored through the lenses of the Resource-Based View (RBV) and Social Capital Theory (SCT), offering insight into how internal capabilities and relational assets are

mobilised to support innovation. Drawing on a qualitative, abductive approach grounded in Critical Realism, the study focused on understanding behaviours, mechanisms, and practices within a specific group of Scottish manufacturing SMEs. The chapter acknowledges the study's limitations and reframes its theoretical and practitioner contributions as situated within the boundaries of the research context. Importantly, the chapter proposes directions for future research to test and extend these findings across broader SME settings, contributing to the evolving application of RBV and SCT in innovation studies.

2 Literature Review

Although the literature review was undertaken at the beginning of the study to familiarise the researcher with the research area, the entire literature review process was an iterative one that continued throughout the study. Often, the literature was updated based on the interview findings to provide a reference point for interpreting the results. Therefore, this chapter reviews the relevant literature related to small and medium-sized enterprises (SMEs) and the concept of innovation. The emphasis of the literature review is on leadership (skills, behaviour, and motivation), cross-functional integration (human resources, skills, and capabilities) and inter-organisational collaboration (networking, external collaboration with various partners) as those components were mentioned extensively in the literature as significant burdens on SME innovation performance (e.g. OECD, 2010, Pierre & Fernandez, 2018; Mendoza-Silva, 2020).

Section 2.1 provides an in-depth analysis of the characteristics and life cycle stages of small and medium-sized enterprises (SMEs). In section 2.2, the concept of innovation is elucidated, beginning with its definition. This section further explores four pivotal themes relevant to the study area: drivers of innovation, stages of the innovation process, innovation strategy, and innovation characteristics specific to SMEs. Section 2.3 provides insights into leadership, elucidating its characteristics within small companies and distinguishing the roles of business owners, entrepreneurs, and leaders in small and medium-sized enterprises. The section concludes with an examination of the interplay between innovation, creativity, and leadership, culminating in the exploration of creative leadership and its conceptual framework. In section 2.4, the text provides an overview of cross-functional integration, elucidating its definition and underscoring the significance of various functions and their involvement in firm innovation. Additionally, it delves into the requisite level of cross-functional integration during innovative endeavours. Section 2.5 explores the concept of inter-organisational collaboration, examining rationales for collaboration, the impact of external collaboration on pivotal firms, and the networking patterns of small companies. The penultimate section (2.6) scrutinises the Resource-Based View (RBV), the Social Capital Theory (SCT) and Innovation Capabilities (IC) to gain a deeper comprehension of how small and medium-sized

enterprises leverage diverse resources (both internal and external) for innovation purposes. The chapter culminates by addressing the research gaps in Section 2.7.

2.1 Small and Medium-Sized Enterprises (SMEs)

According to the European Investment Bank, small and medium-sized enterprises (SMEs) account for 99.8% of non-financial businesses in Europe and provide around two-thirds of all jobs (European Investment Bank, 2022). In turn, in the UK, SMEs represent 99.9% (5.6 million) of all businesses, employing 16.3 million people (61% of the private sector workforce) and accounting for half of all private sector turnover (House of Commons Library, Business Statistics, 21 December 2021). In Scotland, SMEs accounted for 99.4% of all private sector businesses and 40.2% of private sector turnover, providing an estimated 1.2 million jobs and 55.9% of private sector employment (The Scottish Government, 2022).

Small and medium-sized enterprises have been recognised as significant contributors to job creation and global economic development. They are the backbone of any economy and the driving force behind economic expansion. They generate employment opportunities, promote innovation, export and open new markets, and foster entrepreneurship (OECD, 2019; Ibarra et al., 2020). On the other hand, some authors argue that although SMEs are seen as drivers for most national economies, they do not significantly impact job and wealth creation (Wynarczyk, 2013). Moreover, due to their limited number of customers, fewer orders, limited resources, and low owners' growth aspirations, their impact on the marketplace is also limited (Carson et al., 1990; OECD, 2018b). However, as Young (2013) noticed many small companies grow in profit and turnover through the flexible use of external resources. In doing so, they generate economic activity, including outsourcing, shared services, licensing, and expanding market and customer base, reflecting the firm's growth, thus impacting economic development (Young, 2013).

Furthermore, small and medium-sized enterprises represent a diverse population; their contributions to innovation, productivity, quality job creation and growth vary (OECD, 2018b). They play various roles in the ecosystem, from being seen as a technology frontier that creates new trends and even entire industries (OECD, 2018b) to one that strengthens the identity and social cohesion of local communities,

especially in urban and rural areas (OECD, 2019). For example, young small firms often take advantage of technological or commercial opportunities that larger companies overlook. Therefore, they are seen as a solution provider for larger companies and a key source of radical and disruptive innovations. Furthermore, smaller firms, more often than large businesses, commercialise ideas and knowledge generated by research organisations (OECD, 2018b). Thus, SMEs are often seen as a vital channel for the diffusion of innovations and technological development (Love & Roper, 2015; OECD, 2018b).

On the other hand, according to OECD reports, SMEs create job opportunities for various labour force and social groups across areas and sectors that do not attract larger firms and thus impact local ecosystems and enhance local economic development (OECD, 2018b). In so doing, small and medium-sized enterprises are crucial for a country's wealth creation and poverty reduction (e.g. OECD, 2019; Ibarra et al., 2020). Therefore, given the importance of small and medium-sized enterprises in the global, national, and local economy, it is time to consider what SMEs are and how they are defined.

2.1.1 Defining Small and Medium-Sized Enterprises

Although the term "small and medium-sized enterprise" (SME) is widely used worldwide, a consistent definition of the term or measurement method is needed (Cacciolatti & Lee, 2015). SMEs are usually defined as 'non-subsidary, independent firms which employ fewer than a given number of employees' (OECD, 2005, p.17). Both geographic location and country legislation influence the definition of SMEs (Cacciolatti & Lee, 2015), and various countries establish different upper limits for the number of employees. For example, in the US, the number is <500, whereas in the EU countries, the number is < 250.

In 2003, the European Commission established rules controlling and defining European small and medium-sized enterprises (EU Recommendation 2003/361). To be classified as an SME, a company must meet the following standards: it has up to 250 employees, its annual turnover does not exceed €50 million, and its total assets value and ownership share are not greater than €43 million (European Commission, 2003). Since the study was done in Scotland, which was part of the European Union

at the time of the research, this thesis follows the EU Recommendation 2003/361 definition.

Furthermore, within this umbrella are three different categories of enterprises: micro, small, and medium-sized businesses, which are defined by the number of employees and turnover (Table 2.1).

Criteria	Employees	Turnover	Balance Sheet Total
Micro Business	0 – 9	≤ € 2m	≤ € 2m
Small Business	10 – 49	≤ € 10m	≤ € 10m
Medium business	50 – 249	≤ € 50m	≤ € 43m

Table 2.1 The 2003 EU SME definition (adapted from European Commission (2003), modified by author).

Although small and medium-sized enterprises vary widely among and within industries in terms of age, size, business model, and the profile and aspirations of entrepreneurs (OECD, 2018b), key features specific to SMEs distinguish them from large companies. Existing research highlights these differences in terms of innovation practices (Ghobadian & Gallea, 1997; Gray Mabey, 2005; Laforet, 2013; Pierre & Fernandez, 2018) and highlight that SMEs are not miniature versions of big companies, but separate entities that differ in terms of organisational structures, responses to the environment, policies, and managerial approach (Laforet, 2013; Pierre & Fernandez, 2018). Therefore, a comparative analysis was made to provide a clearer image of their characteristics and differences, summarised in Table 2.2.

Characteristics	SME	Large organisation
Structure	Flat with few or no layers of management	Hierarchical with several layers of management
	Flexible structure and information flow	Rigid structure and information flows
	Top management close to the point of delivery	Top management far from the point of delivery

	Top management is very visible	Top management visibility is limited
	Low degree of specialisation	A high degree of specialisation
	High incidence of innovativeness	Low incidence of innovativeness
Procedures	Low degree of standardisation	High degree of standardisation
	Low degree of formalisation	High degree of formalisation
	Rapid response to environmental change	Slow response to environmental change
	People dominated	System dominated
	Idealist decision making	Fact-based decision making
Process	Simple Planning & Control system	Complex planning and control system
	Informal evaluations and reporting	Formal evaluations and reporting
	Result orientated	Control orientated
People	High degree of resistance to change	Low degree of resistance to change
	Personnel authority high	Personnel authority low
	Individual creativity encouraged	Individual creativity stifled
	Corporate mindset	Departmental mindset
	Limited access to human and financial resources	Good access to human and financial resources

Table 2.2 Key differences between SMEs and Large organisations (adapted from Nicholas et al., 2011 and Ledwith, 2014; modified by author).

Small and medium-sized enterprises hold several significant advantages over large companies due to their flat structural hierarchy and less bureaucracy than large organisations. Moreover, SME organisational agility has a positive impact on the company's operations. For example, it shortens the decision-making process and fosters flexibility in responding to new market opportunities; promotes an informal communication system between peers and thus, enhances information flow, increases functional integration, and allows for quicker reaction to internal and external environmental changes; strengthens the motivation of management and the labour

force (Laforet & Tann, 2006; Laforet, 2013; Love & Roper, 2015; Pierre & Fernandez, 2018; Benhayoun et al., 2020).

Furthermore, small firms often seek out niche markets that do not directly compete with larger firms (Ledwith, 2014). They focus on targeted, smaller, and narrower audiences, which further enables them to establish and maintain better relationships with customers and thus better understand their needs, ultimately translating into unique proposition offers (Narula, 2004; Benhayoun et al., 2020). SMEs are recognised for putting great value on customer perception and providing a specialised product and excellent service (Voss et al., 1998; Laforet & Tann, 2006). Therefore, they are highly customer-oriented. Following niche market strategy and getting recognition in their area, firms not only differentiate themselves from the competition (Narula, 2004; Benhayoun et al., 2020) but are also seen as problem solvers for large companies (Laforet & Tann, 2006; OECD, 2018). Thus, SMEs are often seen as technology precursors (OECD, 2018b).

Nevertheless, the size also comes with some drawbacks. Previous research indicates that SMEs often lack internal resources, both human and financial. Deficiencies of human resources that offer technological and marketing competencies affect information gathering from external sources and their internal utilisation. Lack of marketing expertise, in turn, hampers the identification of new business opportunities due to insufficient market research (Tidd et al., 2005; Van de Vrande et al., 2009; Vanhaverbeke, 2017; Agostini & Nosella, 2019; Benhayoun et al., 2020). Moreover, inadequate managerial skills hamper further development and company survival (Hayton, 2015). In a dynamic and fast-changing business environment, management's responsibilities are crucial for developing and implementing strategic plans, connecting the firm to various external partners, utilising different distribution channels, and making informed decisions. With a lack of network-related expertise and skills, for example, the company may not have access to resources and available funding needed for innovation (Van de Vrande et al., 2009; Naudé et al., 2014; Agostini & Nosella, 2019). Financial insufficiency is another crucial constraint to SME growth and a barrier to innovation. Limited access to finance affects various aspects of firm operation, from scant opportunities to recruit specialised workers through access to external knowledge and expertise to the

ability to invest in new projects, to mention a few (Tidd et al., 2005; Van de Vrande et al., 2009; Vanhaverbeke, 2017; Agostini & Nosella, 2019; Benhayoun et al., 2020). Due to the lack of resources and strategy, small firms need to prioritise projects, and thus, they often focus on short-term goals (Cacciolatti & Lee, 2015).

In summary, SMEs possess a significant innovative advantage over large firms, thanks to their organisational agility and proximity to the market (Benhayoun et al., 2020). Their strength lies mainly in their attitude and behavioural features, while their weaknesses are linked mainly to their resources (Laforet, 2013; Love & Roper, 2015).

Since this research focuses on established SMEs, it is crucial to distinguish between start-ups and established companies. This will help to understand the organisational aspect of the company, its behaviours, and mechanisms, which will later be used to explain the research results. Therefore, the next section will provide a brief explanation of enterprise growth and explore its various stages of growth.

2.1.2 Enterprise Life Cycle

Growth is a complex and multidimensional process of change that occurs over time (Davidsson et al., 2007; Muhos et al., 2010) and cannot be adequately explained from a single perspective (Davidsson et al., 2007; Capelleras & Rabetino, 2008). Growth can take different forms, be measured using various indicators (Davidsson et al., 2005, 2010), and be achieved in different ways (Delmar et al., 2003; Gupta et al., 2013). According to Penrose (1959), growth can be seen as an increase in amount (output, export, and sales), an increase in size or an improvement in quality as a result of a development process. Growth can be achieved organically or through acquisition, fusion, joint ventures, and strategic alliances (Penrose, 1959; Davidsson et al., 2005; Leitch et al., 2010). Therefore, a company's growth is viewed as a process (Barringer et al., 2005) associated with a firm's internal development, and thus, may also involve employees, suppliers, and clients (Achtenhagen et al., 2010).

Every enterprise goes through transitions determined by various stages of development. These stages, also known as the growth stages or life cycle of the firm, indicate the actual growth process of the firm (Muhos et al., 2010). Every growth stage determines the progression of a business over time, a period of relatively stable

growth followed by a transition period when a company deals with organisational changes needed for further growth. Those transitions, colloquially called crises, are caused by ‘weak general management; poor financial controls; product competition; diversification and acquisition; changing market demand; high overhead structure; manufacturing and operating problems; cancellation or delay of major contracts; poor marketing; and price competition’ (Masurel & Van Montfort, 2006, p.463). Different growth stages encounter different challenges. Therefore, different strategies and processes are required for operational tactics and business development (Muhos, 2014).

Small enterprises have no growth pattern (Delmar et al., 2003; Wright & Stigliani, 2012; Gupta et al., 2013). Some firms can grow more or less than others; some firms' growth is linear, whereas other enterprises do not necessarily grow in a linear pattern. They can grow, stagnate, and decline in any order and often undergo multiple stages (Gupta et al., 2013). However, extensive research on this topic shows repeating elements, and therefore, it was possible to create a pattern of how small firms grow (Delmar et al., 2003).

In the last few decades, numerous models with various numbers of stages (2-10) and transitions (0-11) have been formulated. However, the average trend focuses on 4–5 stages and around 3–4 transitions (Muhos et al., 2010). Whilst individual approaches may differ, general growth stages can be identified in most firms, as most follow a similar start-up, growth, maturity, and decline pattern in their life cycle models (Gupta et al., 2013; Tendai, 2017). Based on the literature review focusing on a growth topic (for instance: Churchill & Lewis, 1983; Scott & Bruce, 1987; Greiner, 1998; Jones, 2009; Hysi, 2013; Muhos, 2014; Tian et al., 2015; Tam & Gray, 2016; Tendai, 2017) characteristic of life stages are summarised in Table 2.3 and described below:

Models	Model of Greiner	Model of Jones	Model of Churchill and Lewis	Model of Scott and Bruce
Stages				
Start / Launch	Creativity	Start-up	Existence	Inception
	Direction		Survival	Survival
Development / Growth	Delegation	Steadying the ship	Success	Growth
	Coordination		Take off	
Maturity	Collaboration	Business consolidation	Resources Maturity	Expansion
		Business for the Long Haul		Maturity
Decline	-----	-----	-----	-----

Table 2.3 Enterprises' life cycle. Source: The author's construction is based on a literature review.

Start/Birth Stage

Newly established firms are usually organised in a simple and informal structure. The founder/s of the company are usually technically or entrepreneurially oriented, management activities are ignored, and therefore, some deficiency of specialised knowledge occurs (Greiner, 1998; Hysi, 2013). Management is informal, flexible and creative. Communication at the firm is frequent, short, informal and face-to-face. The owner is involved in every aspect of the business and makes all decisions. He/she over-controls employees and delegates very little (Churchill & Lewis, 1983; Hysi, 2013; Muhos, 2014; Tian et al., 2015). Hierarchical levels and organisational subdivisions are non-existent or flat (Hysi, 2013).

The main activities at this stage involve business idea development, product and technology development, prototyping, market identification, customer base creation, and resource organisation. Employees create a product-development team and wear many hats. Lack of adequate foresight activity due to focusing on making and selling a new product and establishing it in a marketplace (Scott & Bruce, 1987; Jones, 2009;

Hysi, 2013). Marketplace feedback influences decisions and motivation at the company (Greiner, 1998). Usually, a firm operates in a single market with limited distribution channels (Scott & Bruce, 1987). Systems and formal planning are minimal to non-existent, with minimal administrative procedures (Churchill & Lewis, 1983). Likewise, formal documents are scarce (Hysi, 2013).

Firms offer little training and development for their staff, and learning practices at the individual and inter-organisational levels are self-initiated, non-structured and job-related (Tam & Gray, 2016). Net cash outflows result from a lack of products and investments made to expand the business. Businesses at this stage are often financed by equity capital (Scott & Bruce, 1987; Muhos, 2014; Tian et al., 2015).

The most likely crisis after the first stage is a Crisis of leadership. Due to increasing production, sales and the number of employees, the company need: specific knowledge (manufacturing, marketing, technical); additional capital, more control and procedures (e.g., accounting procedures for financial control), change of communication system (informal to more formal as the number of employees increases); delegation of responsibilities and new/additional management (Greiner, 1998; Jones, 2009). Therefore, the first critical choice in an organisation's development is to find a strong business manager with the necessary leadership skills to introduce new business techniques and be capable of dealing with the problem (Greiner, 1998; Jones, 2009).

Growth Stage

This stage is characterised by early manufacturing, product diversification and commercialisation of the product (Muhos, 2014; Tian et al., 2015). The company becomes more complex, and therefore, the necessity for a more formalised organisational structure to ensure administrative efficiency increases (Hysi, 2013; Tian et al., 2015). A functionally-based structure is established, manufacturing and marketing activities are separated, and organisational subdivisions are created (departments). A hierarchy of titles and positions is formed. The procedures have become more formalised (accounting systems, budgets and work standards), communication has evolved into formal and impersonal forms, and strategic planning has gained more attention than before (Greiner, 1998; Hysi, 2013; Tian et al., 2015).

Lower-level supervisors become functional specialists, and middle-level management participates in and coordinates daily tasks; however, they still need to follow the owner's orders, as neither level makes major decisions independently. The owner already demonstrates some experience and knowledge in the field. He/she still dominates the administrative system but controls within normal boundaries (Greiner, 1998; Hysi, 2013; Muhos, 2014; Tian et al., 2015).

Learning practices are done when needed and in a practical way. Individual and inter-organisational learning is self-initiated, non-structured, and job-related. Group learning is team-driven and peer-affected (Tam & Gray, 2016). Firms experience rapid sales growth, which can reduce the amount of negative cash flow. However, they still rely on external financial capital for investment and existing activities. The company begins to stand out with its competencies and goes through marketing and initial technical challenges (Muhos, 2014; Tian et al., 2015)

The second critical crisis is referred to as the crisis of autonomy. There is a need for more delegation as a more diverse and complex organisation is challenging to control with previous techniques. Lower-level employees are often more knowledgeable and experienced in their jobs than their managers; however, lower-level managers are often uncomfortable making decisions. Consequently, lower-level employees may leave the organisation due to their managers' perceived inability to provide help. Numerous companies have returned to the centralised method. Therefore, the second critical choice is to move toward more delegation (Greiner, 1998; Jones, 2009).

This stage can also lead to a crisis of control due to the increased formal management positions within company structures. Greater authority, incentives, and freedom cause managers to stop coordinating strategy with the rest of the organisation. As a result, they become unable to work together as a team. Therefore, top management must step in and oversee lower-level management to ensure that these separate functions work together effectively (Greiner, 1998). This move will involve carefully diagnosing the company's strengths, challenges, opportunities, weaknesses and threats (Jones, 2009).

Maturity/Expansion Stage

The maturity stage is characterised by stabilised sales levels and decreasing innovation due to market saturation and vast competition (Tian et al., 2015). The need to restructure the management system and organisation occurs. Professional and specialised functions, including additional management teams, are considered and added. Hierarchy increases. The General Manager and his/her Management team are responsible for daily operations, while the owner becomes the Managing Director (Jones, 2009; Hysi, 2013; Muhos, 2014). The main objectives of the management are expense control, productivity and finding growth opportunities while taking care of efficiency and effectiveness through structures and processes (Muhos, 2014; Tian et al., 2015). A company's culture is built (Jones, 2009).

Further, in that stage, product market saturation causes the need to launch the next generation of the product or identify new markets (Muhos, 2014; Tian et al., 2015). As a result, the internal cash flow generated by the firm increases rapidly, and it can invest in development using its capital. Moreover, it becomes easier to borrow money, so firms often choose equity finance (Tian et al., 2015). Learning practices at the individual and inter-organisational levels are self-initiated, non-structured and job-related. An organisational level of learning is offered; however, due to busy work life and time pressure, there is no time for training (Tam & Gray, 2016). With proper strategy, control and planning systems, firms can transform their business model and thrive again (Jones, 2009). However, the companies that fail to address the challenges enter the final stage of their life cycle, the decline stage, which is often preceded by long-term stability (Tian et al., 2015).

A red tape crisis is characterised by dangerous growth in an organisational bureaucracy where procedures become more important than problem-solving or innovations (Greiner, 1998). As a result, rather than concentrating on their core abilities and offerings, companies often make overambitious investments, overdiversify their portfolios, or enter unknown markets unprepared (Jones, 2009). As a result, the companies grow beyond their ability to manage the growth (Jones, 2009) and become too complex to be managed through formal programs (Greiner, 1998). Therefore, the firm needs reinvention through a new business development

strategy (acquisition, business divisions) to overcome the red tape crisis (Jones, 2009).

Decline Stage, Stability/Renewal

At this stage, firms usually experience a decline in sales and profitability due to market stagnation (Muhos, 2014). The diversification of sectors and clients the firm serves, as well as the firm's activities, decreases (Masurel & Van Montfort, 2006). Firms must adjust their financing structures as cost control and productivity become the main struggle. More resources would be needed to ensure investments in new projects (Muhos, 2014; Tian et al., 2015).

The company is subject to substantial organisational changes (Hysi, 2013; Tian et al., 2015). Strategies and procedures are standardised and formalised (Muhos, 2014). The management system needs to adapt to the new conditions (Hysi, 2013); redundancy became unavoidable, and the company became bankrupt (Illés et al., 2012).

Prior research highlights differences in the behaviour of start-ups and established firms regarding innovation practices (Criscuolo et al., 2012). Therefore, even though this work does not focus on company growth, a practical way to understand innovation practices at established SMEs is to examine how priorities, challenges, and behaviours associated with different stages of a company's life cycle change with the firm's growth (Tendai, 2017). Therefore, the following section explores the concepts of innovation. Starting with an explanation of what innovation is, followed by its drivers, process stages, various strategies for innovation, and innovation practices at small and medium-sized enterprises.

2.2 Innovation

Innovation is one of the critical drivers of firm competitiveness (Kumar et al., 2012), and therefore, it is necessary for the economic performance of SMEs (Bayarçelik et al., 2014; Love & Roper, 2015). It brings benefits to both the firm and society. Innovation creates new products and services, thereby improving lives, boosting competitiveness, generating additional revenue streams, and increasing economic growth, which in turn enhances gross domestic product (GDP) and

expands employment opportunities (O'Sullivan, 2008; Love & Roper, 2015). On the other hand, innovation enables companies to meet consumer needs, stay ahead of the competition, and capitalise on market opportunities (Bayarçelik et al., 2014). Innovative SMEs tend to be market-driven rather than research-driven; therefore, they play a crucial role in developing new markets (OECD, 1997).

An essential first step in broadening the understanding of innovation practices is to consider what innovation is and what it might concern. The following sub-section will explore this concept.

2.2.1 Concept of Innovation

Although innovation has been intensively researched for decades, previous studies have shown a lack of agreement in the literature or practice on defining innovation (O'Sullivan, 2008; Breznik & Hisrich, 2014; Hughes et al., 2018). Furthermore, the term "innovation" is often used interchangeably with "invention" or "creativity," which creates further confusion. O'Sullivan (2008) explains that although there is a relationship between these terms, they all have distinct meanings. *Creativity* is interpreted as a mental process that yields novel and valuable ideas and concepts, whereas *innovation* is a further action taken on those creative ideas (O'Sullivan, 2008). Hughes et al. (2018) suggested that, although creativity and innovation are closely related, they still represent distinct processes and yield distinct outcomes. *The invention*, in turn, is the first occurrence of an idea in the form of a new product or process (Fagerberg, 2003; O'Sullivan, 2008). The invention can, but does not need to, lead to innovation, as innovation is not a prerequisite (Godin, 2005; O'Sullivan, 2008). Without at least commercial exploitation, the invention is not an innovation (Herzog, 2008). It becomes an innovation only when implemented into the business (Fagerberg, 2003), for example, transformed into change that adds value to a customer (Fagerberg, 2003; O'Sullivan, 2008).

Furthermore, the literature suggests that a level of novelty is necessary to create innovation (O'Sullivan, 2008); therefore, innovation is often associated with creativity (Kremer et al., 2019). By contrast, Hughes et al. (2018) highlighted that not all innovative processes require creativity. Authors argued that firms can use existing ideas elsewhere and still innovate. As a result, the novelty level is still

upheld as the idea is new to the firm. Moreover, Elliot & Nakata (2013) stated that creativity leads to innovation. However, as Hughes et al. (2018) stressed, not all creative ideas are taken through the implementation process. To transform creative ideas into innovation, '*practical matters of implementation (...) and purposeful actions*' need to be considered and enforced (Levitt, 2002, p.1). Therefore, summarising creativity and invention can lead to innovation, but as they stand alone, they are only ideas that need further transformation and processing.

Moreover, innovation is generally associated with 'novelty' (O'Sullivan, 2008; Varis & Littunen, 2010). However, the question here is: new to whom or to what extent? As the word 'new' is highly subjective (O'Sullivan, 2008); hence, it is challenging to distinguish innovation from non-innovation (Varis & Littunen, 2010). Moreover, definitions describing innovation oscillate between specific and broad (Breznik & Hisrich, 2014). Varis & Littunen (2010, p.130), analysing innovation, claims that '*innovations come in many shapes, shades and degrees*'; thus, looking at innovation through two archetypical lenses is recommended. First, the object of change (taxonomy), namely, product, process, market and organisational innovations. Second, 'newness' is an attribute of innovation depicted in terms of complete newness (radical innovation) or significant improvement (incremental innovation) (Varis & Littunen, 2010). Furthermore, Kahn (2018) added that understanding innovation requires a more holistic view, encompassing outcome, process, and mindset, as well as the acceptance that innovation includes both success and failure.

The literature on innovation is extensive and rich with numerous perspectives. Innovation definitions oscillate between specific and broad (Breznik & Hisrich, 2014). This literature review focused on the main ideas of innovation rather than providing a detailed overview. In this respect, innovation is a further action taken on creative ideas (O'Sullivan, 2008); it might relate to various objects of change (Varis & Littunen, 2010); it is a process of change where a new value for customers is created as a result of adding something new to something already existing (O'Sullivan, 2008); might include the different extent of change, complete newness or significant improvement (Varis & Littunen, 2010); need to be implemented into the business, i.e., commercialised, as a new process or business model (Fagerberg,

2003). The next step to better understand innovation practices in firms is to identify what triggers these activities.

2.2.2 Drivers of Innovation

The literature highlights numerous diverse factors that can trigger innovation. For example, some researchers have suggested that social factors, including demographic changes, economic influences, cultural changes, individual talents (Trott, 2011), and external relationships (Lasagni, 2012), play a role. In contrast, other authors have focused on emerging technologies, competitors, new ideas from customers, strategic partners, and employees, as well as changes in the external environment (O'Sullivan, 2008). For example, Singh (2019) suggested that competition in a marketplace forces SMEs to continuously 'reinvent' their offerings to survive and compete. In turn, Rosemann (2012) argues that successful innovation is associated with a 'sense of urgency', and therefore, the drivers of innovation relate to the problems, constraints, and opportunities that the firm faces.

Further, the author explains that problem-driven innovation is associated with process improvement based on a reaction to an existing problem. Constraint-driven innovation, in turn, applies to situations where a firm needs to find novel ways of doing business, running processes, or creating new products or services due to internal or external restraints, such as budget cuts and legislative changes. The firm must adapt to these constraints, which cannot be eliminated. These two groups of innovation drivers represent a reactive form of innovation. In contrast, the last one, opportunity-driven innovation, is based on proactive activities that can convert arising opportunities into value-added (Rosemann, 2012).

Regardless of which factor drives change, all require regular improvements to sustain and continue the innovation process (O'Sullivan, 2008). The next step is to examine the innovation process, including its stages and the typical activities associated with each stage.

2.2.3 Innovation Process: Stages

An early perspective on the distinction between invention and innovation was based on the Schumpeterian trilogy. Schumpeter, in the late 30s, divided the technological change process into three stages:

1. Invention stage, where new ideas were generated;
2. Innovation stage, where inventions were efficiently implemented into a commercial product;
3. The diffusion stage is where new products and processes are expanded throughout the promising market.

Although Schumpeter introduced the concept of innovation into economic theory, he did not clearly explain the relationship between each stage (Godin, 2005). As a result, a theoretical framework called the 'linear model of innovation' was created to show how innovation works. Godin (2005) reported that numerous attempts have been made to understand the relationship between science, technology, and the economy. However, tracing the history of this model is not easy, as its origin was previously not well-documented. The author summarised information about this model and explained the results of his study in 'The Linear Model of Innovation: The Historical Construction of an Analytical Framework'. He concludes that the model is the creation of a three-step process that evolved.

1. The first step connects applied research to basic research and is related to the natural sciences.
2. The second stage added experimental development and is connected to researchers from business schools.
3. The third phase involved the addition of production and diffusion, linked to an economist (Godin, 2005).

Decades passed, and although the innovation process can be visualised as a course of phases (Cooper, 2008), mainly, it is still divided into three stages, similar to the linear model:

1. The fuzzy front end (FFE);
2. The new product development (NPD) process;
3. And commercialisation (Koen et al., 2002).

Each stage is characterised by recommended best-practice activities that help move the project to the next decision point (Cooper, 2008). Those activities gather

various information, increasing firms' knowledge about the product, process or service. The innovation process differs from industry to industry, from firm to firm and from project to project and should be adapted to each firm individually to meet the company's specific needs (Bhuiyan, 2011). Moreover, although the stages are laid out sequentially, the innovation process is not linear, and activities (Table 2.4) may occur in parallel, sequentially, or overlap with one another. As the project progresses, numerous cross-functional iterations and back-and-forth activities occur (Cooper, 2008).

This thesis will follow the three stages of the innovation process displayed in Figure 2.1, which are described in more detail below.



Figure 2.1 Innovation stages (authors' creations based on a literature review).

Idea Generation	Invention Development	Product Launch
Problem definition	Development	Pre-commercial activities
Idea generation	Testing	Commercialisation
Concept development		Post-launch activities

Table 2.4 Activities at different stages of the innovation process (author's own creation based on a literature review).

Front End of Innovation / Fuzzy Front End of Innovation (FEI/FFEI)

The front-end phase is the first step in the innovation process, where a solid and creative product concept is generated (Eling et al., 2014). This very first phase of the innovation process focuses on problem definition when a problem is recognised, and an opportunity is considered for further exploration (beginning of FEI); idea

generation, when a quick and superficial evaluation of the marketing and technical merits of the project is required; and concept development, when a concept of a new product has been defined and firm decides to invest necessary resources to its development and launch the project, or in other words a detailed business case is created (e.g. Kim & Wilemon, 2002; Koen et al., 2014a). The Front End is the dynamic phase, often referred to as the getting-started phase of the New Product Development process (Eling et al., 2014).

This phase of innovation is often characterised by high uncertainty, a low level of formalisation, high information intensity and ad hoc decisions. Research suggests that a multidisciplinary team with diverse skills and expertise would be beneficial in this context. Effective cross-functional collaboration at this stage can reduce process uncertainty as decisions made here determine what will happen later (Kim & Wilemon, 2002; O'Sullivan, 2008). Likewise, there is evidence that most successful innovators engage cross-functional teams more significantly than those who are less successful. Understanding the nature and the outcomes of the front end is an essential component of the innovation process, as choices made at the front end form the foundation for future product development activities and commercialisation (Kim & Wilemon, 2002; Koen et al., 2014). Although each case differs, common characteristics are involved in most fuzzy situations (Kim & Wilemon, 2002).

New Product Development / New Product/Process Development (NPD/NPPD)

Once the new concept is defined, the project proceeds to the next stage of the innovation process, the new product or process development stage (NPD). The NPD phase is described as more structured than the front-end process. This phase was recognised as a solid process with clearly defined activities and a well-defined decision framework for the next steps (Cooper & Edgett, 2012). Although monitoring, evaluation, and control activities help keep NPD projects on schedule, within budget, and in line with strategic goals, some degree of flexibility is essential (Salomo et al., 2007) to increase the chances of delivering a successful product in a fast-changing market condition (Bhuiyan, 2011). This stage is generally divided into two phases:

1. *The development phase* begins when the new product's business case results align with company objectives and are translated into concrete deliverables. In other words, the idea turns into a physical product or service. This phase includes activities that range from prototype development to volume increase and marketing testing. At this stage, the product prototype or final design must meet the customer's requirements. Thus, customer input and feedback are invaluable throughout the development process. Moreover, cross-functional teams can help identify and solve problems throughout the process, improve design and quality, and reduce development time and costs. It is essential to move through development as quickly as possible to launch, thereby reducing the impact of a changing environment and generating revenues (Bhuiyan, 2011).

2. *Testing* is a process of verifying earlier business assumptions. It is a commercial experiment that validates the entire project, from the product's commercial viability through production to marketing. Since this phase is vital to decrease the chances of failure in launch, design and testing should be conducted in parallel, with testing throughout the development stage. The information gathered during the testing period is used to make necessary modifications and develop the product. Critical to this phase is verifying whether product functionality has been achieved and all attributes exist, or identifying what is missing to determine the cause of any missing features (Bhuiyan, 2011).

Commercialisation

Commercialisation is the last stage of the innovation process, where a new product or service is introduced into the market. The most costly part of the innovation process requires significant investment in pre-commercial and commercial activities to succeed. Pre-commercial activities include marketing strategy development and business analysis, advertising, commercialisation activities that focus on sales promotion, and other marketing works, including post-launch management. It is essential to understand all the factors that impact commercialisation, as often strategic decisions made at the earliest stages can

strongly influence commercialisation and launch. This phase of the innovation process is often poorly managed, and a strong market orientation is omitted, despite being recognised as one of the most critical factors for success (Luoma et al., 2008).

Technological developments do not guarantee successful outcomes. Commercialising a new product or service is a complex process that requires the presence of external factors, such as users, suppliers, rivals, and other partners in the value network (Wang et al., 2012). Furthermore, Lee et al. (2010) suggest that commercialisation is more important for SMEs than for large enterprises. While many SMEs are leading in technological aspects, their ability to commercialise innovation is often limited. They often lack the capability in manufacturing facilities or marketing and sales channels, which can hinder the introduction of a practical product or service to the market. Thus, networking can be the right solution here. Based on commercialisation literature, Henttonen and Lehtimäki (2017) identified five collaborative commercialisation strategies:

1. *Outsourcing* refers to 'contracting out' a service function to an external environment that helps firms achieve goals in areas where they need more capabilities. Outsourcing can enhance cost reduction, increase flexibility, and mitigate the costs and risks associated with the project.
2. *Licensing* occurs when the owner of knowledge, technology, or materials permits the use or modification of an invention in exchange for compensation. Out-licensing technological innovation is often used as an extra revenue stream.
3. *Partnership and collaboration arrangements* refer to situations where two or more firms cooperate on business activities. The difference is that partnerships enable companies to collaborate on common objectives by sharing skills, resources, capabilities, and knowledge. Partnerships may include joint ventures, strategic alliances, product exchange, buyer-supplier arrangements, and in-licensing agreements. Collaboration involves teaming up with other firms for a specific project. Collaborating focuses on activities that create an advantage, which can further enhance innovativeness and increase profitability.

4. *Knowledge sale* happens when ownership of knowledge is moved to a new owner through the sale of a knowledge asset, such as a patent.

5. *The divestment of company units* refers to the transfer of knowledge and the sale of the rights (full or partial) to the disposal of a unit of the firm. An example is a spin-off firm (Henttonen & Lehtimäki, 2017).

The company also has an in-house strategy for commercialisation, where internal knowledge is applied to its products and services (Henttonen & Lehtimäki, 2017).

In principle, the innovation process provides a general framework that reveals innovative activities at different stages, thereby outlining the path of an idea from generation through development to market entry. Moreover, every innovation process should start with an innovation strategy that aligns innovation efforts with the company's overall business strategy (Pisano, 2016; Kylliäinen, 2018). Therefore, the following section explores various innovation strategies.

2.2.4 Innovation Strategy

Research in the area of innovation began many years ago, emphasising its importance for a firm's strategy (Holzmann & Golan, 2016). The question here is no longer whether to innovate but which strategy to choose to achieve competitive advantage (Grönlund et al., 2010; Oke et al., 2013). Choosing a particular strategy, firms define how this innovation will add value for potential customers, how their firm will capture that value, how resources are to be used to meet a business's objectives for innovation and what and how they innovate to build competitive advantage (Bercovitz & Feldman, 2007; Krishnan & Jha, 2011; Pisano, 2016). While most companies acknowledge the significance of innovation in their overall business strategy, Kylliäinen (2018) argues that they struggle to define their chosen strategy clearly. This predicament is particularly prevalent among established companies, as internal or external pressures often prioritise the optimisation of existing business (Kylliäinen, 2018). As such, innovation strategies must adapt to environmental changes (Pisano, 2016).

Moreover, innovation strategy encompasses a range of technological and non-technological approaches, such as organisational methods. Depending on the desired outcomes, a company may choose from various strategies that can affect its

competitiveness, productivity, and overall value (OECD, 2010). Researchers have identified four dimensions of innovation strategy: exploration versus exploitation of capabilities, market pull versus technology push, internal versus external sourcing of capabilities, and product versus process innovation (Holzmann & Golan, 2016). These will be briefly described below, followed by the newer forms of innovation: business model innovation (BMI) (Baden-Fuller & Mangematin, 2013; Björkdahl & Holmén, 2013; Bashir & Verma, 2017) and open innovation (OI) strategy (Chesbrough, 2003).

Exploration VS Exploitation

The first dimension described innovation as either explorative or exploitative. Exploration strategy refers to a firm's search for and development of new competencies to create new products, whereas exploitation involves refining existing competencies to generate new products (Calantone & Rubera, 2012). However, research suggests that to achieve better performance, the company needs to become ambidextrous and learn how to balance exploitative and exploratory innovation activities (Bercovitz & Feldman, 2007; Raisch et al., 2009). Raisch et al. (2009) suggested that long-term success depends on a firm's ability to exploit its current capabilities while simultaneously exploring new competencies (ambidextrous organisations). Gupta et al. (2006) added that different parts of the value chain can be dominated by explorative or exploitative strategies and still achieve the required balance at the organisational level.

Market Pull VS Technology Push

The market-pull strategy takes place when solutions to a problem trigger the development of a new product or service that meets the needs of the marketplace. In contrast, the technology-push concept covers launching a product driven by a technology idea (Brem & Voigt, 2009). It is widely acknowledged that technological developments play a crucial role; however, only commercialised technology can bring economic value (Chesbrough & Rosenbloom, 2002; Chesbrough, 2003). Therefore, successful innovation will combine market pull and technology push activities together and connect the value of the technology with the understanding of the market needs as 'science and technology seemed to be 'the' source for the vast

majority of technological innovations, and demand was the best companion to drive innovation in the right economic and institutional directions' (Di Stefano et al., 2012, p.1284).

Internal VS External Resources

The third dimension of innovation strategy describes how a company gains new knowledge. The firm can utilise internal resources to develop and create new ideas within the company or leverage external sources to generate new knowledge. The closed vs open innovation model can be an excellent example of this strategy. The closed innovation model assumes that successful innovation requires control and ownership of intellectual property (IP), that all good inventions are developed within the company, and that all intelligent people work for the firm (Chesbrough, 2003b; Herzog, 2008). Innovation was carried out independently. However, rapid environmental and technological changes, increasing global competition, and the complexity of technology have compelled firms to seek new and innovative ideas outside the company. This openness to external ideas, knowledge exchange, skills exchange and partnership was coined by Chesbrough as Open Innovation (Herzog, 2008).

Product VS Process Innovation

According to O'Sullivan (2008), product innovation occurs when varying degrees of physical changes are made to a product, resulting in incremental improvements, additions to product families, next-generation products, or new core products. Process innovation adds value to a new sequence or significantly upgraded production or delivery method (O'Sullivan, 2008). Researchers have stated that product innovation is the most common form among SMEs (Hoffman et al., 1998; Gellynck et al., 2012; MacBryde & Clegg, 2013). O'Sullivan (2008) stated that innovation can also be applied to services, relating to valuable changes in services used by customers or intangible products (such as work, play, and recreation). Although continuous innovation is necessary, the outcomes are uncertain and often less successful than initially assumed. Competitors can easily imitate the final product, and innovation returns can be eroded over time (Bashir & Verma, 2017).

Incremental VS Radical Innovation

Moreover, regarding technological dimension and intensity of changes, incremental and radical innovation can be distinguished. Incremental innovations refer to the improvement of existing processes or products, indicating minor changes often addressed by existing customers (Herzog, 2011), as well as new products introduced by the firm (Parida et al., 2012). On the other hand, radical innovation is linked to the design of a new product or process resulting from technological improvements and is often associated with significant changes (Herzog, 2008); thus, a product is new to the market, industry, or the world (Parida et al., 2012).

Business Model Innovation

Innovation in business models differs from traditional product or process innovation, as it involves finding novel ways to conduct business that lead to the restructuring of value creation and value capture mechanisms (Baden-Fuller & Mangematin, 2013; Björkdahl & Holmén, 2013; Bashir & Verma, 2017). Even a single change to an element of a business model can trigger this reconfiguration and result in business model innovation (Lindgardt et al., 2009; Bashir & Verma, 2017). As a result of these emerging trends, companies are realising that their traditional business practices are no longer foolproof and must work to develop new competitive advantages (Schneider & Spieth, 2013). The challenge is to generate new business ideas and leverage existing resources to create new forms of value offerings and value creation (Schneider & Spieth, 2013).

Researchers have identified three key dimensions that comprise business models: value creation, value capture, and value offer (Bashir & Verma, 2017; Schrauder et al., 2017; Müller et al., 2018). This means that business models explain how an organisation creates, delivers, and captures value for its customers (Osterwalder & Pigneur, 2010; Teece, 2010) and are used to commercialise innovations by delivering the value of a new product or service while capturing related revenues (Chesbrough, 2010; Teece, 2010). Interestingly, new business models can arise from more than just technological innovations; they can also come from resource reconfiguration and changes in managerial choices, such as low-cost airlines, complimentary newspapers, or fast-food chains. These examples demonstrate how new business models can

disrupt an industry, prompting the development of innovative strategies and entrepreneurial opportunities (Demil et al., 2015).

Open Innovation

Open innovation is generally defined as “...*the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation, respectively*” (Chesbrough et al., 2006, p.1). As such, open innovation refers to changes in a company's behaviour towards innovation practices, where value creation is captured through the integration of external resources and the externalisation of internal ones (Dufour & Son, 2015). Although many open innovation tools, such as licensing, joint R&D ventures, and spin-offs, to name a few, were well-known beforehand, not every form of external collaboration constitutes open innovation (Dufour & Son, 2015). Open innovation goes beyond just utilising external sources of innovation. It “*systematically encourages and explores a wide range of internal and external sources for innovation opportunities, consciously integrating that exploration with firm capabilities and resources, and broadly exploiting those opportunities through multiple channels*” (West & Gallagher, 2006, p.230). Thus, “*open innovation is more than just using external ideas and technologies. It involves a shift in how to utilise, manage, employ, and generate intellectual property. Open innovation is a holistic approach to innovation management*” (Herzog, 2011, p.22).

Open innovation requires a different approach to project management. Breaking the silo mentality of traditional business is a challenging task. However, the potential performance benefits of open innovation practices can be compelling for the company. An effective open innovation system relies on numerous internal and external actors exchanging knowledge, ideas and resources (Rhisiart et al., 2014). Open innovation provides opportunities for small firms specialising in a particular field to find partners and share the costs, skills, risks, and rewards. Very often, small companies have great ideas for new products or services but lack the necessary channels, investment, and infrastructure to bring them to market (Young, 2013). Developing a new product requires prior research, a prototype and further testing (Vorkapić et al., 2017). Acting alone will hinder SMEs in their pursuit of achieving

their goals. As Dahlander and Gann (2010) suggest, innovation does not occur in isolation, and to remain competitive, involvement with various types of partners is necessary. Further, Cheng and Huizingh (2014) confirmed that results achieved by many companies would not have been reached without external collaboration. Furthermore, carrying out open innovation activities improves company revenue by helping to develop new products and services, increasing customer satisfaction, and enabling the firm to recognise potential partners and suppliers operating within its area (Rhisiart et al., 2014).

It is also essential that, for some SMEs, open innovation is not about developing a new product or service, but rather about modifying their business model to acquire new possibilities for the business and increase profitability (Vanhaverbeke et al., 2012). Furthermore, the authors suggested that external collaboration could enable SMEs to enhance their business model innovation by leveraging technology from network partners. They also suggested that successful SMEs do not use the same business model constantly, but at the same time, they remain with the same markets, customers, and partners. Therefore, to stay competitive, small businesses should cooperate with external partners, and the result of this collaboration will change the firm's business model. The research also indicates that the profitability of SMEs increases when they jointly innovate (Vanhaverbeke et al., 2012), demonstrating that open innovation activities are practical and yield positive outcomes for companies involved in these practices.

To conclude, innovation strategy is multidimensional and thus, to be successful, innovation goals should align with overall business objectives. Moreover, strategy selection should relate to the specific sector in which the firm operates, the landscape and the broader environmental factors (Krishnan & Jha, 2011; Kylliäinen, 2018). Senior leadership is responsible for creating, developing and implementing the business strategy and adequately aligning the innovation strategy (Breznik & Hisrich, 2014). The question is whether the innovation strategy at SMEs aligns with the firm's overall business strategy or is just a business illusion. The following section will discuss what characterises innovation practices at small and medium-sized enterprises and how this activity is documented in the literature.

2.2.5 Characteristics of Innovation at SMEs

Innovation depends on firm size (Varis & Littunen, 2010); therefore, innovation in smaller firms differs from that in big companies (Ganotakis & Love, 2011; Trotter & Vaughan, 2012; Love & Roper, 2015). Behavioural characteristics generally explain small firms (Laforet, 2013). The literature review allowed us to summarise the standard features of small and medium-sized enterprises and their innovative activities in various industry sectors.

It was noted that small and medium-sized enterprises are characterised by unplanned, informal and project-driven innovation activities (Hoffman et al., 1998; Laforet, 2013; Bocconcelli et al., 2018) that often are opportunistic (Griffith et al., 2003; Ebrahim et al., 2009; Trotter & Vaughan, 2012) and largely depend on a manager's intuition (Ibarra et al., 2020). Likewise, innovation practices in small companies focus more on product innovations than process innovations due to their more significant impact on the company's growth and financial results (e.g. Wolff & Pett, 2006; Oke et al., 2007; Van Es & Van Der Wal, 2012; Laforet, 2013). MacBryde & Clegg (2013) claimed that product innovation is accountable for competitiveness, current success and future sustainability, highlighting the importance of product innovation for small and medium-sized manufacturers. Moreover, although SMEs are involved in both types of innovation, incremental and radical (Chang et al., 2011), they tend to concentrate more on incremental innovations and on improving existing technologies rather than radical ones (Oke et al., 2007; Van Es & Van Der Wal, 2012; Laforet, 2013). This aspect can be linked to the small firm's limited resources for conducting the research and materialising the project. Moreover, rapidly changing markets pressure small companies to innovate more effectively; thus, their innovative practices are often ad hoc and informal, focusing on a short-term perspective (Laforet, 2013). Mason & Brown (2013) pointed out that internal R&D generates incremental innovations, and entrepreneurial businesses are more successful at developing breakthrough technologies that large organisations require. Other researchers supported these results, claiming that founders of small companies often are specialised in a specific field with technological competencies (Grundström et al., 2012; Henttonen & Lehtimäki, 2017) or possess previous industry experience in a specific area (Arvanitis & Stucki,

2012) therefore can act as a problem solver for more prominent companies. Following that, small companies often choose niche markets where they can find the first applications for their technologies (Vanhaverbeke et al., 2012; Di Stefano et al., 2012; Laforet, 2013). Serving market niches is associated with more effective relationships with key customers and the development of products tailored to their needs (Van Es & Van Der Wal, 2012; Bocconcelli et al., 2018). Moreover, firms that serve niche markets often prefer to innovate in old, closed innovation ways rather than engage in alliances, which can weaken their control over crucial sources and technologies (Edwards, 2017). Likewise, innovation activities at SMEs are associated with support or input from external collaboration partners (Ganotakis & Love, 2011; de Jong & Hulsink, 2012; Dossou-Yovo & Keen, 2021). Due to changing market conditions (regulations, legislation, and an increasing number of competitors), as well as limited resources and a lack of technological capabilities, small firms were forced to look for external partners to survive and remain in the market (Vanhaverbeke et al., 2012). Often, these inter-organisational collaborations start with customer involvement, followed by suppliers, competitors, consultants, private R&D institutes, universities, and government research institutions (e.g., Van de Vrande et al., 2009; Lee, 2012; Laursen & Salter, 2014; Edwards, 2017).

Studying the literature in the context of innovation and small businesses, the essential factor recurring in most studies and influencing innovation practices in small and medium enterprises was leadership (e.g. Bayarçelik et al., 2014; Franco & Matos, 2015; Love & Roper, 2015; Hossin et al., 2023). Furthermore, Colclough et al. (2019) underline the leadership approach in influencing the innovation orientation of SMEs, while also highlighting that internal capabilities determine an SME's ability to innovate. These internal capabilities, in turn, are developed through cross-functional integration, which further enhances innovation practices and the firm's performance (e.g., Swink & Schoenherr, 2015; Pellathy et al., 2019; Jeske & Calvard, 2021). Moreover, various small companies heavily rely on networks in their innovation strategies (Colclough et al., 2019) to overcome resource constraints, access new knowledge and improve their innovation capabilities (e.g. Edwards et al., 2005; Lee et al., 2010; Gronum et al., 2012; Huggins & Thompson, 2015; Love & Roper, 2015; Lin & Lin, 2016; Agostini & Nosella, 2019; Zahoor & Al-Tabbaa,

2020). To comprehensively explore innovation practices in small and medium-sized enterprises, research needs to emphasise the pivotal role of leadership in conjunction with internal resources and external partnerships for inter-organisational collaboration. These three elements form the cornerstone of the firm's Innovation Capabilities (Mendoza-Silva, 2020), which will be further expounded upon in the subsequent discussion.

2.2.6 Innovation Capabilities (IC)

Schumpeter, in the 1930s, highlighted the importance of innovation. A few decades later, innovation and innovation management continue to arouse the interest of scholars and practitioners (Breznik & Hisrich, 2014). In innovation, firms utilise their resources and capabilities to develop new products, processes or services (Aas & Breunig, 2017). The overall ability of the firm to generate successful innovation was coined innovation capability and further defined as a continuous improvement to absorb, adapt and transform a given knowledge into specific management, operations and transaction routines that can lead to new products, processes and systems and thereby to innovation (Lawson & Samson, 2001; Zawislak et al., 2012). Furthermore, although a firm's resources and capabilities dedicated to the innovation process vary widely between firms (Aas & Breunig, 2017). Deploying innovation capability is one of the most challenging aspects of management (Breznik & Hisrich, 2014). Therefore, the concept of SMEs' innovation capacity seems suitable for investigating SMEs' innovation activities (Pierre & Fernandez, 2018).

A vast body of literature has frequently divided innovative capabilities into product and process innovation, incremental and radical innovation, and technical and administrative innovation, to mention a few (Forsman, 2011; Mendoza-Silva, 2020). Although different types of innovation require different competencies (Mendoza-Silva, 2020), some researchers called for measuring IC as a holistic approach to innovation management (Samson et al., 2017). Since this study examines innovation as a process and investigates how SMEs innovate, focusing on leadership style, cross-functional integration, and networking, it will take a more holistic approach to innovation management without focusing on the type, outcome, or subject of innovation.

In her literature review on firm-level innovation capability, Mendoza-Silva (2020), delineated various determinants of an organisation's ability to innovate. These determinants were classified into managerial, intra-organisational, and inter-organisational. The categorisation of these determinants provides a comprehensive framework for understanding innovation capabilities at the firm level.

Managerial Determinants comprise management style and leadership, as well as corporate strategy. The first one, management style and leadership, describes the leadership practices to run the firm's daily activities and management commitment, support and behaviour towards innovation initiatives (Mendoza-Silva, 2020). *Corporate strategy*, on the other hand, refers to the strategic vision of the firm and the way this vision is shared throughout the company, their impact on innovation management and how strategic goals are linked to a firm's activities (Lawson & Samson, 2001).

Intra-Organisational Determinants refer to the internal factors that can increase or decrease a firm's performance. These factors are categorised into six groups (Table 2.5):

Intra-Organisational Determinants					
Efficient Management of Resources	Organisational Culture	Ideation and Organisational Structure	Technology	The Know-How Development	The Individual Activity

Table 2.5 Innovation Capabilities: Intra-Organisational Determinants (based on Mendoza-Silva, 2020).

The first category, Efficient Management of Resources, refers to the ability to merge internal resources (human, financial, and physical) into different markets, technologies, and products that allow the company to build up knowledge and share

experience and, therefore, increase the chance for successful innovation (Smith et al., 2008). The second category defines a set of beliefs and values established by leaders and shared with the employees to shape their perceptions, behaviours and understanding of the firm's goals. Employees who embody an innovative attitude can strengthen a firm's competencies and contribute to the growth of the firm's IC (Mendoza-Silva, 2020). In general, this category describes Organisational Culture. Ideation and Organisational Structure, which represents the third category of intra-organisational determinants, relate to the structure of the company and the mechanisms and scope of activities of individual functions, as well as their cooperation with other departments. Companies with a fluid boundary between functions have greater potential for innovation (Lawson & Samson, 2001).

Moreover, this category encompasses a firm's reward system as a stimulus for sharing knowledge and experience, thereby enhancing a firm's intellectual capital (IC) (Mendoza-Silva, 2020). The next category, *Technology*, specifies management and utilisation to facilitate innovative approaches within and between organisations (Smith et al., 2008). The *Know-How Development* category defines knowledge management processes. It describes all activities related to generating and managing ideas, applications and knowledge exchange within and between departments that lead to continuous improvement or a radical transformation of a business (Lawson & Samson, 2001; Mendoza-Silva, 2020). The last category, *Individual Activity*, specifies individuals' characteristics and motivation to conduct innovative activities, contribute to innovation and affect innovation management (Smith et al., 2008) while considering organisational culture (Mendoza-Silva, 2020).

Inter-Organisational Determinants

Each company is part of a larger ecosystem in which it coexists with other external entities. Moreover, all these entities are interdependent. Hence, inter-organisational determinants concern external relations and network characteristics (Mendoza-Silva, 2020), as shown in Table 2.6.

Inter-Organisational Determinants	
External Relations	Network Characteristic
Vertical Relationship	Structural dimension
Horizontal Relationship	Relational dimension
Institutional Relationship	Cognitive dimension

Table 2.6 Innovation Capabilities: Inter-Organisational Determinants (based on Mendoza-Silva, 2020).

External Relations define relationships between the firm and (a) suppliers and customers (vertical), (b) competitors (horizontal) and (c) universities and research institutes (institutional), which, as a result of collaborations, help the company to apply external knowledge into internal their activities leading to innovation (Mendoza-Silva, 2020). Whereas *Network Characteristics* refer to social context on structural, relational and cognitive dimensions at network-level and determine (a) form and frequency of information sharing between different entities (structural dimension), (b) types of relationships among actors over time (relational dimension) and (c) shared values, beliefs, and norms that facilitate a standard understating of goals among various resources within a relationship (cognitive dimension) (Mendoza-Silva, 2020).

The following section will then focus on the leadership approach at small firms in the context of the innovation process.

2.3 Leadership Approaches

SMEs are critical to the local, national and international economies (Howard et al., 2019). Small companies differ in many aspects, such as offerings, size, region and leadership approach. Leadership, although diverse among SMEs, has shared concerns and common goals (Howard et al., 2019; Madanchian & Taherdoost, 2020). It inspires, encourages, supports, and involves employees in various processes across the firm to implement changes that help reach the common goal. Moreover, leaders share their vision with the followers, provide a plan of action, and build strong relationships with employees to effectively implement these changes and thus ensure

consistency of firm operations (Franco & Matos, 2015; Love & Roper, 2015; Hossin et al., 2023). Madanchian and Taherdoost (2020) claim that insufficient and weak leadership skills are a primary cause of small business failure. Therefore, leadership plays a crucial role in managing the business. It has been argued that owner-managers are the most critical resource of a firm (Blackburn et al., 2013) and their management skills and commitment are often considered the most influential factors related to SME performance and growth (Bayarçelik et al., 2014; Hossin et al., 2023).

Research in leadership has expanded significantly over the past few decades, drawing the interest of scholars and practitioners worldwide. Simultaneously, placing leadership within different contexts increased the diversity of leadership theories, approaches and styles, thus leading to a better understanding of these phenomena (Dinh et al., 2014; Franco & Matos, 2015). However, there is no consensus on the precise definition of leadership (Yukl, 2012; Franco & Matos, 2015). Leadership has been defined variously in terms of traits, behaviours, influence, interaction patterns, role relationships, and the occupation of an administrative position. Notwithstanding, a common factor connecting the majority of those definitions is the assumption that leadership is a process that influences and facilitates activities and relationships in a group to reach a common goal (Yukl, 2012); leadership is about communicating a vision across the business and engaging followers in accomplishing that vision (V. Gupta et al., 2004).

Furthermore, leadership is an influential behaviour utilised to lead followers through formal and informal interactions (Hossin et al., 2023). Therefore, for this research, leadership will be further defined as “*the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives*” (Yukl, 2012, p. 23). Therefore, to understand leadership, the next section will focus on leadership in small and medium-sized enterprises, as Love and Roper (2015) suggest that leadership differs between larger and smaller firms.

2.3.1 Leadership Approach in Small and Medium-Sized Enterprises

Leadership balances capabilities and attitudes that influence specific behaviour (Prats & Agulles, 2009; Mihai et al., 2017). Hossin et al. (2023) added that a leader's behaviour is influenced by the knowledge, experience, training, and education that leaders have been exposed to over time. Thus, understanding small business owners and their management styles means understanding leaders' personalities, traits and behaviours, as they are believed to influence leadership style choice (CIPD, 2014; Koo & Park, 2018; Howard et al., 2019).

The leader's role in a small business is substantial, and the leader's aspirations to expand the firm significantly impact subsequent company growth (Delmar & Wiklund, 2008). Howard et al. (2019) suggest that small business owners are generally more independent than most who run or manage businesses. Often, the owner is involved in all aspects of the business, from daily business administration through production to commercialisation, with some delegation in management (Cacciolatti & Lee, 2015; Mihai et al., 2017; Howard et al., 2019). Higher education and previous experience are the best preparation for the entrepreneurial role. It enhances technical and managerial skills, facilitating access to wider business networks and market information (Shane, 2000). A good leader encourages and supports employees' initiatives, improves work procedures and transforms knowledge and information into action (CIPD, 2014; Franco & Matos, 2015). Furthermore, the authors argue that SME leaders do not adhere to a single, pure leadership style, and that the appropriate leadership style for an SME depends on the characteristics of its operating environment, sector, and geographical region (Franco & Matos, 2015). Every small business owner is unique and, in their way, reflects their personality into a particular leadership style (Howard et al., 2019)

However, when studying leadership in small and medium-sized companies, several factors, in addition to a leader's traits and personality, influence the nature of leadership and management. First, leadership approach change depends on the stage of the organisational transition and the company's size (CIPD, 2014). Running a business through different growth stages requires different skills to adapt to new strategies, reorganise internal structures, share an extended vision, and manage employees and external partners. As their organisation grow, leaders discover new,

not experienced challenges. Therefore, learning from others and appropriately choosing and applying new and necessary knowledge is essential, as not all existing practices should be replicated (CIPD, 2014). Secondly, different contexts require different leadership approaches; therefore, effective leadership requires flexibility and fluidity to adjust the approach to other contexts, considering both business and human aspects (CIPD, 2014). This statement is further supported by Howard et al. (2019), who claim that changes in business technologies cause changes in the organisation and leadership of small businesses.

Furthermore, the terms "leader," "manager," and "entrepreneur" are often used interchangeably in the literature and practice. However, leadership and management describe different behaviour approaches, which will be explained in the following subsection.

2.3.2 Leader vs Owner Manager vs Entrepreneur

The literature highlighted the ongoing controversy in describing the top positions at small and medium-sized enterprises: owner-manager, leader, manager, and entrepreneur and their role that differ concerning their values, personalities and traits in the interests of the company (Yukl, 2012; Cacciolatti & Lee, 2015; de Oliveira et al., 2015; Puccio et al., 2018; Howard et al., 2019). The owner-manager is described as an individual who establishes and manages a business to fulfil personal goals (de Oliveira et al., 2015); the owner-manager bases their decisions on structured, calculated, and rational processes (Cacciolatti & Lee, 2015). A leader, in turn, is an individual who is more flexible, innovative, and adaptive; a leader focuses on longer-term results and cares about people and economic outcomes (Yukl, 2012). Thus, leadership focuses on implementing changes in a company's products, services, and operations, seeking new opportunities, and providing innovative approaches (Puccio et al., 2018). In contrast, a manager refers to an individual who oversees the day-to-day operations of the company (Howard et al., 2019). Managers value stability, structure, and efficiency. Managers are generally risk-averse and tend to focus on short-term goals (Yukl, 2012). Management, thus, focuses on stability, adapting and maintaining existing standards (Puccio et al., 2018). Conversely, entrepreneurs are characterised as innovative (Howard et al., 2019), creative, and not afraid of risk-

taking. An individual who can recognise opportunities, capture them and turn them into a profit (Vanhaverbeke et al., 2012; Cacciolatti & Lee, 2015).

Researchers generally highlight that the key difference between leadership and management is vision (Puccio et al., 2018), which affects decision-making and actions (Burns, 2016). Leadership creates vision and strategies for the organisation, whereas management focuses on plans and budgets (Puccio et al., 2018). However, both roles —the manager, who seeks predictability and structure, and the leader, who looks for organisational change —are necessary for the business and must be balanced correctly, considering the existing situation, the industry in which they operate, and the business size. Managers' and leaders' traits and skill sets can overlap (Yukl, 2012). However, they will use these skills differently because they focus on different outcomes. This statement is supported by Puccio et al., (2018), who claims leaders exhibit management behaviours while managers are asked to provide leadership. For example, in a growing organisation, the manager's role becomes more critical due to the greater complexity of the structure. On the contrary, leadership becomes more meaningful with greater dynamism and increased uncertainty in the environment (Yukl, 2012).

Whether a leader or manager runs a company, the importance of being involved in innovation practices is undeniable. Moreover, today's leaders need creativity to face the increasingly complex and rapidly changing environment (Ye et al., 2021). Therefore, the following sub-section will discuss the relationship between leadership, innovation and creativity.

2.3.3 Leadership, Innovation and Creativity

Leadership, creativity, and innovation have been active and growing areas of research (Hughes et al., 2018). The increasing demands of customers, markets, and competition, as well as rapidly changing and more advanced technology, have led companies to emphasise innovation. Not only does ongoing organisational success depend on innovation, but often survival does too. The idea generation, development, and commercialisation of a product, process, or service depend on people's ability to generate creative ideas (Mumford et al., 2015). Therefore, although innovation is a

complex process involving various activities, it is closely related to creativity, as it is built on a foundation of it (O'Sullivan, 2008; Mumford et al., 2015).

Today's challenging and unpredictable environment requires effective leadership to understand its complexities (Franco & Matos, 2015). The significance of the leader's role in driving the business forward and achieving and sustaining a competitive advantage through creativity has been previously emphasised in research on creativity and leadership (Hughes et al., 2018; Randel & Jaussi, 2019). Creativity is a mental process that creates new, valuable and practical concepts (O'Sullivan, 2008), and it is a fundamental capability for leaders promoting changes (Mainemelis et al., 2015) and, thus, innovation. Sternberg (2007) emphasised that a leader's creativity is no longer an optional trait, as leaders who lack creativity are unlikely to effectively navigate the challenges of a dynamically changing marketplace and drive the organisation forward (Sternberg, 2007). Creative leaders are strategic leaders who adapt to changing market conditions and promote an innovative culture within their firm (Collett et al., 2019).

Creative leaders confront complex social problems by interacting with many internal and external entities. The role of the leader is not focused solely on exerting influence on others but on choosing when, where and how to influence others to achieve social goals (Mumford et al., 2000). Therefore, traditional leadership is likely to shift towards a more collaborative and facilitative approach that encourages and empowers lower-level decision-making (Mumford et al., 2007). Leaders must possess intelligence, creative problem-solving skills, social skills, and wisdom that enable them to share their vision and gain support for its implementation (Mumford et al., 2000; Sternberg, 2007).

Considering the valuable contribution creativity makes to leadership effectiveness in innovative practices, the following sub-section will focus on creative leadership as a distinct concept of leadership (Puccio et al., 2018).

2.3.4 Creative Leadership

The relationship between creativity and leadership in organisational science has been studied for decades (Mainemelis et al., 2015). This topic, however, appeared under various names. Mainemelis and colleagues, in their 2015 review, synthesise it

under the general name of creative leadership and define it as “*leading others toward the attainment of a creative outcome*” (Mainemelis et al., 2015, p. 393). It is worth emphasising that creative leadership is not about individual creative contribution. Instead, creativity is the collective contributions of individuals and their supporters, who trigger, enable, and sustain creative thinking and behaviour. Therefore, creative leadership stands out from traditional forms of leadership with its unique behaviours (Hynes & Mickahail, 2019), and research on creative leadership is interested in the relationship between leaders and followers, as well as their interactions with the creative process (Mainemelis et al., 2015).

Moreover, over the last few decades, various theories and models have been proposed to describe different types of creative leadership and, consequently, the behaviour patterns of successful leaders. For instance, transformational leadership, in which leaders encourage, inspire and motivate employees to innovate and create change that will help to work towards common goals; visionary leadership, in which leaders possess the ability to see the potential for change and inspire people to embrace the change; investment theory of creativity, in which leaders are like good investors: “*they buy low and sell high*” (Sternberg et al., 2003; Mumford et al., 2000). Although all these theories capture many essential aspects of creative leadership, they overlook others (Sternberg et al., 2003), such as the capabilities of effective leadership (Mumford et al., 2000) and definitional clarity or contextual factors (Mainemelis et al., 2015). For instance, Mumford et al. (2000) suggested that influential leaders require the ability to solve complex social problems that arise in organisations. These, such as creative problem-solving skills, social judgment skills, and social skills, are related to various forms of knowledge. However, the authors argued that leadership was often studied in a vacuum, omitting organisational knowledge. Therefore, they have offered a skills-based model that assumes skills required to solve complex social problems necessitate multiple forms of knowledge about the job, organisation, business, and people involved in the changes (Mumford et al., 2000).

Another study by Mumford et al. (2002) explored the leadership behaviours that contribute to creativity and innovation in organisational settings, using a multilevel approach. According to the authors, leadership of creativity requires an integrative

style rather than a traditional approach, as this approach is ineffective when applied to the leadership of creative individuals. The integrating style allows the leader to coordinate knowledge, people, and relationships between different entities to develop and implement new solutions. Mumford and colleagues used a Tripartite Model, consisting of idea generation, idea structuring, and idea promotion, which described the role and responsibility of the creative leader. The authors concluded that the leadership of creative people requires expertise (Mumford et al., 2002, 2015). Moreover, the successful leader must influence creative individuals, facilitate the development of creative ideas using various direct and indirect strategies, and create a conducive environment where such ideas can emerge (Mumford et al., 2002).

Sternberg et al. (2003) proposed a propulsion model that distinguishes various approaches through which leaders can manifest their creativity. The author suggested three general categories of creative leadership that accept challenges and synthesise different ways of doing things: leadership that accepts existing ways of doing things, leadership that challenges existing ways of doing things, and leadership that synthesises different existing ways of doing things. This model describes various ways a leader's creativity can be utilised, such as one or a mixture of styles. The leadership style can be more or less creative, as creativity can be viewed from different perspectives. Furthermore, the authors suggested that the leadership style that emerges at the company begins with the individual. Therefore, leaders partially impact the type of creativity that emerges in an organisation.

Furthermore, some organisations are more adaptable and less reluctant to change than others; thus, an organisational environment can influence creativity (Sternberg et al., 2003). The authors emphasised that creativity is a part of the decision-making process. Thus, deciding to stay in a current paradigm or move to another one is a creative process in which the leader must estimate the company's ability to utilise opportunities (Sternberg et al., 2003).

Furthermore, Denti and Hemlin (2012) explored the relationship between leadership and innovation by investigating when leadership is effective and how leaders influence innovative outcomes. Their review focused on the factors that moderate (when) and mediate (how) the relationship between leadership and

innovation. The authors concluded that supportive culture and leadership, cross-functional teams, involvement in decision-making, and de-formalised and de-centralised organisational structures encourage and strengthen the relationship between leadership and innovation. Furthermore, leaders may encourage innovation at the individual or group level by influencing creative self-efficacy or by changing the culture and introducing norms such as open communication or divergent thinking. Therefore, the leader plays a dual role in the innovation process as a facilitator when promoting bottom-up innovation and as a manager when managing a top-down process (Denti & Hemlin, 2012).

Puccio et al. (2018), in turn, claim that creative leadership recognises emerging trends, challenges, and opportunities, turns them into projects, and sets the direction to guide the changes. The author further suggests that sharing that vision with followers is a vital strategy to introduce the changes to the firm, as it explains the direction of change, motivates followers, helps to distribute responsibilities among the employees and gives a sense of belonging to a firm's social structure (Puccio et al., 2018).

Given the complexity of creativity and leadership, and considering the richness and variance of available research, the following sub-section will focus on three different conceptualisations of creative leadership suggested by Mainemelis et al. (2015): facilitating, directing, and integrating.

2.3.4.1 Conceptualisation of Creative Leadership: Facilitating, Directing, Integrating

Although research in the area of creative leadership is well-documented and interest in it continues to grow, some argue that it suffers from a lack of definitional clarity and theoretical depth, as well as a failure to account for contextual differences (Dinh et al., 2014; Mainemelis et al., 2015). Moreover, Mainemelis et al. (2015) observed that the concept has primarily evolved since the original formulation of creative leadership offered by Selznick in 1984. Reviewing vast publications on leadership and creativity, the authors observed that creative leadership can be portrayed in three ways. Therefore, they offered an integrative conceptualisation of creative leadership in three different forms: Facilitating, Directing, or Integrating

(Figure 2.2), considering the context differences and complementarity of theory (Mainemelis et al., 2015).

All three conceptualisations of creative leadership (Figure 2.2) differ in the ratio of creative and supportive contributions made by the leader and followers. For instance, facilitating context indicates the role of employees as ‘main creators’. However, their creative contributions depend on the level of support provided by the leader. Directing context, in turn, emphasises the leader as the ‘primary creator’, where their actual creative input is affected by the level of follower supportive contributions. Finally, the integrating concept balances the ratio of leader/follower creative and supportive contributions. Thus, creative outcomes are influenced by the degree of leader-follower creative collaboration (Mainemelis et al., 2015).

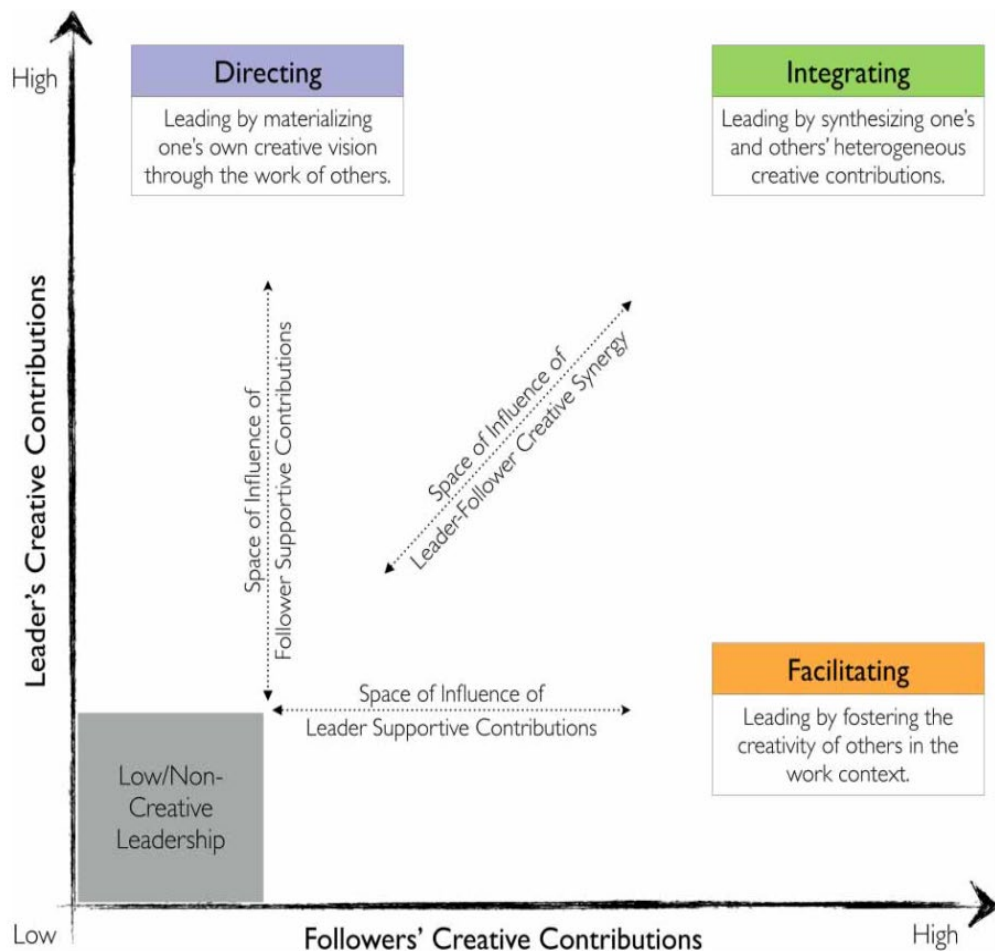


Figure 2.2 A Multi-Context Framework of Creative Leadership (Mainemelis et al., 2015).

The presentation of general assumptions for the three concepts—facilitating, directing, and integrating — can be found in Table 2.7 below.

The Conceptualisation of Creative Leadership		
Facilitating	Directing	Integrating
Focus on the leader's role in fostering employee creativity in the organisational context. Employees may act as 'primary creators,' but the leader's level of support influences their creative contributions.	A leader's creative vision is realised through other people's work; a leader may be seen as the 'primary creator', but the level of follower-supportive contributions influences his/her actual creative contributions.	A leader who combines his/ her creative work with the creative contributions of other professionals; this conceptualisation requires a more balanced proportion of leader/follower creative and supportive contributions, and its creative outcomes depend on the degree of leader-follower creative synergy.

Table 2.7 A general conceptualisation of creative leadership was delivered by Mainemelis et al. (2015).

Facilitating

Facilitative creative leadership is the most commonly observed approach in various work contexts. It focuses on the leader's role in promoting the creativity of others in the firm context. Therefore, employees may be seen as leading idea creators, encouraged by leaders' creative and supportive contributions, which, in turn, influence their own creativity (Mainemelis et al., 2015).

Creative leaders are involved throughout the creative process by providing direction, estimation and merging ideas. Additionally, they promote creativity by offering a conducive environment. Moreover, leaders are responsible for connecting the internal team with various external sources of knowledge and promoting and championing creative ideas within the organisation. However, it is a challenging task as the cohesion of a creative personality is difficult to manage. Therefore, to stimulate and support follower creativity, leaders must possess strong leadership skills (Mainemelis et al., 2015)

The key themes and contributions stressed in research on creative leadership in a Facilitative context captured by Mainemelis and colleagues (2015) cover:

- Competency perspectives including expertise, creative thinking skills, creative process management skills, awareness of temporal complexity and emotional intelligence;
- Behavioural perspectives, including leader support, assigned goals, monitoring, expected evaluation, feedback, play, empowerment, authentic leader behaviours, ethical leader behaviours and networks;
- Relational perspectives that refer to Leader-Member Exchange;
- And transformational perspectives on transformational leadership.

Directing

In the directing context, the leader is seen as a primary inventor of creative ideas that can only be materialised through other people's collaborative work. This style requires inspiring, eliciting, and integrating others' high-quality, supportive contributions. Moreover, some followers' contributions can be more or less creative depending on the nature of their work. The top-down innovation was recognised as not conducive to employee creativity and freedom at lower organisational levels (Mainemelis et al., 2015).

Furthermore, leaders are involved in all stages of the collaboration process, where they can dictate and control the creative interpretation of the work, which, surprisingly, is expected and appreciated by followers. Followers in a directing context require strong leadership from the leader, expressed through authority, direction, intelligence, confidence, and technical skills. As a leading idea creator, the leader should be able to foresee market and social trends, recognise opportunities, combine diverse information, and turn them into products or services, as innovations often emerge from leaders' opportunistic search.

Additionally, they must demonstrate self-confidence, eloquence, emotional expressiveness, and effective communication with the players, while maintaining behavioural skills for networking and managing customer relationships (Mainemelis

et al., 2015). A leader's mark is visible in the final product, and they get most or all of the credit for the creative work that has been done. The propulsion model offered by Sternberg et al. (2003) is closely related to directing conceptualisation (Mainemelis et al., 2015).

Mainemelis and colleagues (2015) highlighted vital themes and contributions in research on creative leadership in the Directive context, including intelligence, creativity, wisdom, follower evaluation, identity, creative freedom, renewal, and mentoring.

Integrating

The third conceptualisation, integrating, focuses on combining different creative ideas rather than generating new ones. It involves integrating the creative vision and input of the leader (or multiple leaders) and other professionals. Although leaders are primary idea creators, they need other professionals to help them materialise their vision. In this context, leaders and followers share creative aspirations; therefore, the creative synergy between them is vital. Moreover, a leader is involved in communication and relationships among all contributors, and they emphasise the importance of a collaborative atmosphere, a collaborative culture, and teamwork. The collaborators discuss the project throughout its evolution, adding inputs; thus, each can receive individual credit for their contributions. However, individual contributions are discernible and not blended into a final product. A leader synthesises and connects his/her vision and others' creative inputs into a final product.

Moreover, the project's success depends on a leader's ability to inspire and evoke creative contributions from other professionals. Furthermore, the leader is involved in all project stages, and it is his/her idea of who should be integrated into a project at which stage. However, paradoxically, the leader decides while advocating democracy (Mainemelis et al., 2015). In some integrating contexts, creative leadership is shared among multiple creative contributors or transferred from one contributor to another, depending on their expertise and capabilities (Mainemelis et al., 2015).

The key themes and contributions from research on creative leadership in an integrating context include role structure, creative vision, team selection and attraction, ability to inspire, communication and involvement, flexibility, and collective and rotating leadership.

Literature proves that leadership is essential to workplace creativity and innovation (Hughes et al., 2018). Thus, further study is needed to understand better leader behaviours and their influence on innovation practices at small businesses. In the next section, cross-functional integration (CFI) will be discussed. It was found that CFI enhanced knowledge sharing and information flow and, therefore, positively affected innovation practices (e.g. Turkulainen & Ketokivi, 2012; Bai et al., 2017; Ahmed et al., 2021).

2.4 Cross-Functional Integration (CFI)

In today's complex world, companies face issues that no functional silos could solve alone without the combined knowledge from many different areas (Basadur, 2004). Innovation is a complex process that one department can only partially implement (Yao et al., 2014). Each firm relies on different organisational capabilities and resources that can be leveraged in divergent ways, helping to solve problems and develop a competitive advantage (Barney, 1991). These capabilities and resources are inherent concepts in the resource-based view (RBV) perspective, which serves as an essential theoretical lens in this thesis (further discussed in Section 2.6). The task of cross-functional collaboration in the firm is to create valuable, rare, imperfectly imitable and non-substitutable resources (Barney, 1986, 1991; Penrose, 1959; Wernerfelt, 1984) that the firm can utilise to innovate and gain a competitive advantage.

Researchers and practitioners have long recognised the importance of cross-functional integration (CFI) in enhancing innovation practices and firm performance (e.g. Swink & Schoenherr, 2015; Pellathy et al., 2019; Jeske & Calvard, 2021). However, researchers argue that, despite the considerable amount of previous research, cross-functional integration remains poorly understood due to a lack of consistency in terminology and theoretical approaches (Frankel & Mollenkopf, 2015; Pellathy et al., 2019; Jeske & Calvard, 2021). Furthermore, Jeske & Calvard (2021)

claim that cross-functional integration is spread across various disciplines, which causes further inconsistency since each discipline brings a distinct theoretical and methodological approach (Pellathy et al., 2019). Therefore, a multidimensional perspective on cross-functional integration will be further presented. Begin by explaining the concept of cross-functional integration and its significance to the company.

2.4.1 Defining Cross-Functional Integration

The extant literature has described the notion of integration between different functional areas in various terms, including cross-functional collaboration or integration (Song & Song, 2010; Frankel & Mollenkopf, 2015), interfirm integration or supply chain integration (Frankel & Mollenkopf, 2015), internal integration or cross-functional, inter-functional, and inter-departmental integration (Swink & Schoenherr, 2015; Pellathy et al., 2019), cross-functionality, organisational configuration, cross-group collaboration (Jeske & Calvard, 2021), to mention a few. Troy et al. (2008, p.132) defined cross-functional integration as “*the degree of interaction, communication, information sharing, or coordination across functions*” at the team level (project) or the organisational level (functional). In turn, Gemser & Leenders (2011, p.27) use the term cross-functional cooperation, which refers to the situation in which “*organisational members of different functional areas exhibit joint behaviour toward some goal of common interest*” in new product development. Frankel & Mollenkopf's (2015, p.18) definition of cross-functional integration is consistent with Pagell's (2004) concept of “*a process of interdepartmental interaction and collaboration in which multiple functions work together cooperatively to arrive at mutually acceptable outcomes for their organisation*”. The common denominator of the above terms is that to understand cross-functional integration better, it should be considered from a process perspective and aligned with the company's goals. Pellathy et al. (2019) defined cross-functional integration through three dimensions of collaboration, coordination and communication within the context of its internal supply chain functions. The author defined cross-functional integration as “*an ongoing process of collaboration, coordination and communication, in which the different internal functions that manage a company's supply chain work together to maximise outcomes for their firm and external*

exchange partners” (Pellathy et al., 2019, p.84). Therefore, considering the above definitions, cross-functional integration refers to the degree to which interaction, communication, information sharing, and joint involvement are present among different functions working together towards a common goal (Pellathy et al., 2019; Jeske & Calvard, 2021). Cross-functional integration encompasses the social aspects of work, involving collaborative and integrated efforts among various business functions within specific processes (Frankel & Mollenkopf, 2015; Pérez-Luño et al., 2019). This includes communication, interaction, information sharing, joint involvement, and coordination (Pellathy et al., 2019; Jeske & Calvard, 2021). Furthermore, the concept of cross-functional integration describes a process through which the diverse internal functional areas of a company's supply chain merge different goals, activities, and knowledge into unified action (Pellathy et al., 2019).

It has been argued that cross-functional integration positively impacts innovation practices (e.g. Swink & Schoenherr, 2015; Pellathy et al., 2019; Jeske & Calvard, 2021), which will be further discussed in the following sub-section.

2.4.2 Beneficial Effects of Cross-Functional Integration

Evidence from the literature suggests that cross-functional integration helps to improve product/service performance (Sethi et al., 2001; Troy et al., 2008; Brettel et al., 2011; Hempelmann & Engelen, 2015). For example, regular interactions between co-workers increase communication frequency and, thus, help to share knowledge and experience, increase information flow, improve the exchange of best practices, improve mutual understanding across functions and help to distribute knowledge and expertise within the firm properly (Sethi et al., 2001; Belasen & Rufer, 2014; Eng & Ozdemir, 2014; Swink & Schoenherr, 2015; Li & Chen, 2016; Pérez-Luño et al., 2019). Moreover, cross-functional integration helps to utilise the strengths and competencies of every function (Swink & Schoenherr, 2015). Likewise, it stimulates employees' creativity, improving working efficiency and functional teams' absorptive capacities. All of the above positively supports innovative activities, helping to obtain a more accurate picture of the company's processes and strategy and the skilful use of its various resources, which has an impact on shortening the time and cost of product/process development (Swink & Schoenherr, 2015; Pérez-Luño et al., 2019).

Cross-functional cooperation is vital, as Homburg and Jensen (2007) suggest that each department holds information specific to its core tasks, which can provide the necessary components for a holistic view of the project. Thus, effective collaboration between different company functions will help in understanding customer needs and transforming them into tangible products (Fain & Wagner, 2014). This statement is also supported by other researchers, who suggest that innovation success requires excellent R&D cooperation with the department that can provide convenient resources for new-product development at a suitable project stage and efficiently exchange information (Olson et al., 2001). The importance of cross-functional cooperation in innovation projects begins with the first stage of the innovation process, the Front End of Innovation. Researchers suggest that exposing the idea and concept of a planned project to scrutiny and criticism from the functions involved is a valuable move. This allows for the recognition and adjustment of the formal and informal processes needed to implement different ideas, while avoiding a one-size-fits-all approach (Residegan, 2016).

Further, the second stage of the innovation process, new product development, requires the involvement of marketing and R&D, as these two distinct functions play a crucial role in the NPD process (Lu & Yang, 2004; Troy et al., 2008; Brettel et al., 2011) offering notably high returns to integration due to their complementary functions (Hausberg & Leeftang, 2018). For example, Cooper (1983) found mutual dependence between the R&D and marketing departments regarding new product innovation. The new products can only meet consumer needs with information from market research. This statement was further supported by Gupta et al. (1985, p.12), who asserted that *“technology alone won't make successful new products. Technological advances should be market-driven”*. Marketing's key role is to identify new growth paths and maintain the company's positive image with the general audience. Information about the marketplace can provide valuable insights into customers and their needs, helping to identify a market niche (Cacciolatti & Lee, 2015; Hempelmann & Engelen, 2015). Knowledge about the market can also allow the company to adapt to environmental changes. This aligns with Young's (2013) report, which includes an interview with a Director of a small business who argued that *“not understanding the value of marketing and PR early enough”* was his biggest

mistake. He also mentioned that hiring a competent marketer improved company sales and immediately helped to develop the brand and expand into new markets. In turn, the Research and Development function is responsible for generating research ideas, setting long-term research directions, and defining the product's technical characteristics (Hempelmann & Engelen, 2015). R&D is responsible for developing new products and/or exploring and constructing new scientific knowledge, which will help create new outputs, such as products, processes, or services (The Scottish Government, 2015). Although the integration between Marketing and R&D, which positively affects NPD performance, is a few decades old, it remains supported and widely researched in the later literature. For example, Lu and Yang (2004), who studied Taiwan's IT industry, suggest that NPD performance can only be achieved when the R&D and marketing relationships are adequate and personnel react to technical and market uncertainty. Hernandez (2006) summarised that a good relationship between R&D and Marketing is a critical factor in new product performance (NPP). Additionally, a study by Yao et al. (2014) examining the relationships between R&D marketing, business performance, and social performance in the context of Chinese agricultural science and technology enterprises found a positive effect of R&D marketing integration on both business and social performance.

Over the last few decades, cross-functional integration studies have expanded, emphasising the importance of other functions in the New Product Development (NPD) process. For instance, Homburg et al. (2017) emphasised that the sales department may perform a function complementary to Marketing and additionally support innovative practices or, as a separate department, make the necessary contribution, enabling the introduction of a new product or entering a new market; Hempelmann & Engelen (2015) claimed that finance function plays a critical role in NPD process and cross-collaboration between both the R&D–finance and the marketing–finance was positively associated with project success; Brettel et al., (2011), in turn, showed a positive impact on efficiency in the development phase when integration between R&D and manufacturing occurred. And a positive impact of integration between manufacturing, marketing, and R&D on effectiveness in the commercialisation phase. Kong et al. (2015) highlighted that marketing–

manufacturing integration reduces the speed and cost of new product development, thereby improving manufacturing efficiency.

In turn, Brettel et al. (2011) demonstrated a positive impact of integration between manufacturing and marketing, as well as between R&D and manufacturing, on effectiveness in the commercialisation phase. Kong et al. (2015) added that marketing-manufacturing integration in the commercialisation stage helps to adjust capacity between orders, thereby avoiding repetitions and balancing operating costs and on-time deliveries. In addition, improving the dependence between market demand and product planning translates into better cost performance (Kong et al., 2015).

Although different innovation stages require different skills and knowledge (Love & Roper, 2015) the ability to collaborate beyond functional boundaries is an integral part of becoming market-oriented (Fain & Wagner, 2014). This factor, in turn, significantly impacts the firm's innovative practices (Pérez-Luño et al., 2019) competitive advantage and business performance (Talaja et al., 2017). Indeed, by integrating diverse functions, firms enhance their ability to utilise external knowledge in the internal innovation process, increasing the chance for innovation success (Yang & Tsai, 2019). However, what function should be integrated, and what is the extent of that integration? This aspect will be discussed next.

2.4.3 Integration Level

Various internal functions participate in the firm's innovation process. Their scope differs at different stages of the innovation process. This participation can take different forms depending on factors such as the industry context or the type of innovation. Some functions take the lead on different phases and coordinate with all the other functions to accomplish the goal of the phase (Gonzalez-Zapatero et al., 2016). Most previous studies focused on a fragmentary analysis of internal integration between two or three departments. This research is led by R&D and marketing integration (e.g., Gupta et al., 1985; Parry & Song, 1993; Pereira & Sequeira, 2008; Calantone & Rubera, 2012; Jeske & Calvard, 2021) and followed by marketing or R&D integration with other departments, like marketing and logistics

(Pimenta et al., 2016), marketing and purchasing (Gonzalez-Zapatero et al., 2016), marketing and manufacturing (Hausman et al., 2002; Jeske & Calvard, 2021).

Although the importance of cross-functional integration is undeniable in a project's success, there needs to be an agreement regarding the perfect level of that integration (Troy et al., 2008; Calantone & Rubera, 2012). Nevertheless, researchers suggest that better integration may enable shorter development processes, cost reductions, joint contributions to firm goals, better quality, shorter product launches, and eventual commercial success (e.g., Song et al., 1997; Cooper & Kleinschmidt, 1994).

By contrast, other researchers suggest that a high level of cross-functional integration is unnecessary and may only yield better results under certain circumstances (Henard & Szymanski, 2001). Intensive collaboration can generate work overload, overwhelming personnel with excessive meetings and tasks, and thus, stress that can lead to information overlaps and increase workplace conflict (Sethi & Sethi, 2009; Pérez-Luño et al., 2019). Furthermore, Troy et al. (2008) argue that integrating cross-functional teams can be challenging to implement, as numerous factors must be considered when blending various functions. For example, employees representing different departments absorb and utilise knowledge differently and at different stages of the creative process due to differences in their backgrounds, functional priorities, and specialised nomenclature (Basadur, 2004; Pimenta et al., 2016; Hausberg & Leeftang, 2018; Pérez-Luño et al., 2019). For example, Hausberg and Leeftang (2018) suggest that R&D departments build absorptive capabilities through formal integration mechanisms (job rotation, regular meetings, and cross-functional project teams) between different functions. In contrast, marketing focuses on informal integration mechanisms (ad hoc communication, bypassing official and open communication channels). The author further highlights that the vital aspect of cross-functional integration success in innovation performance is the capability to exchange knowledge and information between functions and utilise it (Hausberg & Leeftang, 2018). For instance, the R&D department can create more value-added innovations by absorbing knowledge from marketing (Hausberg & Leeftang, 2018) and considering market and customer needs in their new offerings. Moreover, Troy et al. (2008) argue that at stages where

specialised knowledge is needed, cross-functional integration can hinder the exploration process, which requires functional freedom to develop new competencies. Thus, cross-functional integration is practical when new competencies are already developed (Calantone & Rubera, 2012). Additionally, integrating various actors requires additional time and resources, which slows innovation outcomes and negatively affects firm profits and innovation performance (Pérez-Luño et al., 2019).

Therefore, when planning a project, managers should carefully evaluate the extent of integration between various departments to synchronise actions and objectives between functions in terms of the type of competence required at different stages (Rubera et al., 2012; Pimenta et al., 2016; Shim et al., 2017). Moreover, Troy et al. (2008) emphasised that leader support is essential to balance the need for cross-functional teams, as too many viewpoints can lead to confusion and conflict within a team (Troy et al., 2008). Therefore, to achieve a high level of cross-functional synergy in a given situation, the project leader should establish an interaction pattern among all the actors involved in the innovation project (Homburg et al., 2016; Cappellini et al., 2017).

Therefore, it is logical to state that integration brings benefits only when there is a need for integration (Gupta et al., 1986; Griffin & Hauser, 1996; Henard & Szymanski, 2001). Griffin and Hauser (1996, p. 197) warned: *“The need for integration is situational. Not all projects within a company need to achieve an equal level of cooperation for successful development”*. This statement is further supported by Rubera et al. (2012), who concluded that the beneficial effects of integration are occasional rather than universal. Furthermore, the degree of integration across projects should vary depending on the project's current phase and the needs of competencies being developed at this stage (Rubera et al., 2012). This statement supports earlier findings by Gemser and Leenders (2011), who suggest that the level of cross-functional cooperation should be adjusted according to the project's needs. Cross-functional integration is practical when the knowledge needed to implement changes is complex and multi-functional (Gemser & Leenders, 2011; Hausberg & Leeftang, 2018; Pérez-Luño et al., 2019). Indeed, the decision about the extent of cross-functional cooperation should be carefully made as it is a resource investment decision, not paying off under all circumstances (Gemser & Leenders, 2011).

The following section within the literature review chapter will focus on inter-organisational collaboration (IOC) as a third factor influencing innovation practices at small and medium-sized enterprises.

2.5 Inter-Organisational Collaboration (IOC)

To overcome a dynamic change environment, SMEs continually seek ways to survive, grow, and remain competitive. Strategic decisions regarding whether to adopt innovation depend on the availability of resources, their efficiency, and the ability to succeed (Shi & Wu, 2016). Firms realised that focusing on internal resources to build capabilities and expand innovation activities is insufficient. Literature on innovation reveals changes in the innovative activities that firms undertake. There is a noticeable shift towards using external networks and various interactions among different actors regarding innovation practices (Zeng et al., 2010).

Generally, a network refers to a wide range of interpersonal and inter-organisational relationships, interactions, and ties between various entities with which firms may engage to achieve their aims (Hoang & Antoncic, 2003; Huggins & Thompson, 2015). These interactions are based on informal contacts with friends and relatives, direct business contacts with customers, competitors, suppliers, and financial representatives, as well as more remote actors such as consultants, engineers, universities, and government organisations (de Jong & Hulsink, 2012). Through these diverse and evolving interactions among different actors, various resources are exchanged, including goods, money, information, techniques, stock, standard processes, market, reputation, and relationships, to mention a few (Lin & Lin, 2016). The nature of a network is dependent on its industrial context and on what it will be used for as networks are used in different ways; different forms of innovation require different network configurations; configuration of the network depends on the strategic requirements of individual firms; network configuration change constantly depending on the requirements of partners; business performance will be influenced by the nature of all firms in the network (Pittaway et al., 2004; Nieto & Santamaría, 2007). Therefore, the networking patterns of SMEs differ from those of large companies. These differences lie in the different powers of acquiring external knowledge (de Jong & Hulsink, 2012; Agostini & Nosella, 2019). Although

networking is not new to SMEs, their collaborations are limited to strategic alliances with larger firms and outsourcing via other SMEs (Lee et al., 2010). Forkmann et al. (2018) argue that, often, business networks are based on long-term collaboration between various actors. In contrast, Gausdal (2015) suggest that networks result from unplanned cooperation between companies with complementary resources and shared goals, especially in SMEs.

Therefore, the first step in better understanding the networking behaviour of small and medium-sized enterprises is to determine why companies undertake external cooperation, which will be explained next.

2.5.1 Reason for Collaboration

Previous research indicates that collaboration with other organisations for innovation is a crucial factor for SMEs that enhances their performance (Edwards et al., 2005; Lee et al., 2010; Gronum et al., 2012; Lin & Lin, 2016). While many small and medium-sized enterprises have superior technology for invention (Narula, 2004), they often lack diversified knowledge, resources and capabilities to manage the whole innovation process by themselves (Edwards et al., 2005; Lee et al., 2010). The shortages of human resources with expertise in management, technology and marketing, as well as financial resources, together with the complexity of technology, fast-changing environments and customer expectations, cause an inability to handle innovation in isolation (Lee et al., 2010; Huggins & Thompson, 2015). Therefore, to overcome resource constraints, access new knowledge and improve their innovation capabilities, engaging in different kinds of inter-organisational relationships is a crucial alternative for SMEs (Edwards et al., 2005; Lee et al., 2010; Gronum et al., 2012; Huggins & Thompson, 2015; Agostini & Nosella, 2019; Zahoor & Al-Tabbaa, 2020). Access to various external resources through various network relationships and flexibility in operation, so characteristic of SMEs, helps accelerate innovation at small and medium-sized enterprises (Lee et al., 2010; Love & Roper, 2015; Lin & Lin, 2016).

The next step is to examine the impact of external collaboration, including the potential advantages and disadvantages of networking.

2.5.2 Effects of Networking

It is generally accepted that external collaborations underpin innovation processes (Huggins & Thompson, 2017). Collaboration with network partners enhances information flows and fosters knowledge sharing among peers. Moreover, the network enhances access to resources and enables mutual learning, which in turn increases the firm's core competencies and strengthens both individual partners and the entire network (Lee et al., 2010; Lin & Lin, 2016). Furthermore, networking enhances SMEs' capacity to absorb external knowledge, transform it, and apply it to internal innovation activities, thereby improving their absorptive capability, utilising external knowledge, and commercialising it. Being part of a network also helps identify new market opportunities and enables the sharing of risks, costs, and challenges resulting from new market entry. Partnership with other companies increases the firm's visibility in the environment, boosts SMEs' capacity, efficiency, and quality, thereby helping to strengthen the firm's reputation and enhance reliability, which in turn helps to overcome the liability of newness and smallness (Young, 2013; Lin & Lin, 2016).

Moreover, Love and Roper (2015) suggest that cooperation strategies improve export efficiency by increasing understanding of export markets. In so doing, firms increase their market power and, thus, strengthen their competitive advantage and enhance business performance (Lee et al., 2010; Lin & Lin, 2016; Benhayoun et al., 2020). Moreover, external collaboration can establish a new partner network that provides access to other networks and helps identify different, often novel, paths to deliver value to its customers (Vanhaverbeke et al., 2012). Those networks of various relationships are compelling assets (Elfring & Hulsink, 2003; Sengupta & Ambedkar, 2010). Also, properly building a well-managed network strengthens peer relationships, increases trust, and encourages fair conduct and commitment (Massaro et al., 2019; Vătămănescu et al., 2020). In turn, trust between partners affects the quality of relations and, thus, influences the exchange of resources and the richness of information flows (Hoang & Antoncic, 2003; Massaro et al., 2019).

However, although collaboration has a positive effect on the survival and growth of the firm (Watson, 2007) as well as their innovative performance (Lee et al., 2010; Watson, 2007; Vătămănescu et al., 2020), Watson (2007) argues that at the same

time, it needs to be optimised accordingly. Inter-organisational collaboration is a strategic decision, and every strategic move must be carefully considered (Lee et al., 2010). Working with external partners can generate new risks and threats for the firm, for example, core knowledge spillovers (Spithoven et al., 2013; Fernández-Olmos & Ramírez-Alesón, 2017) as well as additional transaction costs (Lee et al., 2010; Fernández-Olmos & Ramírez-Alesón, 2017). Collaboration enhances the emergence of new knowledge. However, this knowledge can sometimes be ambiguous and brings uncertain returns for the firm (Vătămănescu et al., 2020). Moreover, an increasing number of network partners results in collaboration complexity and, thus, more complicated information transfer and management of the network, which are a source of transaction costs (Lin & Lin, 2016; Fernández-Olmos & Ramírez-Alesón, 2017). Thus, it is essential to analyse the range and intensity of networking, as too many collaborations and too intense collaborations with the same partner can be counter-productive (Watson, 2007).

The following sub-section will focus on the patterns of innovation networking, including partners, the strength of ties, proximity and managerial capabilities.

2.5.3 Networking Patterns

SMEs' networking patterns differ from large companies, confirming the earlier statement that size is associated with innovative networking behaviour. These differences lie in the different powers of acquiring external knowledge (de Jong & Hulsink, 2012; Agostini & Nosella, 2019). In addition, previous literature underlines factors influencing innovation practices in SMEs, including the strength of ties, partner diversity, inter-organisational collaboration proximity, and collaboration management capability (Zahoor & Al-Tabbaa, 2020). These will be discussed below.

Partners

Previous research has identified key partners that contribute to innovation practices and enhance a firm's capability, including customers, suppliers, competitors, consultants, private R&D institutes, universities, and government research institutions (e.g., Lee, 2012; Laursen & Salter, 2014). Their importance was previously highlighted in relation to new market opportunities, technology solutions, and access to various resources (Brunswick & Vanhaverbeke, 2015). Furthermore,

Nieto and Santamaría (2007) suggested that collaboration with diverse partners brings different innovation outcomes. The authors imply that the types of partners the firm chooses to collaborate with will determine how the partnership is managed throughout the process. Moreover, researchers claim that partner diversity and continuity of work within the network increase the degree of novelty in product and process innovation and thus positively affect firms' performance (Nieto & Santamaría, 2007; Bocconcelli et al., 2018; Zahoor & Al-Tabbaa, 2020).

Networking, as a wide range of interactions between different types of partners, could take the forms of vertical (customers, suppliers) and horizontal (competitors) collaborations (Nieto & Santamaría, 2007; Huggins & Thompson, 2015) as well as institutional cooperation (with universities and research institutes). Vertical collaboration occurs among different actors who undertake innovative practices to gain knowledge about new technologies, markets, and process improvements, as well as cost reduction, risk sharing, and increased information and communication flow (Wignaraja, 2002; Nieto & Santamaría, 2007). Vertical networking with customers, suppliers and other agencies is the most common form of collaboration in the context of innovation practices in SMEs, and also most essential for them, as it is based on long-term relations and trust resulting from customers and market proximity (Zeng et al., 2010; Löfqvist, 2011; Hossain, 2015). This form of collaboration could take various forms, such as joint ventures, collaborative research groupings, or collaborative marketing arrangements (Löfqvist, 2011). So named, customer-based innovation, where the customer tends to be the idea generator, is associated with product or service functional novelty and technological development (Greer & Lei, 2012). This type of collaboration for innovation has been recognised as a significant source of innovation (de Jong & Hulsink, 2012) and competitiveness at SMEs (Bocconcelli et al., 2018b). Interaction with customers, both business and individual, increases recognition of weaknesses in existing products, services, and processes, while simultaneously offering value-adding knowledge to strengthen these firms. They are direct competitors that perform similar activities or provide similar products. These forms of collaboration involve merging actions to achieve a common objective, such as combining logistics activities and consolidating supply chains for the mutual benefit of the firms (Cheikhrouhou et al., 2010; Ferrell et al., 2020).

Literature suggests that collaboration with competitors occurs whenever participants in the network face common issues, thereby facilitating basic research and the establishment of standards (Nieto & Santamaría, 2007). However, this type of collaboration does not support novel innovation outcomes due to a lack of trust regarding information leakage and delays in the innovation process (Nieto & Santamaría, 2007; Zahoor & Al-Tabbaa, 2020).

Institutional collaboration refers to the network of relationships between a firm and publicly funded, open-access institutions, such as universities, research centres, and government development agencies. These institutional centres provide support services that are not driven by profit motives, as most are government-funded, and thus do not impose any charges. The benefits of such collaborations are reflected in the overall growth of Small and Medium Enterprises, the industry sector, and the regional or national economy (Oparaocha, 2015). Collaboration with universities facilitates access to knowledge, facilities, and resources indispensable for success. The purpose of this collaboration is to enhance the innovativeness and competitiveness of firms by implementing new knowledge and reinforcing their internal absorption capacity (Benhayoun et al., 2020; Kurdve et al., 2020). Industry and universities typically engage in such collaborative efforts through business-based technology centres or university-based research centres, which serve as intermediaries between the two (Kurdve et al., 2020). Joint research projects, coaching, seminars, and training programs are some of the ways these research centres facilitate long-term value creation for both parties (Kurdve et al., 2020). Similarly, financial advisors, such as banks and accountants, can also be included in this type of collaboration. These entities are often more valuable for their feedback and advice on negotiation and long-term financial implications for the new venture than as a source of finance (de Jong & Hulsink, 2012).

The biggest drawback of that partnership is the need for formalised paperwork due to the funds and activities undertaken. That formalisation creates a dependency that, in turn, increases bureaucracy, which extends the project's duration and causes frustration (Zahoor & Al-Tabbaa, 2020). Other inconveniences include lower educational levels among staff, especially at established SMEs, and a limited internal absorptive capacity to intake new knowledge, which can be mitigated by technology

transfer (Zahoor & Al-Tabbaa, 2020). Business associations, local institutions, business science parks and brokers are crucial intermediaries between various network actors (Agostini & Nosella, 2019). Often, these intermediaries play the role of innovation brokers, leading divergent actors within the network toward an innovative outcome that benefits all network participants (Batterink et al., 2010; Lee et al., 2010; Agostini & Nosella, 2019). The role of an intermediary is to create a supportive and facilitating network by linking SMEs to appropriate partners and effectively managing it by fostering an innovative culture that increases SMEs' chances of innovation (Lee et al., 2010; Agostini & Nosella, 2019).

To summarise, small and medium-sized enterprises more often collaborate externally with direct business partners like suppliers or customers than 'remote' ones such as governments and universities (J. P. j. de Jong & Hulsink, 2012). Customers and suppliers are seen as an essential source of information and know-how (Hoang & Antoncic, 2003) and positively impact firms' innovation (Nieto & Santamaría, 2007; Zahoor & Al-Tabbaa, 2020; Leckel et al., 2020). Moreover, collaboration types impact firm innovation (Zeng et al., 2010) and the relationships created with different collaborators differ, affecting the quality and quantity of information exchanged. This aspect will be discussed next.

Social relationship /the strength of ties

The strength of ties (Granovetter, 1973) describes the frequency of interaction between the actors and their commitment to the relationship in the network and, thus, defines the social relationships between users (Granovetter, 1973; Krackhardt, 2003; de Jong & Hulsink, 2012; Zahoor & Al-Tabbaa, 2020). Strong ties exist in the network between actors who have close relationships with each other, such as family and close friends. They refer to long-term, mutually trusting, intense, and emotionally close relationships. By contrast, weak ties are non-affective and less intense, often seen in a network of intermediate actors who are not closely related to each other (Granovetter, 1973; Krackhardt, 2003; de Jong & Hulsink, 2012; Zahoor & Al-Tabbaa, 2020).

Strong ties tend to provide rich and specialised information; thus, these relationships are associated with incremental innovation. The knowledge offered by

actors connected through strong ties may be redundant due to a lack of diversity (Borgatti & Halgin, 2011; de Jong & Hulsink, 2012; Zahoor & Al-Tabbaa, 2020). Therefore, strong ties add to the depth of information (Varis & Littunen, 2010). These types of ties are often visible among similar companies (Borgatti & Halgin, 2011). Weak ties, in turn, are likely to be associated with new knowledge and novel ideas and thus can result in radical innovation (Borgatti & Halgin, 2011; Zahoor & Al-Tabbaa, 2020). Therefore, these type of ties adds to the diversity of information shared (Varis & Littunen, 2010). According to previous research on the success and development of a company, weak and strong ties are necessary due to the different functions they fulfil (Varis & Littunen, 2010). To respond to dynamic and complex markets, firms require a diverse range of weak ties to generate innovative ideas. However, to implement new ideas, firms must utilise their strong ties (Varis & Littunen, 2010; de Jong & Hulsink, 2012).

Furthermore, small companies are often embedded in the local network. Thus, the next section will examine how proximity enhances the development of inter-organisational relationships.

Proximity

Proximity is an essential pre-condition for inter-organisational collaboration (IOC) that fosters knowledge sharing, knowledge transfer and technology acquisition processes (Knoben & Oerlemans, 2006). Geographical proximity is the most frequently used in inter-organisational collaboration and is denoted as territorial, spatial, or physical distance (Knoben & Oerlemans, 2006). Geographical proximity is vital for small-firm collaboration. SMEs often find it easier to work with local partners for specific types of projects. Regional supply chain collaboration can facilitate frequent interactions, face-to-face communication, and mutual understanding, thus fostering knowledge transfer and innovation (Knoben & Oerlemans, 2006; Garcia et al., 2017). These collaborations, then, result in broader benefits for the local economy, creating local jobs and increasing business access to customers. Knoben and Oerlemans (2006) argue that a shorter geographical distance is especially conducive to the exchange of tacit knowledge. Furthermore, the author highlights that geographical proximity might be process stage-specific and needed in

certain stages of the innovation process. Therefore, occasional meetings and short visits might be sufficient for collaboration over large geographical distances (Knoben & Oerlemans, 2006). However, geographical proximity is one of many criteria for networking and knowledge exchange as it can limit access to broader knowledge and, thus, access to markets with different needs (Zahoor & Al-Tabbaa, 2020). Therefore, researchers (e.g., Knoben & Oerlemans, 2006; de Jong & Hulsink, 2012; Garcia et al., 2017; Zhao et al., 2022) suggest supplementing geographical proximity with non-spatial proximity, such as cognitive proximity or organisational proximity. Cognitive proximity refers to the similarities in the knowledge base that facilitate adequate mutual understanding and knowledge exchange due to shared frames of reference (Knoben & Oerlemans, 2006; Garcia et al., 2017; Zhao et al., 2022). On the other hand, researchers claim that cognitive proximity, although beneficial, provides access to the same sources of information and thus offers redundancy. Too much similarity within a network can hinder the creation of new knowledge, thereby decreasing network effectiveness (Huggins & Thompson, 2017; Demirkan, 2018). Organisational proximity, in turn, facilitates mutual understanding between the partners and, thus, the joint creation of new resources and innovation (Knoben & Oerlemans, 2006). Zahoor and Al-Tabbaa (2020) claim that small firms prefer to collaborate within the same sector due to similarities in operational aspects, such as operational time frame. Knoben & Oerlemans (2006) argue that cognitive proximity should be considered part of organisational proximity since both are embedded in the notion of sharing routines, cultures, values and norms that facilitate the interaction of actors over geographical distances.

Moreover, firm size also matters in network creation and further collaboration (Zhang & Harvie, 2010). Literature suggests that peer-sized collaborators enhance the performance of inter-organisational collaboration. Working with partners of similar size increases the effectiveness of communication and understanding, thereby reducing the risks of cooperation due to similarities in business structure and organisational processes (Zhang & Harvie, 2010). On the other hand, collaborating with large companies can boost SMEs' recognition, reputation, and status (Stuart, 2000), as well as facilitate access to various resources that SMEs often lack (Vandaie & Zaheer, 2014), such as manufacturing facilities, expertise, brand, and distribution

channels to commercialise their technology. Working with large companies, small firms can specialise in a given field and, thus, increase their competitive advantage, which can enhance their internationalisation practices (Lee et al., 2010). However, working with larger parties also presents obstacles, such as increased costs and risks, decreased opportunities to compete with large firms due to shared technological know-how, unequal contributions (for example, a lack of recognition), limited control, and reduced alternatives for SMEs to innovate further (Lee et al., 2010).

Zahoor and Al-Tabbaa (2020) emphasise that small firms must develop and leverage a few complementary proximities to facilitate innovation, as more is required. However, to do that, the firm needs management with the ability to create and maintain relationships with external parties.

Managerial Capabilities

Often, SME management lacks the capabilities to build, establish and manage their inter-organisational relationships (Sağ et al., 2016; Agostini & Nosella, 2019). Most SMEs struggle to allocate internal resources to build and utilise external relationships (Agostini & Nosella, 2019). Moreover, they have limited technological assets to exchange (Narula, 2004). The biggest problem, however, SMEs face is identifying and connecting to appropriate partners at the local, national and global levels (Harland & Nienaber, 2014; Montelisciani et al., 2014; Demirkan, 2018; OECD, 2018). For SMEs, searching for collaboration partners and deciding whom to collaborate with to create an effective network can be challenging due to their limited human and financial resources. It requires scanning and monitoring to find a potential partner for further collaboration (Lee et al., 2010). To overcome this inconvenience, the support of an intermediary helps with organisational practices to identify, absorb, and implement appropriate knowledge into the project, thus coordinating it for better effectiveness. Small firms need to learn how to recognise a potential partner, coordinate the project, appoint actors, assign tasks, and synchronise activities within the network (Zahoor & Al-Tabbaa, 2020).

Moreover, small firms must be selective about the network size they create (Lee et al., 2010), as extensive networks may induce issues with maintaining trust between participants and coordinating them (Zeng et al., 2010). This, in turn, can hinder

resource exchanges and negatively affect business opportunities due to a lack of confidence in more open interactions (Brunetto & Farr-Wharton, 2007; Besser & Miller, 2011). Furthermore, due to a lack of time, logistical organisation, and resources, a small firm should focus on building an alliance with a partner that can provide resources that complement each other rather than overlap. Thus, keeping the number of network partners minimal (Nieto & Santamaría, 2007).

After introducing the concept of innovation in small companies and outlining how leadership approach, cross-functional integration, and external collaboration affect innovation practices in small companies, it is time to move on to the theoretical underpinnings of this research, which will help further explain the results of this study.

2.6 Theoretical Underpinning

This thesis aims to investigate innovation in SMEs by exploring the leadership style of the owner/manager and his/her influence on internal resources and capabilities (and their interactions), as well as the integration of external resources when innovating. A suitable framework for this research is the resource-based view (RBV) that recognises a firm as a heterogeneous bundle of resources and capabilities that gives each firm its unique character (Penrose, 1959) and, therefore, competitive advantage (Wernerfelt, 1984). Furthermore, according to some researchers (Barney, 1991; Grant, 1991), the resources and capabilities of a firm are fundamental for developing an innovation strategy (Kim et al., 2015).

However, the resource-based view of the firm may overlook inter-organisational components (Lavie, 2006; Kim et al., 2015). Therefore, as a standalone framework, it cannot fully explain the relationship between network resources that help reduce market uncertainty and stabilise the competitive environment (Lavie, 2006). Moreover, the resource-based view considers resources and competencies as static (Madhani, 2008; Kim et al., 2015). However, in the era of a dynamic economy, firms need to build up new capabilities or competencies to sustain a competitive advantage (Teece et al., 1997). Therefore, the RBV does not explain how firms develop new capabilities or competencies in a dynamic marketplace (Madhani, 2008).

New capabilities, competencies and the relationship between network resources are crucial aspects of this research. Therefore, the resource-based view will be supplemented by a social capital concept recognised as a key asset in developing innovation capabilities (Camps & Marquès, 2011). The central idea of social capital theory is that networks of relationships are valuable resources that can foster knowledge creation and innovation at the organisational level (Nahapiet & Ghoshal, 1998; Ahn & Kim, 2017). Therefore, social capital examines the benefits and costs of social ties and relationships within and outside the organisation (Nielsen & Chisholm, 2009).

The upcoming sections will delve into these theories.

2.6.1 Resource-Based View (RBV)

The importance of the resource-based view (RBV) of strategic management is illustrated in its rapid growth throughout the strategic management literature (Priem & Butler, 2001; Levitas & Ndofor, 2006; Kostopoulos et al., 2003). In addition, the RBV has encouraged researchers to focus on the usefulness of resource value and analyse firms from a resource-based perspective (Wernerfelt, 1984). On the other hand, innovation research has traditionally focused on social factors and influences, such as individual talents (Trott, 2008). Therefore, drawing on previous research in the Resource-Based View, this study aims to illustrate the interrelationships between RBV and innovation activities within the firm.

The concept of the firm as a set of different resources and capabilities for studying a firm was first introduced by Penrose (1959), who emphasised that firm growth depends on internal managerial and entrepreneurial resources. A few decades later, RBV was formalised by the pioneering work of Wernerfelt (1984), who stated that resources could be seen as the source of competitive advantage. Later, Barney (1991) introduced the term "sustained competitive advantage" and argued that firms' resources must be valuable, rare, inimitable, and non-substitutable (VRIN) to generate a sustainable competitive advantage. Therefore, RBV states that acquiring resources and forming capabilities to expand, combine and distribute resources effectively can add unique value and create a competitive advantage for the firm (Barney, 1991; Bhamra et al., 2011). Both human resources (skills, knowledge,

behaviour) and organisational resources (control systems, routines, learning mechanisms) are products of social structures built over time and, therefore, unique to the firm and difficult to imitate (Colbert, 2004). Personnel representing functional groups possess information, expertise, and knowledge (critical resources) associated with specific activities. Integrating various functions across the innovation process can help exchange, reform, and utilise resources and form new capabilities. Therefore, to create a valuable and difficult-to-imitate capability, the practices of selecting, developing, combining, and distributing a firm's resources must be managed effectively, which strongly emphasises the role of managers (Colbert, 2004).

The RBV perspective focuses on the firm's internal organisation and addresses resources and competencies in static environments (Madhani, 2008; Kim et al., 2015), whereas organisations face a changing market environment and daily uncertainty. Therefore, a firm must transform its possessed skills and knowledge to create new expertise that enhances innovation and competitiveness (Cohen & Levinthal, 1990). Hence, Teece further extended the applicability of the resource-based view approach. The author incorporated external market variations into the internal competencies and framed them as dynamic capabilities that refer to *“the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments”* (Teece et al., 1997, p.516). By definition, therefore, the primary assumption of dynamic capabilities is the firm's ability to evolve (adapt and change) its organisation's resource base, responding to external changes (Teece et al., 1997; Wang & Ahmed, 2007; Breznik & Hisrich, 2014) what is essential for long-term competitive advantage (Aas & Breunig, 2017).

Moreover, Forsman (2011) calls for distinguishing between capabilities and resources, as a resource perspective determines a firm's ability to innovate in a static environment. In contrast, the capability perspective transforms those assets (Forsman, 2011) to facilitate and support innovation strategies (Hadjimanolis, 2000). Therefore, resources were defined as *“anything which could be thought of as a strength or weakness of a given firm”* (Wernerfelt, 1984, p.172). They are owned or controlled by an organisation (Forsman, 2011) and can be classified as tangible (financial or physical) or intangible (i.e., employees' knowledge, experiences, and

skills, the firm's reputation, brand name, and organisational procedures) (Kostopoulos et al., 2003). On the other hand, capabilities are defined as competencies built by combining resources (Radicic, 2014; Kim et al., 2015), and therefore, they are firm-specific (Barney, 1991; Kostopoulos et al., 2003; Radicic, 2014). For clarification, although resources, in general, are not firm-specific, each company possesses leadership, managerial, and entrepreneurial resources that are strategic resources of the firm and, thus, are firm-specific (Radicic, 2014).

Wang and Ahmed (2007) identified three main components of dynamic capabilities: adaptive capability, absorptive capability, and innovative capability, which reinforce a firm's ability to integrate, adapt, and transform internal resources and capabilities in line with external changes. All three components are correlated but conceptually diverse (Wang & Ahmed, 2007). Adaptive capability refers to a firm's ability to identify and exploit emerging market opportunities. Adapting to changing market conditions by coordinating internal resources with external demand is crucial for a firm's evolution and survival (Wang & Ahmed, 2007). In turn, absorptive capacity focuses on the firm's ability to explore and utilise external knowledge inside the firm. These capacities are based on learning mechanisms focused on knowledge acquisition and exploratory learning. Therefore, absorptive capacity requires the firm to possess knowledge that enables it to understand the knowledge absorbed (Lichtenthaler & Lichtenthaler, 2009). Finally, innovative capability refers to a firm's ability to manage and create innovation in the long term. (Mendoza-Silva, 2020); to create new products and markets by combining strategic orientation with innovative behaviours and processes. Hence, it explains the connection between a firm's resource base and product market (Wang & Ahmed, 2007).

Although the resource-based view and dynamic capabilities theory have provided a strong foundation for understanding innovation in the context of business performance, this thesis examines innovation itself as a process rather than its impact on the firm or its performance in the marketplace. Therefore, although all three dynamic capabilities — adaptive, absorptive, and innovative — are essential, the focus will fall upon innovative capability, which is considered a part of dynamic

organisational capabilities. In addition, they refer explicitly to a bundle of firm traits that facilitate and support innovation strategies. (Hadjimanolis, 2000).

2.6.2 Social Capital Theory (SCT)

The firm's innovation capability is linked to its ability to utilise knowledge resources (Ahn & Kim, 2017). Formerly, scholars underscored the pivotal role of individual human capital in augmenting the firm's innovation capability. By enlisting innovative talents, firms bolster their innovative capabilities (Ahn & Kim, 2017). This paradigm bore a resemblance to a closed innovation strategy, wherein the preeminent personnel operate within the company (Chesbrough, 2003; Herzog, 2011). Nevertheless, companies have come to realise that in the modern world, ideas and inventions are not created individually but through close interaction between various actors (Pylypenko et al., 2023). Interconnected relationships and networking among individuals and organisational units can facilitate knowledge dissemination, reduce resource depletion, address market imperfections, and cut transactional expenses (Kamewor et al., 2021). Networks offer access to valuable information and resources that may be challenging to obtain through traditional market channels (Herbane, 2019). The unrestricted flow of information facilitates business activities and augments firm performance. Consequently, networking and affiliations with peers and external entities are invaluable assets for fostering knowledge creation and innovation at the organisational level (Ahn & Kim, 2017; Kamewor et al., 2021; Pylypenko et al., 2023).

These value-creating abilities of social relationships can be understood through the concept of social capital (Nahapiet & Ghoshal, 1998; Ahn & Kim, 2017; Cárdenas, 2021). This concept encompasses interconnected social networks, shared norms, and mutual trust that facilitate cooperation and collaboration for the collective benefit (Bhandari & Yasunobu, 2009; Herbane, 2019). These elements were categorised into three primary dimensions: structural, relational, and cognitive (Nahapiet & Ghoshal, 1998), representing the foundational aspects of social capital. Each of these aspects of social capital substantially impacts improving organisational results by enabling access to information exchanges that facilitate the spread of knowledge and collaborative efforts (Ouechtati et al., 2022). *The structural* dimension refers to networks and connections between actors (Ouechtati et al.,

2022). It pertains to group members' social interactions and relationships, influencing organisational communication and information flow (Camps & Marquès, 2011). It denotes the reach and manner of reaching individuals, with network ties, network configuration, and appropriate organisations serving as representative structural dimensions (Ahn & Kim, 2017). Second, *the relational* aspect involves assets formed from personal connections, such as trust, norms, responsibilities, and identity (Camps & Marquès, 2011). Each of these components contributes to organisational capabilities in different ways. High trust leads to more cooperative interactions, while norms and obligations serve as a control mechanism without a hierarchy. Additionally, identification enhances concern for collective processes and outcomes due to feelings of membership within the group (Camps & Marquès, 2011). Third, *the cognitive* dimension encompasses shared representations, interpretations, and meaning systems among parties, as well as the group's shared vision, purpose, language, narratives, and culture (Nahapiet & Ghoshal, 1998; Martin et al., 2011; Ahn & Kim, 2017). This facilitates the exchange of knowledge (Ahn & Kim, 2017).

Social capital is increasingly recognised as a vital advantage in gaining a competitive edge across all industries (Kamewor et al., 2021). Social capital is formed through interactions among leaders, followers, and departments with shared goals and mutual trust among team members (Nahapiet & Ghoshal, 1998; Ahn & Kim, 2017). Therefore, a company's social capital is not readily replicable or transferable, as it is predicated upon established structures and relationships cultivated through collaboration (Pylypenko et al., 2023). Trust, in particular, is critical for the development of social structures and economic cooperation (Nahapiet & Ghoshal, 1998; Iturrioz et al., 2015; Ahn & Kim, 2017; Pylypenko et al., 2023). A high level of trust is essential for effective knowledge sharing within the workplace social network (Xerri et al., 2009), fostering a culture of support for experimentation and creativity to enhance innovation (Ouechtati et al., 2022).

Research has shown that small and medium-sized enterprises benefit significantly from building social capital, positively impacting their innovation ability (Kamewor et al., 2021). Strong internal networks greatly benefit firms by facilitating effective communication, interaction, resource exchange, and enhanced teamwork (Swanson et al., 2020). On the other hand, maintaining relationships with external entities

strengthens a firm's ability to identify and understand new external knowledge. It helps integrate it, contributing to radical innovation outcomes (Delgado-Verde et al., 2016). Therefore, social capital serves as a catalyst for innovation by facilitating collaboration and coordination among diverse members and units within the network (Ouechtati et al., 2022). Effective leadership is essential for advancing organisations by boosting social capital, self-assurance, innovation, and mental stimulation among employees. The role of guiding organisations and facilitating developments is increasingly pivotal (Golmoradi & Ardabili, 2016).

In summary, the Resource-Based View and Social Capital are complementary perspectives that enrich the comprehension of innovation processes within small and medium-sized enterprises (SMEs). They provide a more comprehensive elucidation of the innovation process in SMEs, particularly in resource-constrained environments.

After explaining the theoretical underpinnings of this research, it is time to close this chapter by introducing the literature gap.

2.7 Research Gap

This chapter provides a comprehensive literature review on the relationship between small and medium-sized enterprises and innovation concepts, including leadership approaches, cross-functional integration, and inter-organisational collaboration. Despite increased research on innovation and open innovation in SMEs over the last few decades, some fields still require further investigation. Mendoza-Silva (2020) suggests that managerial, intra-organisational, and inter-organisational influences affect an organisation's innovation ability. Given that small and medium-sized enterprises represent the majority of businesses within a specific country and considering their capacity to enhance national competitiveness, there is a need to gain a more comprehensive understanding of the innovation capabilities within these organisations. By understanding these determinants, organisations can formulate effective strategies for growth and success. As a result, this research aims to analyse leadership approaches, cross-functional integration, and inter-organisational collaboration within innovation to bridge the existing gaps in the

literature and offer a more comprehensive understanding of innovative practices in established small and medium-sized enterprises.

2.7.1 Leadership Approach

Different innovation processes and activities need to utilise different leadership styles to drive the success of innovation at the firm (Oke et al., 2009). Thus, the first theme focuses on the leadership approach and its impact on the innovation process within the firm. Small and medium-sized enterprises are often heavily reliant on their owners' knowledge, skills, abilities, experience, and education. As key decision-makers, owners significantly impact the formation of business strategy and are responsible for charting a course toward organisational goals. In small firms, the lack of separation between ownership and control means that business owners themselves must take responsibility for the direction and development of the enterprise (Ahmad et al., 2010). Research has repeatedly confirmed that the person who creates a venture is ultimately responsible for its success or failure. It follows that the success or failure of SMEs is primarily influenced by the competencies of their owners (Ahmad et al., 2010). Therefore, entrepreneurs must possess the skills and abilities necessary to handle the wide variety of responsibilities – entrepreneurial, managerial, and functional – that come with their roles as key players in small and medium-sized enterprises. This is a crucial consideration that should not be overlooked (Ahmad et al., 2010).

Effective leadership is crucial in challenging and unpredictable environments as it promotes creativity and innovation, ultimately helping businesses maintain a competitive advantage and move forward (Hughes et al., 2018; Franco & Matos, 2015). The relationship between leadership approach, innovation practices, and small and medium-sized enterprises is intriguing and has garnered significant interest from academics and practitioners alike (Dinh et al., 2014; Franco & Matos, 2015; Hughes et al., 2018). Nevertheless, the literature still requires further development to provide a more comprehensive understanding of the topic (Hughes et al., 2018), particularly in the context of leadership in SMEs (Franco & Matos, 2015). Additionally, the innovation performance of SMEs can be significantly influenced by the organisational and regional culture, as leaders are often deeply embedded in the communities where they operate (Franco & Matos, 2015; Gonzalez-Loureiro et al.,

2017). Furthermore, there is a contentious ongoing debate in the literature regarding the differences between leaders and managers in terms of their traits, skills, values, and personalities (Yukl, 2012; Cacciolatti & Lee, 2015). Howard et al. (2019) stress the significance of exploring the unique ways leaders and business owners utilise their skill sets to develop individualised approaches to leadership.

In recent years, there has been a growing emphasis on the importance of creativity in the workplace. As Mumford et al. (2002) have observed, organisations have undergone substantial changes. To this end, Franco and Matos (2015) have called for further investigation into the leadership strategies employed by companies in various settings. This presents a valuable opportunity to contribute meaningfully to the literature by examining the leadership approach to innovation within established small businesses in Scotland.

2.7.2 Cross-Functional Integration

Despite previous research, cross-functional integration is poorly understood and lacks deep theoretical grounding (Frankel & Mollenkopf, 2015; Pellathy et al., 2019; Jeske & Calvard, 2021). For instance, Pimenta et al. (2016) call for more research to help understand the integration processes and critical elements characterising effective cross-functional integration. Frankel and Mollenkopf (2015) emphasised that CFI appears to be centred on integrating a sequence of activities, such as an innovation process, as in this case. This can be highly beneficial because it naturally focuses on business activities enacted within and between firms in a supply chain context. Furthermore, researchers appeal for more cross-functional research in different environments. Due to the other industrial characteristics, Li and Chen (2016) suggested that further research is needed in various new product development (NPD) contexts. Fain and Wagner (2014) noted that cultural differences must be taken into account when researching cross-functional integration and New Product Development in different locations. In turn, Song and Thieme (2006) emphasised that more research could be done from various perspectives to add additional integration constructs. This statement was further supported by Li and Chen (2016), who suggested that future research in the area of cross-functional integration should include data from multiple sources.

Moreover, many cross-functional integration studies conducted in large companies employed quantitative methods, leaving small companies and qualitative research behind (e.g., Hausman et al., 2002; Swink & Schoenherr, 2015). Litchfield et al. (2017) asked to what extent team members should engage in innovative activities, such as problem-solving, obtaining feedback, and negotiating with outsiders, or whether it is a leader's task only. This question is essential in light of recent research by Pérez-Luño et al. (2019). It highlights the importance of critical employees representing various functions and participating in integration mechanisms, particularly in SMEs that lack formal departmental structures. In response to the above questions, this research aims to gather more data on cross-functional integration in small and medium-sized enterprises within the context of innovation practices. This research examines the facilitation, organisation, and management of cross-functional integration within established small and medium-sized enterprises operating in Scotland. The study adopts the resource-based view of a firm, incorporates social capital theory and uses critical realism lenses to research this phenomenon. RBV offers a suitable theoretical basis and perspectives to interpret the relationship between different functions and innovation practices. RBV argues that a firm's competitive advantage can be developed by not only acquiring resources but also forming capabilities that facilitate various departments to exchange, reconfigure and utilise resources effectively (Kong et al., 2015). Conversely, social capital enriches this study by examining internal connections among its members. For instance, relationships built on mutual support, collaboration, transparency, and a willingness to share information enable individuals to tap into the organisation's resources and enhance their knowledge and abilities (Nielsen & Chisholm, 2009).

2.7.3 Inter-Organisational Collaboration

The final theme of the literature review was to examine inter-organisational collaboration in the context of innovation practices at small and medium-sized enterprises. It is widely acknowledged that, due to limited internal resources, SMEs heavily rely on external partners for their development. Co-operation with network partners facilitates knowledge exchange, accelerates innovation, reduces transaction costs, gains reputation, and creates new market opportunities (Lin & Lin, 2016), and

thus increase competitiveness and economic advantages (Bortoluzzi et al., 2016; Lin & Lin, 2016). Therefore, innovation at SMEs is often the result of collaborative efforts among various partners. Moller et al. (2005), indicate that networks are not constant entities but dynamic and evolving constructs. Authors further state that SMEs regularly expand their networks by changing collaborators during different stages of the firm's life cycle (Moller et al., 2005).

Furthermore, Lin and Lin (2016), claim that different network types influence different innovation outcomes. Although inter-organisational collaboration (IOC) has gained increased attention in the literature in the context of small and medium-sized enterprises' innovation practices, researchers still call for more empirical research to gain additional valuable insights into small firms' behaviour and their innovation practices (Zahoor & Al-Tabbaa, 2020). There is a need to delve more deeply into this phenomenon and use a qualitative study to understand the specific role of IOC in shaping and determining innovation (Brunswick & Vanhaverbeke, 2015; Zahoor & Al-Tabbaa, 2020). Zahoor and Al-Tabbaa (2020) highlighted the importance of examining SMEs' decision-makers and the relationship among employees at different organisational levels, thus the antecedents of innovation at the individual level. Such understanding can help SMEs create an appropriate organisational climate to facilitate innovation (Zahoor & Al-Tabbaa, 2020).

After reviewing the literature and identifying the gaps, Chapter 3 presents the research design and methods adopted in the study to address these gaps.

3 Research Framework

3.1 Introduction

The purpose of this chapter is to explain the research framework chosen for this study, emphasising that research is a “*systematic and organised effort to investigate a specific problem (...) that needs a solution*” (Sekaran & Bougie, 2016, p.2). Research fundamentally involves answering questions and advancing knowledge through a meticulous approach that encompasses a range of procedures, techniques, and conceptual frameworks for collecting and analysing data, ensuring that the study maintains rigour and coherence throughout the process (Greener, 2008; Wilson, 2014; Saunders et al., 2019).

Therefore, to create a research framework, the researcher adopted a structured approach that begins with a clear and practical research question. Before selecting data collection methods, such as interviews or questionnaires, the researcher emphasised the importance of a broader methodological framework (Saunders et al., 2019). Central to this approach is an understanding of the "research onion" concept (Figure 3.1), which illustrates how data collection techniques fit within broader methodological considerations.

The researcher recognised that philosophical assumptions about reality, knowledge, and the role of values in research influence the choice of methods. By critically reflecting on these assumptions, the researcher developed a cohesive research philosophy that guided the selection of research strategy and data collection techniques. This alignment ensured that all aspects of the research design were logically connected (Saunders et al., 2019). Ultimately, this thoughtful process led to a well-structured research project, where every element—from the research question to the methods used—was carefully designed to address the problem with academic rigour effectively.

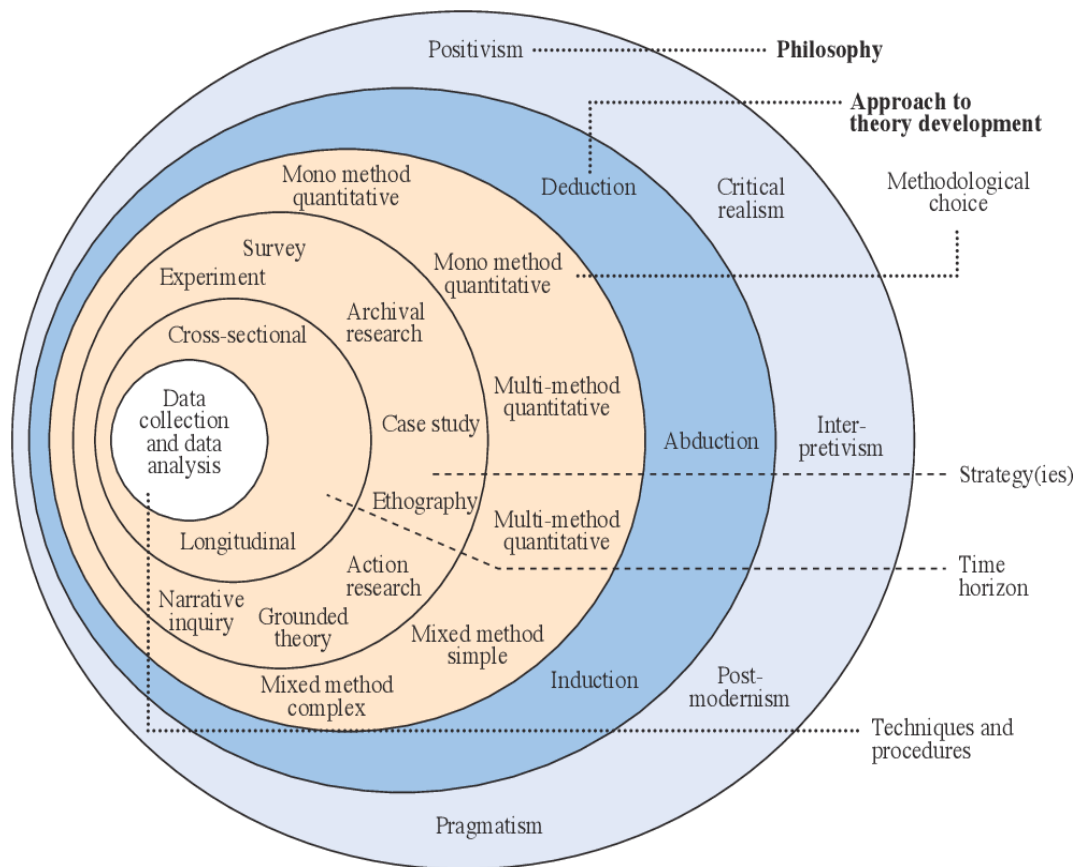


Figure 3.1. Research onion¹

Figure 3.1 'The Research Onion' adapted from Saunders, Lewis, & Thornhill (2019).

The 'research onion' model comprises six interrelated layers, further categorised into three distinct levels of decision-making: (i) the outer layer, which encompasses research philosophy and approach; (ii) the intermediate layer, which includes methodological choices, research strategy, and time horizon; and (iii) the innermost layer, which pertains to specific techniques and procedures for data collection and analysis (Saunders et al., 2012). The layers are sequential and mutually influential. For instance, selecting a research philosophy fundamentally shapes the research approach, which informs decisions regarding methodological choices, strategy, and data-related processes (Saunders et al., 2019).

This study is based on Saunders' approach to building a research methodology; therefore, the aim and objectives of this study will be reintroduced, serving as the foundation upon which the research is built. Following this, and in alignment with the conceptual structure of Saunders et al.'s (2008) "research onion," selecting an appropriate research philosophy and approach becomes critical. The researcher will

therefore explore various philosophical paradigms, assessing their strengths and limitations, and justifying the selection of *critical realism*—a stance particularly suited for studying complex social phenomena such as entrepreneurship and innovation (Wong, 2005). The choice of philosophy shapes the ontological, epistemological, and methodological assumptions that underpin the study and inform the research approach (Saunders et al., 2019), in this case, an abductive logic that integrates theory and empirical data iteratively.

Subsequently, the research design will be elaborated, incorporating methodological choices, research strategies, time horizons, and data collection and analysis techniques. This study employs a qualitative, multi-method, cross-sectional design, enabling a nuanced understanding of entrepreneurial behaviours and innovation processes. The selected strategy must coherently address the research question and allow for rich, contextually grounded insights (Saunders et al., 2019). As part of this design, suitable research methods, including interviews (such as focus group and semi-structured interviews) and observations, will be selected based on their ability to generate relevant and meaningful data. Throughout the process, particular attention will be given to ensuring validity, reliability, and ethical integrity, including clear protocols for participant consent, data handling, and reflexivity in interpretation.

The acquired data will undergo thorough analysis and interpretation, guided by thematic analysis as outlined in Chapter 4. This process is designed to address the three research objectives outlined in Chapters 5, 6, and 7. Subsequently, in Chapter 8, the findings (from Chapters 5, 6, and 7) will be utilised to formulate conclusions that directly correspond to the research aim of this study, contributing to both theory and practice in small and medium-sized enterprises and innovation.

3.2 Aims and Objectives of the Study

In recent decades, research on innovation has experienced remarkable growth, particularly in the context of small and medium-sized enterprises. Innovation practices in established SMEs differ significantly from those in start-ups and larger corporations due to variations in resources, organisational structure, strategic

orientation, and corporate culture (Chesbrough et al., 2006; Brunswicker & Vanhaverbeke, 2015; Saebi & Foss, 2015; OECD, 2021).

Given the significance of small and medium-sized enterprises in the global, national, and local economy, this study aims to deepen the understanding of the innovation phenomenon. While attention has predominantly focused on new product development, particularly regarding the organisational and strategic factors that contribute to success (Dossou-Yovo & Keen, 2021), the primary challenge extends beyond the mere generation of novel business ideas; it encompasses the discovery of innovative approaches to utilise existing resources to create new value offerings or methods of value generation (Schneider & Spieth, 2013). Furthermore, innovation does not occur in isolation (Dahlander & Gann, 2010; Lee et al., 2010; Huggins & Thompson, 2015); thus, there is a necessity for further research to comprehend innovation within small and medium-sized enterprises as a process that incorporates various actors and resources at multiple stages (Dossou-Yovo & Keen, 2021).

Therefore, the study aimed to better understand,

‘How established small and medium-sized enterprises innovate’?

To address significant trends and challenges small businesses encounter and shed light on supporting and implementing effective SME policies. The key objectives were discussed to clarify how different leadership approaches influence a firm's engagement in innovation activities, considering the organisation of internal assets and the acquisition of external resources to help the company innovate. The research objectives were as follows:

Objective 1: *To investigate how the leadership approach impacts the way SME organisations approach innovation.*

Objective 2: *To explore the mechanisms small and medium-sized enterprises utilise to foster internal integration during innovation.*

Objective 3: *To explore how small and medium-sized businesses establish and leverage their networks to foster innovation.*

All objectives were explored through qualitative research methods, including interviews, focus groups, and observations, and their outcomes are discussed in the following chapters. This research aims to understand a company's innovation mechanism and strategy to help mitigate issues for better innovation and future growth. Before discussing research design, it is crucial to consider the philosophical underpinnings, the outermost layer of the Saunders research onion, which serves as the foundation of any study and reflects the researcher's ontological and epistemological assumptions (Saunders et al., 2019). Researchers' perception and understanding of the world significantly influence their philosophical stance. This philosophical choice subsequently impacts the research approach adopted, which encompasses the selection of methodologies, strategic planning, time horizon, as well as data collection and analysis techniques (Saunders et al., 2012, 2019).

3.3 Research Philosophy and Research Approach

The term research philosophy describes how the researcher and the nature of that knowledge develop knowledge. Therefore, the researcher's philosophy will define how the researcher sees and understands the world (Saunders et al., 2012). The philosophy adopted by the researcher will be influenced by the view of the relationship between knowledge and the process by which this knowledge is developed (Saunders et al., 2008). In other words, the chosen philosophy concerns beliefs about the nature of reality (ontology), which leads to the choice of how knowledge about that reality is pursued (epistemology) through the selection of research techniques (methodology) for the study (Rao & Perry, 2007).

According to Saunders et al. (2012), research is being planned concerning the problem that needs to be solved. The authors believe that the researcher's choice of data to solve the problem and the methods used to collect it are not random. These choices are underlined by assumptions about how the researcher sees and understands the world. Easterby-Smith et al. (2008) justify why recognising and analysing philosophical issues is vital for the research process. Firstly, the authors suggest that philosophical approaches often relate to specific research designs, which might explain appropriate methods. Secondly, a deeper understanding of philosophy should help to distinguish successful designs from failures. Finally, this research approach enables an academic investigation to go beyond conventional approaches,

presenting and illuminating new perspectives that can be applied to existing approaches and designs (Easterby-Smith et al., 2008).

It is imperative to recognise that no single philosophy offers solutions to all issues; therefore, researchers must critically reflect on their chosen approach and substantiate their decision against existing alternatives (Saunders et al., 2012).

This study adopts a critical realist perspective, while positivism and constructivism remain the predominant research paradigms within the social sciences. The former, **positivism**, is the most widespread approach for business school research. It suggests that ‘reality can be measured by viewing it through a one-way, value-free mirror’ (Rao & Perry, 2007, p.128) and that knowledge is gained through observation and measurement of the objective reality. Therefore, it accepts reality only as something empirically known (Hine & Carson, 2007; Rao & Perry, 2007; Creswell, 2009). In ontological terms, reality is external and objective; epistemologically, knowledge must be understood in relation to this reality (Easterby-Smith et al., 2008). Thus, reality is reduced to cause and effect (Fox, 2012). Moreover, positivists generally adopt hypothetico-deductive approaches to research and start the research with a theory, which builds up various hypotheses, subsequently collecting and statistically analysing data that either supports or refutes the theory (Creswell, 2009; Fox, 2012).

In the latter half of the 20th century, an alternative paradigm emerged known as **constructivism** (Teddlie & Tashakkori, 2009) (often associated with interpretivism (Creswell, 2009)). This paradigm emphasises that social science research should focus on people and their interactions with others, as they occur within a world designed by humans. Moreover, the reality created by individuals impacts their behaviour, so external reality cannot change it (Rao & Perry, 2007). This approach seeks a plurality of viewpoints. Thus, there is no possibility of comparing different realities constructed by different people (Creswell, 2009). Data is usually collected using inductive methods where theories or patterns of meaning can be developed (Creswell, 2009). Methods in constructivist research mainly consist of qualitative approaches and are “*associated with the gathering, analysis, interpretation and*

presentation of narrative information” analysed thematically (Teddle & Tashakkori, 2009, p.6).

Both positivism and constructivism can deliver explanations of events and circumstances. However, both have limitations that prevent them from being used in this study. The former is criticised for its 'closed' approach and exclusion of researchers from their study environment, which hinders its application in real life. The latter is often presented as an unreliable or immeasurable approach (Edwards et al., 2014) that neglects the impact of external reality on internal approaches. Whereas in the real world, enterprises need to cooperate with external entities and react accordingly to dynamic changes in order to be able to survive and stay in the market (Rao & Perry, 2007).

Taking into account that this research focuses on innovation, change and dynamism, an application of paradigm that can help to explain social activities between various entities (internal and external) and uncover often unobservable realities like the decision-making process (Hine & Carson, 2007; Rao & Perry, 2007; Creswell, 2009), was needed. Therefore, this study will follow a ***critical realist*** approach that enables a researcher to understand the dynamic innovation process by identifying how individuals (objects), through their influence (causal powers) and connections (relations), create certain events (strategic decisions) that lead to innovation (Marangos, 2011). Critical realism seeks to explain observable events and experiences by looking for the underlying structures (causes and mechanisms) that create these events (Saunders et al., 2019). Moreover, social structures as strategic decisions are created under particular circumstances and can change over time (Sayer, 1992). What realistically illustrates situations when a business owner makes decisions about the innovation process that depend on various internal and external factors and thus may change according to circumstances. Hence, the critical realist stance best represents the underlying philosophical assumptions in this study and will be introduced and discussed in the following section.

3.3.1 Paradigm of Choice

Critical realism is gaining increasing importance in the study of business (Fleetwood, 2004; Ryan et al., 2012), particularly in the context of business

relationships and networks (Ryan et al., 2012). The philosophy of critical realism helps to explore further the organisational processes, structures, and behaviours that are at the core of business research (Easton, 2010). Furthermore, Ryan et al. (2012) highlighted that critical realism could benefit marketing research by explaining business structures, mechanisms and capabilities.

In the middle of the 1970s, Bhaskar introduced a new philosophy, critical realism, as an alternative to positivism and constructivism. He declared that realism seeks ontological and epistemological reflection and that reality can be captured through abduction and retrodution (Bhaskar, 1975). Thus, concerning ontology — what is real —critical realism observes an existing reality independent of human knowledge (ontological realism). At the same time, epistemology, what we know, indicates that knowledge is conditioned by our prior social and historical knowledge and experiences (epistemological relativism) (Radulescu & Vessey, 2015). For the realist, the objects of research can exist and act independently from the observer. Although reality consists of structure, events, and entities, some observable facts can be seen as an illusion. Also, something that exists is not always observable (Gray, 2014). Thus, the world of mechanisms and their social contexts is complex and does exist 'out there'. Critical realism states that actual events occur and are caused by natural mechanisms, often invisible to the researcher (Vincent & O'Mahoney, 2016). Therefore, critical realist studies involve interpretive forms of investigation (judgmental rationality) and imply that following logic can determine which theories are more effective than others. (Radulescu & Vessey, 2015). This paradigm is often used in research on enterprises (Rao & Perry, 2007) business relationships and networks (Ryan et al., 2012).

3.3.2 Ontological Realism

According to Bhaskar (1975), the universe, including the social world, is a stratified and open system of emergent entities. Critical realism distinguishes between the world and our experience of it, as well as between the real, the actual, and the empirical (Figure 3.2).

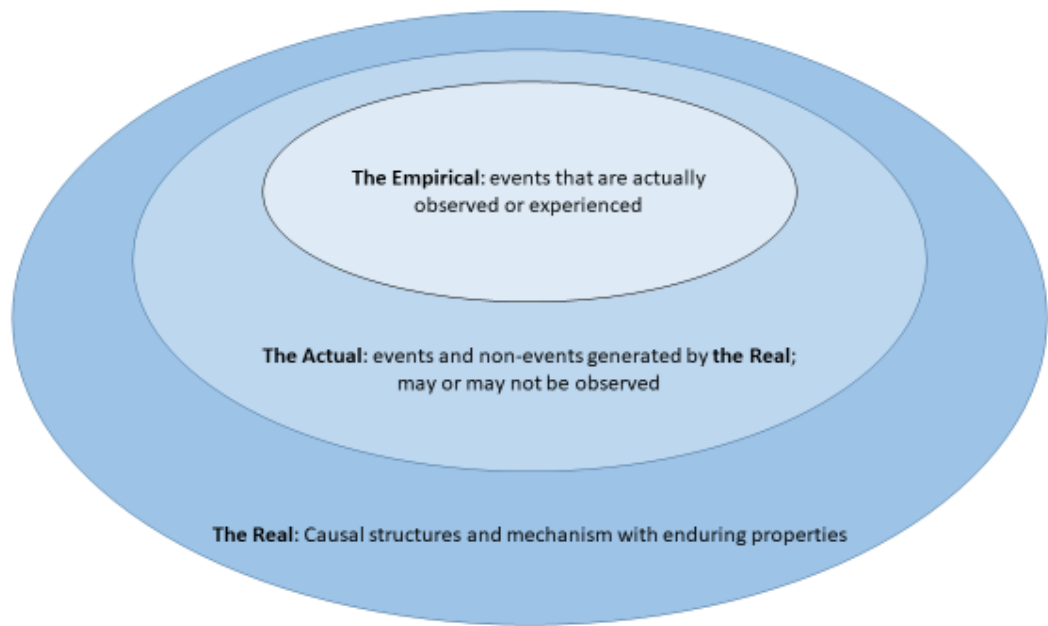


Figure 3.2 Critical realist stratified ontology (Saunders et al., 2019, p.148).

‘*The real*’ is whatever exists, whether natural or social, mechanisms and structures with enduring properties. The real domain includes mechanisms, events, and experiences (Mingers, 2006), which cannot be directly observed but affects people and society (Easterby-Smith et al., 2012). ‘*The actual*’ applies to what happens if and when those powers are activated (Sayer, 1992); this refers to events that do (or do not) occur (Mingers, 2006). ‘*The empirical*’ refers to experience and can be linked to the real or the actual, whether we know them or not (Sayer, 1992); it includes events that are observed or experienced (Mingers, 2006). Reality is constructed based on the actions of actors or objects that have the power to generate empirically observable events.

Furthermore, new phenomena can emerge when the conjunction of more features or aspects (Sayer, 1992). This stratified conception of causation helps to understand the relationship between physical and social powers operated at different times, locations and hierarchical levels (Vincent & O'Mahoney, 2016), and therefore allows the researcher to go beyond empirically observed events to determine the causal mechanisms in the real domain that result in those events (Radulescu & Vessey, 2015). In other words, reality can be explained by deeply exploring physical and social units (Edwards, 2014).

Critical realism posits that structures and individuals possess their powers and influence each other. Thus, according to Bhaskar (1978), social structures are characterised as real ontological entities, and an example of these social structures can be strategic decisions (Sayer, 1992). Furthermore, these structures depend on people's causal powers. Therefore, interactions between individuals through emergent powers create events under particular circumstances. In other words, reality is constructed based on the actions of the actors or objects that have the power to generate empirically observed events. Furthermore, new phenomena can emerge when combining more features or aspects (Bhaskar, 1978).

Within the context of this study, the managing director can decide to implement innovation activities to improve the company's condition. Therefore, by making decisions to implement innovation (or not), he/she can change the strategy that may affect the firm's business model. For example, the firm can introduce a new product, enter a new market, and change its business model slightly. Moreover, strategic decisions can change over time, for example, when collaboration with a partner or supplier is finished, continued under different conditions or when a firm chooses a different course of action (Sayer, 1992) and therefore, creates new events. Innovation is a social construct dependent on human activity (strategic decisions, innovative activities) and knowledge, but also possesses physical elements such as technologies, machinery, tools and the outcome in financial and competitive gains (new product on the market, new market, new customers). Critical realist researchers are more interested in 'events' within entities than entities as an object of study itself, thus conceptualising processes, structures, behaviours and activities that affect and cause those 'events' (Easton, 2010). Applying this to a current study, the critical realist researcher is interested in situations, behaviours, mechanisms, relations, and other material entities (technology, machinery). Accordingly, this study is focused on something other than the innovation outcome as an entity. Instead, it is focused on the factors that support that reality (innovation process). Thus, as detailed in the research objectives guiding this study, the researcher is trying to answer the question:

How established small and medium-sized enterprises innovate?

3.3.3 Epistemological Relativism

The ontological assumption has a direct influence on the epistemological stance, which refers to the study of knowledge and justified belief. Epistemology seeks to understand how we acquire knowledge, what we believe can be known, and how we know what we know. (e.g. Sayer, 1992). Knowledge is acquired from various standpoints, influenced by diverse factors and interests, and is transformed through human activity. Thus, our knowledge about that reality is always historically, socially, and culturally situated (Archer et al., 2016). This signifies that everyday activity routinely made also requires knowledge clarified by our already justified knowledge (epistemology) – whether or not we recognise this as so, and what results in our everyday lives, we are all epistemologists (Johnson & Duberley, 2000).

It is essential to note that, like ontology, epistemology varies from person to person, and what one person accepts as knowledge may not be accepted by another (Johnson & Duberley, 2000). Epistemological considerations are essential as the researcher's chosen method is influenced by his/her understanding of how they acquire knowledge. Critical realism employs a diverse range of research methods, emphasising that the choice of method should depend on the nature of the object of study and the specific knowledge one seeks to gain about it. The objects of study are the product of multiple components and forces, as social systems are complex and messy. These components cannot be isolated and examined under controlled conditions (Sayer, 1992).

Epistemological considerations, such as 'how do we know what we know?' can be addressed by selecting a research approach. Every research project involves the use of the theory. The most common approaches to theory development are deductive and inductive reasoning. Two of them are opposite each other. The deductive approach refers to a situation where a theory is tested through observation, whereas the inductive approach involves creating a theory through observation (Saunders et al., 2019). In recent years, its popularity has led to a third approach to theory development, which combines characteristics of induction and deduction. Abductive reasoning describes the situation in which the researcher moves back and forth between theory and data. Data is collected 'to explore a phenomenon, identify themes, and explain patterns, to generate a new or modify an existing theory,' which

is then tested through additional data collection (Saunders et al., 2019, p.153). This approach is neither theory-testing nor theory-building (Vincent & O'Mahoney, 2014), but explains an existing theory (Vincent & O'Mahoney, 2014; Saunders et al., 2019).

An abductive approach offers flexibility in terms of philosophical assumptions (Saunders et al., 2019). It is often utilised by critical realists (Ryan et al., 2012), whose epistemological perspective emphasises the interaction between theory and data, as well as the dynamic relationship that exists between them (Vincent & O'Mahoney, 2014). Furthermore, it is standard that critical realists call the abductive approach 'retroduction'. Vincent and O'Mahoney (2014) highlight that both abduction and retroduction move from qualitative data to the best theory that explains the data. Furthermore, retroduction emphasises the historical aspect of CR research by moving backwards in time to explain the mechanisms and structures responsible for the surprising phenomenon (Saunders et al., 2019).

This study will follow an abductive approach to explain the phenomenon of innovation in established small and medium-sized enterprises. By moving between available theory delivered by the literature review concerning innovation at SMEs, resource-based view social capital theory and innovation capabilities and data collected in qualitative research, the researcher will identify themes and explain patterns to modify an existing theory and then go back to re-describe the reality by using theory, and so back and forth. Overall, research led by critical realists seeks to integrate existing ideas and relevant data to comprehend the changes occurring in fundamental social mechanisms and processes (Ackroyd & Karlsson, 2014). Thus, the final results are based on the researcher's critical rationality, which combines interpretations from existing research and real-life phenomena, as well as their relationship.

3.3.4 Theory and philosophy integration.

The integration of the Resource-Based View (RBV) and Social Capital Theory (SCT) within a Critical Realist (CR) framework offers a comprehensive explanatory lens for understanding the innovation processes in small and medium-sized enterprises (SMEs). The RBV emphasises the importance of internal resources

within firms, such as tacit knowledge, dynamic capabilities, and organisational routines, as essential components for sustaining a competitive advantage (Barney, 1991; Teece et al., 1997). In conjunction, SCT emphasises the critical role of external relational structures, including trust-based networks, norms, and shared values, which facilitate knowledge exchange and enable collaborative innovation (Nahapiet & Ghoshal, 1998; Putnam, 1995). Supported by the ontological depth of CR, both theories offer valuable insights into the generative mechanisms that propel innovation. The CR framework enables the examination of how resources and social relationships, although often unobservable, exert causal influence under specific structural and contextual conditions (Bhaskar, 1975; Danermark et al., 2002). This approach empowers researchers to transcend surface-level descriptions and to discern the dynamic interactions between internal capabilities and external social capital that shape innovation outcomes. In the context of SMEs, where formal systems may be limited, this explanatory framework proves particularly beneficial in uncovering how innovation arises through the interplay of agency, structure, and contextual factors (Easton, 2010).

3.4 Research Methodology

As mentioned above, the choices about the data needed to solve the problem under study and the data collection methods are influenced by assumptions about how the researcher sees and understands the world (Saunders et al., 2012). Thus, the methodological approach chosen for the study is inspired by ontological and epistemological assumptions (Saunders et al., 2012; Edwards et al., 2015). Saunders et al. (2012) stated that when choosing a methodology, the researcher needs to make two primary decisions about the strategy and the time frames for the study. Therefore, the researcher must choose between quantitative and qualitative data collection methods, as well as cross-sectional and longitudinal study designs (Saunders et al., 2012). For this research, the ontological significance of differentiated and stratified reality (Bhaskar, 2008) and the epistemological significance of multilevel description (Ackroyd & Karlsson, 2014) have led to the employment of a qualitative, multi-method, cross-sectional study, as discussed below.

3.4.1 A Qualitative Multi-Method Approach

Research strategies can be classified into three main approaches: quantitative, qualitative, and mixed-methods approaches, which incorporate both qualitative and quantitative methods (Bryman & Bell, 2011). A quantitative approach focuses on analysing quantitative data, which usually uses numbers as measurements. A qualitative research study, on the other hand, focuses on words when collecting and analysing data. A mixed-methods approach embeds both qualitative and quantitative strategies. The most significant advantage of using one approach is that they are linked to different methods for collecting and analysing data (Bryman & Bell, 2011).

While critical realism recognises the value of quantitative and qualitative approaches, it rejects the need for statistical justification and measurable regularities (Ryan et al., 2012). It recognises that observable events are underpinned by deeper causal mechanisms that cannot always be captured through statistical analysis. Consequently, critical realism is often more aligned with qualitative research, which offers a richer understanding of complex social phenomena by capturing context, process, and meaning (Ryan et al., 2012; Brown, 2014; O'Mahoney & Vincent, 2016). Quantitative methods, by contrast, may lack deeper underlying meanings and explanations of human experience or perceptions; data collection is undertaken in controlled settings using structured procedures and research instruments that do not reflect real life (Bell et al., 2018).

A study investigating innovation practices necessitates a comprehensive explanatory framework, as the innovation process is a dynamic and complex phenomenon that unfolds among various actors in evolving environments and over time. Understanding such complexity necessitates a research strategy that goes beyond surface-level observations. Therefore, this research strategy will employ a qualitative approach to understand human behaviour and experiences, as well as organisational functioning, culture, and interactions within the ecosystem (Strauss & Corbin, 1998). The most significant advantage of qualitative data is its rich, detailed nature, which can help understand the underlying causal mechanisms of social behaviour and view social life as a process of events, actions, and activities (Bell et al., 2018). Furthermore, collecting qualitative data is flexible, allowing researchers to adapt or modify the data collection method to enhance the novelty of their findings

(Bell et al., 2018). Thus, the decision was made to follow a multi-method approach, which offers a more comprehensive understanding of the topic under study. Therefore, secondary and primary data of different sorts and levels were collected. This heterogeneity of method is also characteristic of the approach of the critical realist researcher, which is flexible and adaptive as *“the role of a research method is to connect the inner world of ideas to the outer world of observable events as seamlessly as possible”* (Ackroyd & Karlsson, 2014, p.2). Thus, the data were collected from the literature review (secondary data) through interviews with owners and employees at different hierarchical levels, as well as observations during multiple visits to the companies' premises (primary data). This is discussed in detail later in this thesis. This multi-method approach, called data triangulation, reduces biases and confirms the research's validity, credibility, and authenticity (Wilson, 2014; Saunders et al., 2019). Moreover, a critical realist's stratified reality emphasises the importance of data from various viewpoints, thereby encouraging the linking of information from different sources at any time or point in the same research project. Research methods are employed to gather data essential for developing and enriching the understanding of the phenomenon (Ackroyd & Karlsson, 2014).

Despite its advantages, the qualitative multi-method approach presents several limitations. Firstly, qualitative research is inherently interpretive and may be influenced by the researcher's positionality and assumptions. While critical realism encourages reflexivity, subjective interpretation is still possible (Ackroyd & Karlsson, 2014). Additionally, the results of qualitative studies are often context-specific and not intended for statistical generalisation, which may limit the transferability of results to other settings. Furthermore, collecting and analysing qualitative data is labour-intensive, requiring careful access management, ethical considerations, and data organisation. Finally, maintaining coherence across diverse data sources can be challenging and may lead to data overload if not adequately structured (Saunders et al., 2019; Easterby-Smith et al., 2021).

3.4.2 A Cross-Sectional Research

The nature of the research questions guides the selection of an appropriate research design, the research objectives, and practical considerations related to time

and access (Saunders et al., 2019). Research design depends on the nature of the research question and can be conducted in two different time scales. First, cross-sectional time scale refers to research in which data is taken from a single moment in time, called a 'snapshot'. The second type, longitudinal research, refers to a study in which data are collected over an extended period of time. Thus, several observations of the same subjects are recorded over time (Saunders et al., 2012). Both the cross-sectional and the longitudinal studies are observational studies.

This study adopts a cross-sectional design, seeking to explore the current state of innovation practices among SMEs from multiple stakeholder perspectives (various population samples) without requiring a temporal or developmental focus. Cross-sectional research is beneficial for identifying patterns, relationships, and contextual influences as they occur at a given moment. This study collected empirical data between March 2018 and October 2019, capturing insights from owners, managers, and employees at various hierarchical levels.

The cross-sectional approach aligns well with the research's abductive and critical realist foundations. It enables the exploration of the underlying mechanisms and social structures that influence innovation within a particular context, while acknowledging the study's temporal limitations. While this timeframe limits the ability to capture long-term changes, focusing on a rich, in-depth understanding of multiple innovation episodes during the selected period offers substantial insight into the interplay between strategic decisions and dynamic environments within SMEs.

3.5 Research Methods

Research methods refer to specific techniques and tools designed to collect and analyse relevant data to solve a research problem (Greener, 2008). Therefore, this section focuses on semi-structured interviews, focus groups, and observations, the three research methods chosen for this study. Furthermore, using more than one qualitative method enriches descriptions of innovation activities at SMEs, offers the phenomenon from different perspectives, and provides better opportunities to understand its complexities through reflexivity (Silverman, 2016).

3.5.1 Qualitative Data Collection Techniques

Interviewing was chosen as a primary technique for collecting data for this research. This method is beneficial when the researcher is interested in past events or when behaviours or feelings cannot be directly observed (Cassell, 2015). In the context of this study, it is essential to understand the perceptions and behaviours of small business owners, managers, and employees concerning innovation, which is a process that has already occurred. Moreover, the interview is an interactive approach that offers flexibility and allows for a more thorough exploration of the interviewee's opinions (Cassell & Symon, 2004). It allows the researcher to gain detailed pictures of actors and events in their natural settings, which is a considerable advantage, as often these events are not directly 'observable' (Alshenqeeti, 2014). Therefore, it is expected that interviewing will help to understand the investigated phenomena more significantly (Alshenqeeti, 2014).

To enhance the depth and reliability of the data, this study employed three qualitative methods: semi-structured interviews, a focus group, and non-participant observation. Combining these methods constitutes data triangulation (Wilson, 2014), which aligns with the ontological stance of critical realism, whereby reality is seen as layered and can be better understood through multiple perspectives (Ryan et al., 2012).

The semi-structured interview provides the researchers with a frame to cover critical themes and facilitate detailed, descriptive data while maintaining flexibility. This flexibility enables the interviews to be conversational, allowing for follow-up discussions and the emergence of new themes or topics that support an abductive approach (Bryman & Bell, 2011; Saunders et al., 2012). This way of interviewing is one of the most frequently used methods (Bryman & Bell, 2011; Saunders et al., 2012) that helps to build a holistic picture of the phenomenon by analysing words and reporting detailed views of informants, but at the same time enables interviewees to express themselves, their thoughts and feelings (Alshenqeeti, 2014).

Conversely, focus groups enabled the researcher to gather data and observe the interactions and dynamics among group participants (Wilson, 2014). When one or more respondents contribute, it often inspires others to do the same. This synergy

between group members, or group dynamics, is crucial for conducting a successful group discussion and effective data collection. A focus group can help researchers understand a subject and enhance participants' susceptibility to change, as well as identify the causes that can trigger it (Wilson, 2011). An essential element of group discussion is a moderator who leads and guides an in-depth discussion with a group of participants, often strangers, manages their diverse dynamics, and ensures that they contribute to the relevant topic (Wilson, 2011). The interview involves six to twelve, but a minimum of four, interviewees (Bryman & Bell, 2011).

Observation, in turn, involves recording the behaviour of the research subject (Wilson, 2014; Punch, 2014). Observation is a valuable method in business research for capturing real-time behaviours, interactions, and contextual factors within organisational settings. It enables researchers to observe practices in action, providing insights that may not be accessible through interviews or surveys alone (Saunders et al., 2019). Non-participant observation, in particular, involves the researcher observing without directly engaging in the activities under study, thereby minimising their influence on the environment (Punch, 2014; Wilson, 2014; Saunders et al., 2019). This approach is beneficial for exploring routine behaviours, team dynamics, and workplace culture, offering a more objective lens to interpret organisational phenomena (Wilson, 2014). By systematically recording observations in natural settings, non-participant observation enhances the richness and credibility of qualitative research, often serving as a complementary method to validate or contextualise data from other sources (Saunders et al., 2019). Before recording observational data, it is essential to consider who or what is being observed, when, how, and where the subject will be followed, as well as how the data will be recorded and the units of analysis (Wilson, 2014). Furthermore, data derived from observations often complements other data sources, allowing the researcher to gain non-verbal insights and validate interview results (Kawulich, 2005).

In summary, the combination of interviews, focus groups, and observations provided a comprehensive, multi-layered understanding of the innovation processes within SMEs. This data triangulation enhances the robustness and reliability of the results, offering multilevel descriptions by providing additional considerations that

would not have been possible from verbal data alone (Saunders et al., 2008; Bryman & Bell, 2011; Ackroyd & Karlsson, 2014).

Despite their strengths, each method has limitations. Interviews and focus groups may be affected by social desirability bias and interviewer influence, which were mitigated through the use of neutral questioning and reflexivity. In observations, the researcher's presence may influence participant behaviour; to minimise this, they were conducted over multiple sessions, and findings were triangulated with other data sources for consistency (Saunders et al., 2019).

3.5.2 Sampling

Sample selection is a crucial element of every research study. Selecting suitable data sources has a substantial impact on research quality. Qualitative research requires data and respondents to generate a rich and deep understanding of the phenomenon rather than generalisation (Gray, 2014). Qualitative methods are generally associated with non-probability sampling, including purposive, convenience and mixed-method sampling techniques (Gray, 2014; Saunders et al., 2012). Non-probability techniques are commonly used when the researcher may need to select a particular person, group, event or case that can provide specific information, but also when there is no possibility to construct a sampling frame (probability techniques) (Saunders et al., 2012).

Purposive sampling was used to target a specific type of enterprise (SME), including the firm's maturity (established businesses) and the services they offer (manufacturer). Initially, the aim was to interview owners, managing directors, managers, and other employees directly involved in the innovation process within selected firms. This aligns with Rubin & Rubin's (2011) recommendations that interviewees should be experienced in the topic being studied, represent diverse perspectives, and be willing to discuss. Fulfilment of these criteria in a sample helps to more precisely describe the phenomenon and reach saturation in the sample, as each subsequent interview will add less and less new information (Rubin & Rubin, 2011). Therefore, the researcher aims to conduct approximately twelve interviews, which have been deemed an acceptable number to gather an appropriate level of data (Saunders et al., 2012).

The final number of interviews was sixteen. Data were collected from eight manufacturers operating in Scotland: three in a pilot study, five in primary research, and one industry expert. The final sample is registered in Table 3.1

Firm	Position	Gender	Education	Code for analysis	Interview/Focus group
A	Managing Director	F	Higher	MD1	I
A	Industrial Chemist	M	Higher	SME1E1	I
A	Production Manager	M	Non-Higher	SME1E2	I
A	Quality Control Specialist	F	Higher	SME1E3	I
B	Managing Director	F	Non-Higher	MD2	I
B	Technical Director	M	Higher	SME2E1	FG
B	Supply Chain Manager	M	Higher	SME2E2	FG
B	R&D Designer	F	Higher	SME2E3	FG
B	Mechanical Engineer	M	Higher	SME2E4	FG
C	Managing Director	M	Non-Higher	MD3	I
D	Managing Director	F	Higher	MD4	I
E	Managing Director	F	Higher	MD5	I
F	Member/Industry expert	M	Higher	PSIE	I (PS)
G	R&D Director	M	Higher	PSMD1	I (PS)
H	Managing Director	M	Higher	PSMD2	I (PS)
I	Managing Director	F	Non-Higher	PSMD3	I (PS)

Table 3.1 Research interviewee list.

In general, all small and medium-sized enterprises that were interviewed met at least one of the following criteria:

- (1) they had made at least one intellectual property (IP) deposit, such as a patent, trademark, or copyright (Hagedoorn & Cloodt, 2003);
- (2) they exhibited a clear and illustrated innovation strategy (Terziovski, 2010);
- (3) they had implemented at least one innovation (product or process) in the past three years (De Jong & Marsili, 2006).

The characteristics of the interviewed firms are outlined in Table 3.1; however, the names of the firms have been withheld at their request for confidentiality.

The interview guide was developed based on the key dimensions of innovation capacity outlined in the literature, with an initial inquiry into the subjects' perspectives on their innovation capacity. Consistent with the literature, innovation activities in small and medium-sized enterprises are typically informal and not expressly recognised as dedicated to innovation (De Jong & Marsili, 2006). As a result, our inquiries focused solely on the factors that SMEs regarded as advantageous to their innovation performance rather than on innovation-specific capacities. Interviews were conducted with Managing Directors, Directors, Managers, and employees directly involved in innovation, with durations ranging from fifty minutes to two hours.

3.5.3 Ethical Consideration

Access to the data and ethics are critical elements to consider for the success of any research project. Therefore, the researcher needs to think beforehand about how to do the research, gain access to the sources, collect the data and consider the ethics when working with human beings (Saunders et al., 2008).

The ethical consideration for the researcher of this study is guided and governed by the University of Strathclyde *Code of Practice on Investigations Involving Human Beings (2013)*. The Ethics application and other required documents, such as the research proposal, were submitted to the Marketing Departmental Ethics Committee. This committee helped advise participants and researcher on protecting the dignity, rights, safety, and well-being of all participants. Once the ethical application was

approved, a Participant Information Sheet (PIS) and Consent Form were presented to all participants involved in the research. The participants were informed about the following:

- Possibility of resigning from the research (Strathclyde, 2013, p. 16).
- The research aims, together with the contact details of the researcher and supervisor.
- Data collection for this research and all procedures regarding record keeping, monitoring and reporting are placed in the code of practice (Strathclyde, 2013, pp.31-36).
- How they can review and revise transcripts, which include their person.
- How will the confidentiality and privacy of participants be managed?

The researcher did not expect to have vulnerable participants. However, according to section 1.2 in UoS, 2013, the researcher was prepared to take appropriate steps in case any participants were categorised as vulnerable.

3.5.4 Implementation of Data Collection

There were two stages of interviews, during which respondents were selected purposefully to fulfil specific research criteria. The first step in collecting data for this research was conducting pilot study interviews.

Phase one - Pilot study

The pilot study was prepared and tested by an industry expert and three companies that are knowledgeable in the subject area but were not involved in any of the businesses included in the primary research project. The pilot study was conducted to test and confirm the correct structure of the interviews, as well as the quality and accuracy of the guiding themes and questions. The pilot study began with industry experts experienced in innovation practices for small firms, who possessed broad theoretical and practical knowledge in helping other SMEs innovate. The subsequent three pilot studies were conducted with entrepreneurs with experience in innovation and practical knowledge of innovative small and medium-sized companies in the manufacturing sector. Four interviews were conducted during the

pilot study stage. Two interviews were conducted at the firm's premises, one at the restaurant, and one in a local library. Interviews ranged from 66 to 113 minutes, with an average length of 87 minutes.

The interview guide was prepared based on the literature review and covered a few themes: (1) the characteristics of the function held, responsibilities and duties, experience from a previous project, and background; (2) innovation - general understanding of the topic; (3) cross-functional collaboration (4) open innovation - general understanding of the topic; (5) the main benefits and challenges when innovating (6) lessons learned; and finally (7) any additional information or thoughts concerning the subject area.

Phase two - the main study

In the second stage of the empirical research, semi-structured interviews and focus groups were conducted to acquire information from SME's business owners, managers and individuals involved in the innovation process (managers, chemists, and skilled workers) working at selected firms. The companies were selected based on the criteria established after the pilot study: a small manufacturer operating in Scotland, an established business, and a full-time employer. All interviews were conducted in person between June 2018 and December 2019. Most interviews took place at the firm's premises in the owner's office or the conference room. The known environment provided a natural setting in which the participant felt comfortable discussing the phenomenon (Creswell, 2009). One interview was conducted at the University of Strathclyde during the innovation and sustainability event.

The interview process commenced with a participant information sheet (PIS), which explained all aspects of the study, including research objectives, data analysis, contact details for the researcher and supervisor, and the interviewee's rights (see Appendix 1). Next, the interview protocol was used to introduce the interviewee to the subject area in each phase, and then the interviewer proceeded with each question. After this, each participant was asked to sign the PIS form, which was tantamount to agreeing to participate in an interview and undergo further data analysis. Finally, all interviewees were asked for permission to record the interviews using a digital voice recorder. This helped with the conversation flow and reduced

the risk of misinterpreting the interviewees as transcribed data were stored and available at any time for checking. Thus, by recording the interviews, higher reliability could be achieved in analysing the empirical data (Saunders et al., 2012).

The interview protocol covers five themes derived from the research aims and questions previously checked through the pilot study (Appendix 2). Initially, firm-related information was discussed, including background, activities, and company positioning. This allowed for a firm context and relaxed atmosphere. An additional question about the history of company emergence was aimed at Managing Directors only. Second, the respondent's understanding of the innovation process was discussed, including their perception of innovation, how firms generate innovative ideas and what the evaluation process is for them. Third, how the innovation process was managed and encouraged within the company. The next theme concerned internal collaboration between different functions and the involvement of various departments in the innovation process. Then, respondents were asked about external collaboration, its purpose, benefits, limitations, and understanding of the term Open Innovation. Finally, after concluding the discussion, interviewees were asked about the changes in company culture that followed the introduction of innovations and their final thoughts on the process.

Interviews were undertaken with twelve respondents from five small firms. Eight of those interviews were semi-structured interviews with individuals, including five Managing Directors, a Production Manager, an Industrial Chemist and a QC Specialist. The Focus group, in turn, was conducted with four skilled R&D and technical staff, including a Technical Director, a Supply Chain Manager, an R&D Designer, and a Mechanical Engineer. All participants had diverse experiences and were heavily involved in the innovation process at the firm, which allowed the researcher to capture different perspectives of individuals regarding innovation activities at the firm. Examining the phenomenon through various strata (Sayer, 1992) is characteristic of a critical realist approach, which supports this research. Interviews ranged from 36 to 77 minutes, with an average duration of 52 minutes.

The group discussion lasted around 120 minutes and was conducted in a company premises meeting room during working hours. The researcher's first attempt was to

collect data through a focus group. No pilot study for group discussion was conducted beforehand. Like in the case of individual interviews, the participants were acquainted with the participation information sheet (PIS). After this, each participant was asked to sign off the PIS form and permission for the interviews to be recorded using a digital voice recorder. After all the formalities, the moderator started the group discussion. The entire conversation was audio-recorded and subsequently transcribed. The size of the focus group helped the moderator easily manage the discussion. The group dynamics were outstanding, allowing participants to speak freely and contribute to a certain extent, based on their knowledge and experience. Moreover, the contribution of one (or more) respondents often triggers another person's contribution (Wilson, 2014).

Observation was used to support interview findings and identify non-verbalised phenomena. The researcher conducted non-participant observations during company tours, daily operations, and innovation-related activities, carefully noting behaviours and organisational routines without interfering. Participation in workshops and seminars alongside interviewees provided further opportunities to observe group dynamics and cultural norms (Kawulich, 2005). An observer diary was maintained to document descriptive and reflective insights, while reflective journaling allowed the researcher to critically assess assumptions and interpretations. These insights were triangulated with interview and focus group data, enhancing the credibility and depth of the findings (Saunders et al., 2019) in line with critical realism's focus on underlying mechanisms (Sayer, 1992).

As detailed earlier, critical realism has a highly ecumenical approach to data collection. It holds that methodological choices should depend on the nature of the object of study and what one wants to learn about it. Thus, whilst critical realism work is often based on case-study research using methods such as interviews and ethnography, it has also involved observation, focus groups, literature reviews and surveys (O'Mahoney & Vincent, 2016).

3.6 The Credibility of Research Findings

This study employed a range of strategies aligned with qualitative research best practices to ensure the credibility and reliability of the findings. Credibility was

strengthened through data triangulation across interviews, focus groups, and non-participant observations, allowing for cross-verification and comprehensive insight into innovation processes (Mann, 2016). Participants were purposively selected from various hierarchical levels and organisational roles, offering diverse perspectives and reducing the risk of bias. Documenting the research process, including transparent recording of interview guides, coding frameworks, and analytical procedures, supported dependability. This ensured the study's logic and methods were traceable and open to evaluation. Maintaining a reflective research diary, which captured the researcher's decisions, assumptions, and potential biases, also ensured confirmability. Peer debriefing and ongoing feedback from academic supervisors helped challenge interpretations and support analytical rigour. Together, these strategies ensure the study's quality and trustworthiness, aligning with established standards in qualitative research.

In the following chapter, the collected data will be systematically analysed and interpreted using appropriate qualitative techniques, guided by thematic analysis.

4 Analysis

This study employs a critical realist abductive approach, in which phenomena are examined through various strata (Sayer, 1992). The researcher moves back and forth between theory and empirical data to modify an existing theory and re-describe the reality using theory (Saunders et al., 2012). This approach is neither theory testing nor theory building (Edwards et al., 2014). This approach enables the extension or development of theory based on empirical data collection (Ong, 2012; Saunders et al., 2012). Generally, interpreting qualitative data involves several steps. In general, they begin by summarising the overall findings, comparing them with the existing literature in the area of interest, discussing their personal views on the findings, defining the research's limitations, and stating future research paths (Creswell & Creswell, 2018).

The research aimed to discover new knowledge that would extend the existing theory. In line with the abductive strategy, the analysis process started with the literature review to gain a basic theoretical understanding of the context (Ong, 2012). Then, the pilot study was conducted. According to Sayer (1992), knowledge creation is a social process due to the interaction between the researcher and the interviewee (Edwards et al., 2012). Thus, the knowledge obtained through the pilot study provided new insights and altered the existing conceptual framework.

Moreover, the pilot study results helped describe the sample needed to conduct this research more precisely. It was necessary to revisit the literature, probing deeper into the context and, more precisely, scanning it for patterns that correspond with the critical review. Furthermore, the main study was conducted, and the data obtained were analysed through thematic analysis and compared to existing theories. Following the abductive nature of this study, the literature was reviewed not only at the starting point. Instead, it was an ongoing, iterative process. Moving back and forth between existing knowledge and empirical findings helped monitor recent developments on the topic, identify how the findings relate to existing literature, and provide recommendations for future research. Moreover, juxtaposing established knowledge with new concepts derived from data leads to the extension of theory (Ong, 2012). Therefore, based on empirical data supported by a literature review in

the area of interest, the outcome of this research is a theoretical statement about innovation practices in established small and medium-sized enterprises, adding new insights to existing theories.

The preliminary stages of the study, comprising a pilot study, a critical literature review, and an interim study, were conducted before the primary study analysis. The outcomes of this analysis have been segregated into three research objectives, which will be elaborated upon in the forthcoming chapters.

4.1 Preparatory Activities

4.1.1 Pilot Study

Although the pilot study results were not included in the primary data analysis, they were essential for clarifying the area of interest and modifying the characteristics of the final sample of participants. Therefore, this section provides general insights into the process and its results, explaining the steps taken prior to the main study.

Following a pilot study, some themes were identified as rejected, while a few new themes emerged. Following an abductive approach, it was practical to begin interviews with a basic understanding of the topic, gain further insights through the pilot study, and return to the literature to seek additional explanations or reinforcement of the findings (Seuring & Gold, 2012). This process helped identify a gap and articulate the research objectives. Moving back and forth between theory and empirical data is typical for critical realist researchers (Saunders et al., 2012).

Summarising, the pilot study question about open innovation was consolidated into one general question that was expanded further depending on the interviewee's knowledge. In most cases, the term "open innovation" was unknown to the respondents; therefore, questions related to open innovation needed to be modified. In the pilot study, three of the four interviewees were Managing Directors. It was also decided to expand the base sample to include other employees directly involved in the innovation process at the company. The most critical factor in expanding the sample size was the leader's belief about their own innovativeness and that of the firm. The researcher wanted to investigate how other employees perceive innovation

and their views on leadership. Therefore, one of the emergent themes was leadership. Necessary, thus, was to include this topic in the research, revisit the literature, and update the content. Additionally, it was necessary to narrow down the sample to small firms that were already established in the business, due to the differences in thinking and acting between start-ups and mature businesses. Such an approach aligns with the abductive nature of this study, where theory and existing knowledge offered a starting point for the research; however, new and unexpected facts from the data modified the framework. The interview time was also shortened, as most participants mentioned 60 minutes as the maximum time they could sacrifice. Appendix 3 provides a comprehensive visualisation of how the insights derived from the pilot study and literature review have been incorporated into the research framework.

4.1.2 Critical Literature Review

Although reviewing the literature is a complex and challenging process, especially in the field of business research, where the number of publications increases rapidly (Snyder, 2019) a literature review should be a starting point for any research (Saunders et al., 2012; Edwards et al., 2014; Snyder, 2019). It helps to define the study's object better and identify areas with limited information that can help generate a research question and create theoretical frameworks (Saunders et al., 2012; Snyder, 2019).

Therefore, this research began with a literature review as a preliminary step (Saunders et al., 2012). The primary research topic centred on innovation processes, specifically focusing on open innovation practices, small and medium-sized businesses, and the innovation processes occurring within those businesses. Interest in Open Innovation was increasing notably. However, research focusing on small and medium-sized enterprises was relatively young (Lee et al., 2010; Vanhaverbeke et al., 2012). Moreover, the innovation literature was linked to a diverse number of disciplines (Greenacre et al., 2012) and required more consistency in the definition of innovation (Herzog, 2008) and theory and approach (Greenacre et al., 2012). The same is true for SMEs. According to Cacciolatti & Lee (2015), the definitions of the terms "Small and Medium-sized Enterprises" and their measurement methods are not consistent. This fundamental inconsistency in the literature, which remains an

extensive topic at this stage of research, has created difficulties in identifying the most appropriate literature and complicates the analysis (Saunders et al., 2012). To help refine subsequent searches, the researcher conducted the pilot study. Following the pilot study, several themes related to SME innovation practices emerged, while others were rejected, and some were further explored, ultimately narrowing the research topic to a few specific themes. Then, it was time to return to the literature and seek further support for the pilot study findings. This move involved a more in-depth review of existing literature to advance our understanding of what is already known (Bryman & Bell, 2011).

Moreover, the researcher's philosophical stance and the ontological, epistemological, and methodological approach call for a more in-depth evaluation of existing knowledge. Therefore, at this point, the researcher began critically reviewing the literature, seeking patterns, trends, and relationships between existing theories and concepts (Saunders et al., 2012). This step further enabled the researcher to identify a gap and gain a deeper understanding of the research topic.

In general, all secondary data were acquired from academic journals and books from various online and offline sources, including SUPRIMO, SCOPUS, EThOS, and Google Scholar; research reports related to the innovation topic from public and private sector organisations, such as the OECD, European Commission, various Councils, and research agencies; and business books. In addition, the literature also covered data from various disciplines, including business, technology, and social science, such as innovation, technology, economics, marketing, supply chain management, leadership, behavioural and social science, strategic management, entrepreneurship, research policies, and urban science.

A critical literature review was conducted to examine patterns and trends in innovation among small and medium-sized enterprises. The initial set of themes included leadership, cross-functional cooperation and networking. More specifically, how innovation is encouraged and managed by the leaders, the relationship between management and employees and managers and external entities, the relationship between cross-functional teams or individuals representing different functions, their understanding of innovation and their participation in the innovation process,

network creation, relationship with externals, network characteristic and management of it.

4.1.3 Interim Review

An interim review was undertaken after the pilot study. Data obtained during the pilot study were analysed and compared with initial highlights from the literature review. The outputs of this process were discussed with supervisors, and further guidance was provided for revisiting the literature. All insights were considered and used to guide the primary data collection process. A summary of the outputs from this interim analysis is provided in Appendix 3.

4.2 Main Analysis. Thematic Analysis.

The qualitative data obtained during the interviews and observations were analysed using thematic analysis, which, according to Braun & Clarke (2006), is the primary qualitative analysis method for inexperienced researchers. It offers theoretical freedom and a flexible research tool while providing a detailed and rich data description (Braun & Clarke, 2006; Maguire & Delahunt, 2017). Moreover, due to its lack of linkage to any pre-existing theoretical framework, it can be adaptable to any philosophical stance, including critical realism (Braun & Clarke, 2006; Wiltshire & Ronkainen, 2021).

To conduct a thematic analysis, Braun & Clarke (2006) advised following a six-step guide, including familiarisation with data, generating initial codes, searching for themes, revising themes, defining and naming themes and writing the report. This guide is especially valid for manual coding (Braun & Clarke, 2006), which corresponds to the approach taken by the researcher. Therefore, it was decided to adopt Braun and Clarke's (2006) guide for conducting this analysis, summarised in Table 4.1 and discussed in the remainder of this section.

Stage		Aim	Action	Outputs
1	Familiarisation	Review and organise the collected data	Data reviewed and cleared of information not related to the topic Organisation and segregation of various data related to each company	Data was cleared from the unrelated topics and prepared for further analysis
2	Generating Initial Codes	Code data for interpretation Reduce the data to the research topic.	Data review and code according to the aim and RO topic: innovation and leadership, cross-functional integration, networking	The data were coded and classified into topics related to the research objectives.
3	Searching for Themes	Data merge into sub-themes and themes for further interpretation	Merging the obtained codes into sub-themes and themes	Codes merged into sub-themes and themes.
4	Reviewing Themes	Themes and subthemes check	Reviewed and modified themes when necessary Checked code coherency within themes and supported the data	Relationship between codes and themes, themes and other themes stated
5	Defining Themes	Analyse data related to research questions	Referring back to the literature Themes extraction Linking research findings to research aims and objectives	Themes extracted from the literature Themes grouped to answer the research objectives

6	Reporting Findings	Final findings presentation	Discussions with academics about the findings	Contribution to knowledge identified
		Analysis completed	Referring back to the literature Finalise analysis and present findings	Areas for further research recognised

Table 4.1 Author adaptation of the steps undertaken for thematic analysis based on Braun & Clarke (2006).

4.2.1 Familiarisation with the Data

The purpose of this stage was to review the collected data, organise it, and support the analysis. The data generated in the study, from interviews and observations at the premises, are summarised in Table 4.2. The interview data consisted of 9 hours and 47 minutes of audio recordings and 189 pages of transcripts. Field notes and memos added an extra 49 pages of data. They contained a description of the scene, manufacturing facilities, activities undertaken during the visits, informal conversations with employees who had not participated in the study, and the researcher's reflections compiled throughout the study. Therefore, organising data helps with further identification, segregation, and retrieval.

Data source	Code	Data type	Duration
MDs	MD1-5	Five semi-structured interviews	378 min (6h 18min)
Other employees	SMEExEx	Three semi-structured interviews	86 min (1h 26min)
Other employees	SME2E1-4	One focus group (4 people)	123 min (2h 3min)
Company observation (premises, equipment, employees, relations, activities, social media)	OS1-5	Observation during and after the interview	1211 min (20h and 11min)

Table 4.2 Research data time.

The preparation process began with a data check for each source. Transcriptions for each interview were completed immediately after each session or within three

days. This quick turnover helped to maintain a fresh stream of reflections. After the data collection, all transcriptions were reviewed against the audio recordings representing individual interviewees. The data in both formats, TXT and M4a, were stored in a computer-based storage system specially created for this study. All created files represented one company that participated in the study. Files, as well as the PC, were password-secured. Field notes and memos were added to the appropriate folders. Necessary modifications and eliminations were made to remove data unrelated to the study.

4.2.2 Generating Initial Codes

Coding is a method of organising data into categories by applying names to passages of text that share the same characteristic (Gibbs, 2012; Saldana, 2012). It recognises both examples of things in the text and types of different things, referred to as the same thing/situation (Gibbs, 2012). Coding is an effective cyclical act (Saldana, 2012) that reduces a large quantity of data into a small portion of meaning (Maguire & Delahunt, 2017).

For the first cycle of coding, the open coding method was applied. It offers creativity in designing data, open coding mechanisms and opportunities for sub-coding data (Williams & Moser, 2019). Interview transcriptions, field notes, and memos were read and re-read to search for thematic connectivity, leading to the identification of thematic patterns (Williams & Moser, 2019), in this case, concerning the overall research objectives. These assessed an initial understanding of patterns and relationships between themes. Each data segment relevant to one of the research objectives was colour-coded. Then, each 'colour' was re-read, and data was initially coded. The coding process was done manually. The researcher worked through hard copies of the transcripts using Post-it Notes, pens, and highlighters. There were no pre-set codes. All codes were derived from the data, developed, and modified through the coding process. The first cycle of coding generated a list of 761 codes. Interpretation and analysis of raw data required multiple iterations of coding. The researcher repeatedly moved between the literature and multiple forms of data to refine codes. This step significantly reduces the number of codes.

The next level of coding was then undertaken to condense the data further and gradually move towards formulating themes and narratives (Miles & Huberman, 1994). In the second phase of coding, several coding techniques were employed. First, simultaneous coding was used when two or more codes were applied to the same passage. This coding method is used when data content expresses multiple meanings and is often referred to as explaining complex social interactions (Saldaña, 2013). The research conducted for this study examines the complex phenomena of innovation in small and medium-sized enterprises.

Moreover, this process is explained through interactions between internal and external actors, in conjunction with the leader and their role. In turn, leaders' knowledge, experience, and character influence how the innovation process is managed. Moreover, value coding (Saldaña, 2015) was also used. This technique was applied to those parts of the texts where the business owners were talking about their motivations for running the business in general and the responsible practices of running it; the employees were talking about how, in their opinion, the Managing Director supports and encourages internal collaboration at the firm and how they manage the relationship with external collaborates. Examples of merging codes are presented in the table below (Table 4.3). The following example illustrates how the initial code was merged into another code.

1st cycle coding	Merging coding	Merging coding
Time required for innovation	Innovation activities require time	Time
No time for an extra task		
Time to do trials		
Research is time-consuming		
No dedicated personnel	The time needed for duties and responsibilities	
There is only so much time per day.		
We need to run a business.		

Time required for meetings	Collaboration is time-consuming	
Looking for the right partner/s needs time		
He took two hours of my day every week		

Table 4.3 Examples of coding.

4.2.3 Searching for Themes. Merging Codes into Sub-Themes and Themes

This phase started with grouping similar codes with some characteristics (Saldana, 2012). Therefore, existing codes were examined and grouped into specific subthemes or themes. For example, several codes, namely, lack of time, lack of knowledge, skills, experience, and lack of an appropriate network, all refer to insufficiency, non-monetary capital, and internal resources. Therefore, these three codes were further grouped under the non-financial capital sub-theme and the internal constraints theme. The practical was creating a mind map that helped sort the codes into themes (Figure 4.1). This mind map helps to visualise various relationships between codes, themes, and sub-themes (Braun & Clarke, 2006).

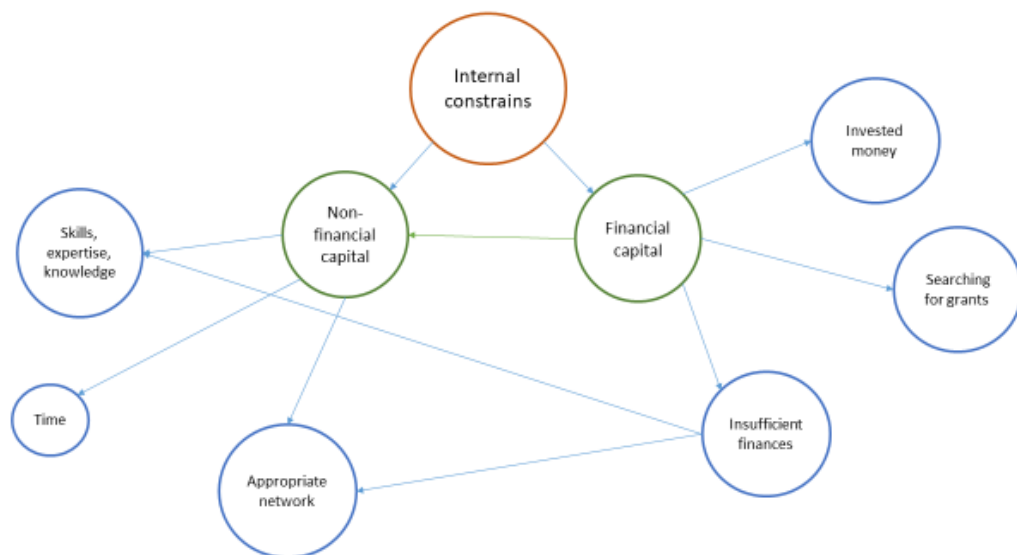


Figure 4.1 Visualisation of the relationship between codes and sub-themes.

This stage concluded with several named sub-themes and themes, as well as a miscellaneous theme, which were reviewed in the subsequent analysis step (Braun &

Clarke, 2006). It should be noted that some themes were relatively scarce in the codes, such as Corporate Social Responsibility. However, they added value and a new dimension to the story, so the researcher kept them.

4.2.4 Reviewing Themes

During this phase, all preliminary themes were reviewed and modified when necessary. Any code associated with a specific theme was re-read and checked to see whether it fit into a coherent pattern within the theme and supported it. According to Braun and Clarke (2006), coherent data within a theme, while clearly defining differences between themes, are good indicators of the validity of a theme. As a result of clarifying the relationship between several sub-themes that were brought together in context, a new theme emerged, while others were dropped. For example, one of the renamed themes was Corporate Social Responsibility. Initially, these themes were represented by the well-being of society and the planet, as well as the enhancement of both society and the environment. It did not seem distinct enough to be considered two separate themes. Therefore, it was renamed and divided into "society" and "environment" as two sub-themes, reflecting various aspects of CSR (Figure 4.2).

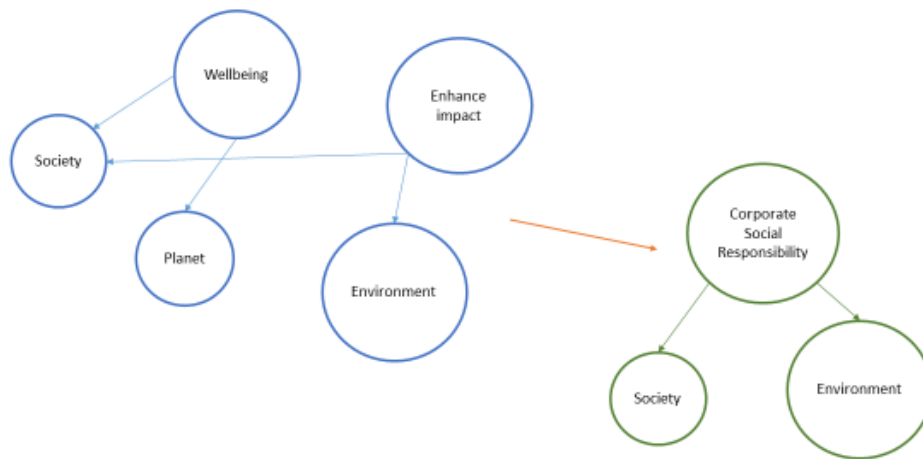


Figure 4.2 An example of a theme review using a mind map.

The next step was to verify whether the themes were consistent within a single interview and across all interviews, thus in the context of the entire dataset (Braun &

Clarke, 2006). Again, some modifications were necessary as some of the themes overlapped.

4.2.5 Defining Themes

At this point, an analysis was conducted for each theme to assess coherence with the overall story in relation to the research objectives, as guided by Braun and Clarke (2006). Moreover, the relationship between the themes and between themes and related sub-themes was essential to capturing the essence and creating an excellent narrative.

The findings were subsequently reviewed within the framework of existing literature and deliberated upon with the supervisors. Subsequently, a concise report, comprising exemplars of codes, themes, descriptions, and excerpts from the data in the form of a Member Checking Coding Exercise, was disseminated among fellow PhD candidates to substantiate interpretations and ascertain validity (Appendix 5).

4.2.6 Reporting Findings

The final phase of thematic analysis focused on bringing together all aspects of data analysis to its conclusion. A detailed description of every theme was incorporated into the story, which, in relation to the research objectives, created a picture of how established small and medium-sized enterprises innovate. At this stage, memos written during the coding process were used to reflect on interactions and dependencies between themes. Negative data and outliers were stated and used as a source for potential paths for further research.

4.3 Conclusion

Analysing qualitative data can present challenges, especially for inexperienced researchers. This chapter presents the data analysis strategy employed in this research, including a six-step guide for thematic analysis adapted from Braun and Clarke (2006). Moreover, a statement about the pilot study, critical literature review and interim studies was also described to illustrate the work involved before the main study started. Furthermore, the thematic analysis explained how the researcher transitioned from transcripts to themes, and she created the final story that addresses the research objectives. All these movements between empirical and theoretical data confirm the abductive nature of this study.

The subsequent chapters of this thesis are dedicated to addressing three specific research objectives, with detailed analyses presented in Chapters 5, 6, and 7. Each chapter conducts a thorough examination of these objectives, thereby providing valuable insights. Following this analysis, Chapter 8 will synthesise and integrate the findings, ultimately responding to the central question of the study:

‘How do established small and medium-sized enterprises innovate?’

5 Findings and Discussion: Leadership Approach.

The study's primary objective focuses on managerial determinants as one of the key elements of innovation capability at the firm level, which significantly impacts an organisation's ability to innovate (Mendoza-Silva, 2020). This study examines leadership approaches that are crucial in effectively managing a firm's activities during innovation processes and their impact on innovation practices within the organisation. The central aim of this chapter is to address the following inquiry:

To investigate how the leadership approach impacts the way SME organisations approach innovation.

This section presents the results obtained from semi-structured interviews and focus groups with key actors involved in the innovation process, along with research-based observations made during these visits. The data obtained from the aforementioned sources underwent thorough analysis to extract pertinent insights and gain an in-depth understanding of the firm's innovation practices.

According to previous evidence, a company's innovative strategies are heavily influenced by the leadership approach adopted by its leader (Bayarçelik et al., 2014; CIPD, 2014; Koo & Park, 2018; Howard et al., 2019). Therefore, to comprehend how a leadership style influences the innovative strategies implemented by a firm, it is crucial first to specify the leadership style. To facilitate this process, the current chapter is divided into several sections, each of which aims to clearly and concisely explore the topic at hand while ensuring the accuracy and relevance of the information presented.

The study's findings suggest that the leadership approach adopted by small and medium-sized enterprises encompasses a range of behaviours, values, and strategies influencing various innovation practices. After an introduction at the beginning of the chapter, in Section 5.1, the study examines leaders' competencies (causal powers and liabilities), given their significant role in determining communication style, level of commitment (necessary and dependent relations), and approach to decision-making (Prats & Agulles, 2009; Mihai et al., 2017) (specific conditions, internal and external factors). These competencies are a combination of knowledge, skills, traits,

and attitudes and were selected based on the descriptions of leader behaviours (causal powers), activities (liabilities), and interactions (necessary and dependent relations) as provided by the interviewees and observations. These attributes were further categorised into three distinct groups, namely personal, interpersonal, and business competencies (Prats & Agulles, 2009; Koo & Park, 2018). An effective leader is expected to have diverse competencies encompassing personal attributes, team management, and revenue generation through commercial activities (Prats & Agulles, 2009; Koo & Park, 2018). Therefore, the three dimensions provide a valuable framework for understanding the multifaceted nature of leadership.

These three main competencies are interrelated and influence specific behaviours (Prats & Agulles, 2009; Mihai et al., 2017). Therefore, three fundamental leadership competencies were merged to develop a vision of the leadership style presented by established small and medium-sized enterprises in Scotland. The resulting vision was then compared with existing literature (Section 5.2). The objective was to seek or reinforce empirical findings in light of the current body of knowledge, which aligns with a critical realist, abductive approach (Ackroyd, 2004; Saunders et al., 2012; Vincent & O'Mahoney, 2014; Saunders et al., 2019). The subsequent section of the chapter, namely Section 5.3, provides an overview of the conclusions drawn from the study. Future research directions are outlined in Section 5.4.

5.1 Leader Competencies

Collected data reveals that leaders are multidimensional characters perceived from various perspectives. Small business owners often engage in every aspect of their business, from daily operations to developing business strategies, stability, and growth direction (Cacciolatti & Lee, 2015; Mihai et al., 2017; Howard et al., 2019). This multifaceted role requires them to undertake entrepreneurial, managerial, and functional responsibilities simultaneously (Ahmad et al., 2010). The behaviour and actions of individuals are shaped by their traits, attitudes, capabilities, and past experiences. This notion is particularly relevant in the context of leadership, where unique qualities are required to carry out the responsibilities of the role effectively. Based on collected data, it is apparent that these attributes can be categorised into three primary competencies: personal, interpersonal, and business skills (Prats & Agulles, 2009), as outlined in Figure 5.1.

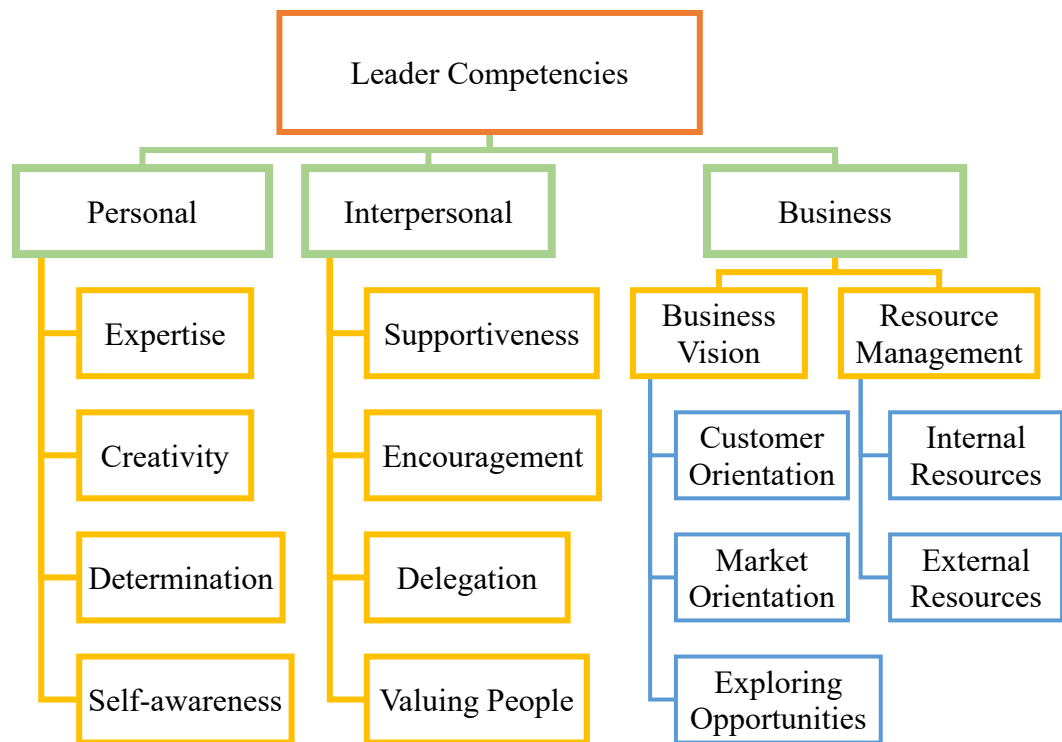


Figure 5.1 Leader competencies (based on Prats & Agulles, 2009, modified by the researcher).

5.1.1 Personal Competencies

Data collected from interviews and observations revealed four distinct traits and attitudes classified as personal competencies. These competencies, closely linked to a leader's decision-making abilities and resembling personality traits, as noted by Ahmad et al. (2010), include expertise, creativity, determination, and self-awareness. The interviewees emphasised these competencies, presented in Table 5.1 and discussed below.

Personal Competencies			
Expertise	Creativity	Determination	Self-awareness

Table 5.1 Leader personal competencies.

Expertise

To gain insight into a leader's approach to business, their education and previous experience are essential factors to consider. Previous research suggests that a leader's skills and competencies, resulting from their education and experience, can significantly impact the success or failure of their venture (Shane, 2000; Ahmad et al., 2010). This corresponds with the Resource-Based View, which emphasises how

firms gain competitive advantage through unique, valuable, and difficult-to-imitate resources (Barney, 1991). Leaders' education and experience constitute such strategic resources, shaping their ability to leverage internal capabilities effectively.

Two of the five leaders interviewed held academic degrees, and two had college degrees. However, none of the individuals possessed qualifications in either technical or business disciplines. In turn, all the surveyed owner-managers had prior experience in management, primarily within the context of family-owned businesses. Three distinct approaches to acquiring knowledge from prior experiences have been identified. First, knowledge exchange was facilitated through mentoring programs and job shadowing, which encouraged regular interaction between the different generations. By leveraging the strengths of both older and younger generations, companies foster a culture of continuous learning and improvement that benefits all parties involved. This practice also aligns with Social Capital Theory, which underscores the value of networks and relationships in accessing knowledge and resources (Nahapiet & Ghoshal, 1998).

For example, MD1 holds a law degree and has previously worked as a partner in a legal firm. She joined the company and has since been working alongside her father to assume all his duties and responsibilities after his retirement. MD2, on the other hand, was actively involved in her grandfather's business and worked as an accountant. She further ventured on to work with her father in her current company, which she owns. Within the literature, it has been suggested that the exchange of knowledge between generations is a beneficial approach to bridging the knowledge gap within traditional industries and increasing overall organisational proficiency (Calabrò et al., 2019). The more established generation predominantly relies on tacit knowledge, while the younger generation contributes explicit knowledge gained through education and work experience. This collaborative knowledge exchange approach has proven to be a successful mechanism for transferring knowledge across generations and enhancing overall organisational effectiveness (Calabrò et al., 2019). The second approach entails grooming future leaders by exposing them to all levels and roles within the company. This method ensures that they have a comprehensive understanding of the company's operations, culture, and values, which is critical to effective leadership. This hands-on experience reflects the RBV principle of firm-

specific human capital as a critical strategic asset (Teece, 2007). By acquiring firsthand experience in different areas of the organisation, these emerging leaders develop a well-rounded skill set, which includes problem-solving, communication, and strategic thinking. Ultimately, this approach helps cultivate a pipeline of competent leaders to steer the organisation towards long-term success. This approach relates to MD3, who explained that he does not hold any degree and that his *“area of speciality and expertise was on the job, learning the job from the shop floor”* (MD3), rather than through academia. He added that when he started working at his father’s company, he was told that if he wanted to lead it one day, he must *“be better than everybody else in the factory and learn all aspects of the job”* (MD3). He further concluded: *“And that’s what I did, learn everything (...) through experience”* (MD3). Industry-related skills can give entrepreneurs the authority and expertise to implement their vision (Ahmad et al., 2010). Ongoing learning and training are crucial factors in developing fundamental skills. Combined with practical work experience and a commitment to staying up-to-date with the latest developments and trends in the field, they help cultivate technical competence (Ng & Kee, 2018).

The third approach involves individuals who gain experience in various roles before establishing their businesses. These first-generation leaders often develop a comprehensive understanding of industry-specific practices and challenges through their diverse experiences, which can provide them with valuable insights into effectively managing their business ventures. By leveraging prior knowledge and networks, they enhance their social capital, thereby strengthening their ability to access resources and engage in collaborations (Nahapiet & Ghoshal, 1998). For instance, MD4 holds a degree in design from the University of Edinburgh and has experience managing various sectors. She was a partner in her husband's business before establishing her firm. Similarly, MD5’s background in public agencies enabled her to build extensive professional relationships, aiding in business development.

Overall, empirical evidence suggests that prior experience is crucial in developing individuals' leadership qualities and entrepreneurial skills. Leaders with prior practical experience are better equipped to manage their organisations effectively (Prats & Agulles, 2009; Ng & Kee, 2018). Previous work experience

enhances the leader's capacity to manage available resources (Teece, 2007; Schmidt & Keil, 2012). It enables them to recognise opportunities within their respective markets and customers' needs (Ng & Kee, 2018). Furthermore, the behavioural frameworks acquired through experience are subsequently assimilated into the organisation's routines (Teece, 2007; Schmidt & Keil, 2012), resulting in a more streamlined operation of the company.

However, SME proprietors must apply their acquired knowledge judiciously (Prats & Agulles, 2009) and strike a proper balance. Failure to align new resources with established knowledge structures may lead to missed opportunities (Schmidt & Keil, 2012). Additionally, maintaining strong social capital networks ensures access to external expertise, financial resources, and collaborative opportunities essential for business growth (Hewitt-Dundas & Roper, 2017).

Creativity

Creativity plays a crucial role in business leadership. O'Sullivan (2008) defines creativity as a mental process that generates new and valuable approaches to problem-solving. The Resource-Based View highlights creativity as a firm-specific capability that drives innovation and competitive advantage (Barney, 1991). Leaders exhibit creativity in different directions for the business. However, the type and extent of creativity can vary. For example, MD1 demonstrated her creativity by changing the perception of innovation and reorganising the company's internal work. She brought in external employees to foster an innovation-friendly environment, thereby enhancing the firm's absorptive capacity, a key element of the resource-based view. On the other hand, MD2 restructured the company's business model by increasing the managerial workforce and expanding product applications to conquer new markets. Leaders shifted to another paradigm to enhance the company's ability to capitalise on opportunities (Sternberg et al., 2003). This move is often associated with the transition stage, where a new occurrence has never been experienced before (CIPD, 2014). Leaders recognise a strategic need for the business to introduce other internal or external candidates to help manage or co-manage the business (Jones, 2009; Hysi, 2013; CIPD, 2014; Muhos, 2014). The creativity of MD3 is manifested in his strategic orientation, specifically, a market-oriented approach. MD3

consistently monitors customers and industry trends, responding to their needs and quickly adapting to market changes to expand product offerings. An example of this occurred when MD3 had to revamp their production process. Due to manufacturing complexities and issues, he discontinued production of one of their products. However, an unexpected surge in demand for fire retardant products presented an opportunity. MD3 seized this opportunity to innovate and successfully transformed what could have been a failure into a success.:

“I looked back at the product (...). Solved all the issues with the production process. (...) and I am back to an old product but with a different manufacturing method. I will call that innovation, taking an idea and rehashing it and being innovative with a production process” (MD3).

Turning constraints into opportunities and recognising which ideas will flourish in practice is a perfect example of creativity. Applying practical solutions to solve problems increases the likelihood of successful innovation (Puccio et al., 2018; Collett et al., 2019).

MD4's creativity was evident in several aspects of her work. She fostered an innovation-focused environment that encouraged and supported new ideas, offered products and services as add-ons, and created production processes tailored to the business's needs. Using everyday cognitive and behavioural practices in the workplace is a crucial indicator of creativity (Collett et al., 2019). MD4 mentioned:

“We have all custom-made tools and jigs that we have had to design and build ourselves. There is a doweling station and completely new equipment we designed and built ourselves. We create the process ourselves, particularly for our frames” (MD4).

The behaviour of MD5 is notable for its creativity and unique approach to business.

“A lot of sustainability and a lot of reverse engineering both, of business models and of engineering practices to make it more compliant and beneficial for the environment and for people because the technology already exists out there, you just need to use it and harness it to take advantage for that” (MD5).

MD5 collaborates with individuals, businesses, and organisations, combining their various skills and expertise to repurpose existing resources and improve society's well-being and the environment. MD5 explained this concept.:

“We actively seek people out who are specialists in their field because although we have created a niche part and small batch manufacturing, what we are very experienced at, is drawing these people together and seeing the bigger picture. It is that balance of people who are localised in that specific industry sector where they have that expertise and knowledge, but they are not big networkers. We just need to bring our network to that, and it is just a very much shared collaborative, cooperative space, and they are doing business” (MD5).

These practices align with Social Capital Theory’s emphasis on leveraging relationships for innovation (Nahapiet & Ghoshal, 1998).

The creativity of leaders lies in their ability to generate innovative and practical solutions that address various aspects of their organisation's operations. Leaders who can identify emerging trends, challenges, and opportunities and engage diverse stakeholders in collaborative efforts to achieve a common goal (Puccio et al., 2018), are more likely to achieve successful project outcomes. Effective leadership, therefore, requires not only the ability to envision new possibilities but also the capacity to mobilise and coordinate the collective efforts of all stakeholders. Furthermore, this approach underscores the notion that innovation is not a solitary pursuit but rather a collective effort that requires the contributions of numerous individuals (Chesbrough, 2003; Amabile & Khaire, 2008).

Determination

One of the distinguishing features of the leaders was their determination to implement innovation. All the managing directors are goal-oriented, highly determined, and want to overcome the issues they encounter. Despite the challenges and previous failures regarding innovation, they all have a vision for their company, and they believe that innovation *“is the lifeblood”* (MD2) and *“the way of being”* (MD5). Therefore, despite the difficulties, they are striving to innovate and adapt to the rapidly changing environment. MD3 claimed that although they had many failures before, innovation *“has been the strategy all the way since our birth”* (MD3). MD1 mentioned that they tried to innovate their product before. However, all previous attempts were *“very inconclusive projects”* (MD1) and *“none of them seems to get us to quite where we wanted”* (MD1). Despite the previous failures, MD1 was *“willing to try again”* (MD1), as the idea of changing the bolus case *“was always hanging around”* (MD1), which gave confidence *“that it would have been a*

good one” (MD1). Therefore, when the potential partner was recommended to MD1, she decided to try it again. Based on Social Capital Theory, the success of innovations heavily relies on effective partnerships (Hewitt-Dundas & Roper, 2017). Additionally, MD5 emphasised the importance of finding the right innovation partner, stating that *“when you innovate, it is crucial what kind of partner you get to innovate with”* (MD5). She explained further:

“We come up against massive gatekeepers. People have told us we cannot do it; we are not at that level yet” (MD5).

However, she added:

“I always work with the endpoint in mind. I refuse to be refused. I will find another way around and get to the right people” (MD5).

Likewise, other managing directors have suggested that working with external partners on innovative projects *“has wonderful potential”* (MD2). Although none of those projects so far have been successful, she will not stop innovating:

“I do not have an awful lot of positive experience about it. We have not had a successful one yet. We have managed to learn from each one we have had. We have never had one that's gone over the line and turned into a profit. Not yet” (MD2).

Despite the lack of previous success, MD2 claimed that if the opportunity to innovate with external partners arises, *“I tend to be the one that's open to it”* (MD2), reinforcing that strong network ties can facilitate access to new opportunities and resources (Lee et al., 2010).

Attempting to innovate despite past failures continually is risky and may be associated with entrepreneurial behaviour (Vanhaverbeke et al., 2012; Cacciolatti & Lee, 2015). Many failures occur due to incorrect partner selection and a lack of information on their functional capabilities, resulting in poor-quality outputs (Hewitt-Dundas & Roper, 2017). This is a common issue for small businesses, which often have limited resources to obtain partner information (Lee et al., 2010). While management emphasises minimising risk, they also recognise that failure is integral to innovation. Moreover, they understand that each failure provides valuable lessons that enable firms to drive change in the future, as adapting to a fast-changing and dynamic environment is essential for organisations to survive (Collett et al., 2019).

This perspective aligns with the Resource-Based View, which posits that continuously refining and leveraging internal capabilities can transform challenges into opportunities (Teece, 2007).

Self-awareness

During their evaluation, the Managing Directors identified strengths and weaknesses in themselves and concerning their company. The most notable weakness that was emphasised was the lack of appropriate resources. MD1 explained:

“We understand we cannot do it in-house. We do not have the right people, with the right education, with the right contacts, with the right understanding” (MD1).

MD2 recognised the seasonal fluctuations in her business and changed the leadership structure. This was done to expand the company's product offerings beyond existing markets and explore new applications for them:

“I have increased the management team. I have brought three up-to-be co-directors: sales, technical, and commercial. They are all stamping their mark on the company, taking it forward, and seeing how we can create a strategy to take it forward and grow it from a million-turnover company in one market into a multimillion in several markets” (MD2).

MD3 admitted that although his marketing practices bring results, his new product needs access to a specific industry. Therefore, he approached a “marketing company that specialises in composites and knows the industry” (MD3).

MD4 and MD5 also confirmed the need for external expertise due to personal constraints; however, their approach varies. MD4 declared that she wants to learn about new opportunities. However, she needs help with it:

“Where we are struggling at the moment in our innovation is not physically in the workshop, but out within the sales capacity and going into this universe of e-commerce. I will constantly be learning more, but I might need to get an expert who can take us to another level that I cannot at the moment” (MD4).

MD5, in turn, clearly stated that there is no need to know everything, as they can find people with the necessary knowledge and work together. She said:

“We do not know it all. We cannot do it all, so we actively seek out other experts in their field who will have an interest in our field. I do not want to be doing it all.

I do not want to go and learn everything about other things that other people learned already” (MD5).

The data has also identified a notable impatience regarding the project's timeline. The leader of SME1 acknowledged having “*learned not to hurry*” (MD1), a sentiment corroborated by other team members who emphasised the need to manage their expectations more effectively and avoid expecting immediate results.

In addition, another weakness of the leader was an absence of structure and official documentation, coupled with an excessive degree of trustworthiness. MD3 recounted an instance when they undertook a project for a Danish firm where such issues were apparent.

“They give us a million-pound order, a verbal order to make this thing. (...) The director came over and said he was happy with that innovation. But it was 2008, the recession kicked in, and ... the worst thing was that they stopped communicating, and we put time, effort, and emotion into this. We worked on this for months and months, and nothing came of it” (MD3).

Self-awareness enables leaders to recognise their strengths, weaknesses, and resource limitations. RBV suggests that firms should recognise their internal constraints and seek external resources when necessary (Barney, 1991). The nature of this collaboration varies from one firm to another. MD1 and MD2, for example, acknowledged skill gaps and sought external expertise to enhance competitiveness. MD3 is exploring a new and unfamiliar market by utilising buyer-seller services. In contrast, MD4 focuses on learning to fill any knowledge gaps it encounters. Meanwhile, MD5 has embraced a network-driven approach, emphasising the principles of Social Capital Theory and highlighting that leveraging external knowledge is a crucial business strategy. Furthermore, this illustrates the intersection of leaders' openness towards innovation and collaboration with other stakeholders. These interdependencies reflect leaders' distinct personalities and again support the notion that personalities, traits, and behaviours influence the choice of leadership style (CIPD, 2014; Koo & Park, 2018; Howard et al., 2019). A self-aware leader acknowledges the importance of feedback from stakeholders, colleagues, and customers, using it to enhance personal performance and overall organisational effectiveness. Additionally, individuals are not afraid to admit their mistakes, viewing them as opportunities for learning and personal growth. An effective leader

cultivates a culture of continuous improvement at both personal and organisational levels (Tang, 2019).

The combination of the Resource-Based View and Social Capital Theory creates a robust framework for understanding the leadership competencies required in small and medium-sized enterprises. Leaders in these organisations must effectively utilise internal resources and cultivate strategic networks to enhance business resilience and drive innovation. Successfully managing a business requires skill in navigating various social interactions and communicating well. Strong interpersonal skills are essential for building and maintaining enduring relationships, which will be discussed in the following section.

5.1.2 Interpersonal Competencies

Leaders' interpersonal competencies are highlighted in their interactions, communications, and collaborations with others and are thus articulated through supportiveness, encouragement, delegation, and valuing people (Table 5.2).

Interpersonal Competencies			
Supportiveness	Encouragement	Delegation	Valuing people

Table 5.2 Leader interpersonal competencies.

Supportiveness and encouragement

Leaders' supportiveness and encouragement (MD1, MD2, MD4, MD5) for employees to interact with each other and be involved in innovation are two character traits that appear in most interviews. All participants reported simplicity and ease of communication with the leaders, a topic further discussed in the next chapter, internal collaboration. For instance, when SME1 committed to investing in product innovation, “she (MD1) has brought in a lot of different resources to help us achieve” (SME1E3). MD1 vigorously promotes the idea of working together as a team and sharing their ideas for improvements, while also encouraging employees to take the lead:

“If somebody comes up with the idea, I want them to be able to lead that project then but involve departments because we are used to working together. So, if you have an idea that you think will work, I will support you, talk, and allocate the resources that you need” (MD1).

MD1 recognise the importance of spreading an innovative culture within the company:

“Because I cannot be the only driver of this. That can be too autocratic, can be too... I am the one who is important” (MD1).

Thus,

“She is very open to ideas from everybody. To see what options are available” (SME1E3).

On the other hand, MD2 declared that encouragement takes the form of challenging their employees by asking,

“How can we make this cheaper? How can we make it better? How can we make it more efficient?” (MD2).

Rather than *“targeting everybody just to come up with ideas”* (MD2) for innovation. The Supply Chain Manager claimed that *“there is a reasonably healthy culture in the company when it comes to innovation and encouragement”* (SME2E2), and the Technical Director added that they are not expecting innovative ideas from all their employees. However, they encourage everybody to give their input by asking for *“five suggestions per annum that would help them in their current role”* (SME2E1). Likewise, since most of their employees use their products daily and some participate in trade shows, they are encouraged *“to come up with a new idea if they come across something or they see something”* (SME2E1) that can be useful. Moreover, SME2E1 also suggested that, due to the company’s size, *“everybody needs to be involved in innovation”* (SME2E1).

In turn, MD4 expresses a *“let’s give it a try”* attitude. She encourages employees *“to be trying different things, to come up with a better solution”* (MD4) if something is problematic or something that could be done quicker and more efficiently. MD4 supports employees’ ideas and believes in mutual learning from employees:

“They are working intimately with the product. They are the ones in the workshop every day. I am just really open for them to be trying different things” (MD4).

MD5 claimed that they encourage employees to gain more experience by not only involving them deeply in projects but also supporting their development by giving them *“credit for what they do, so that they can build their portfolios, so that they can*

have that recognition that that is about them” (MD5). Moreover, MD5 mentioned that “everything that we do in the business is shared with the team” (MD5) and that employees “ask for their input and are allowed to contribute” (MD5). She added:

“Although Dave and I have the most experience in that area, we are willing to let our team feel they can have that experience too. Therefore, whoever has an innovative idea is the first to lead the project and the rest of us back them up” (MD5).

Creating an innovative culture grounded in values and purpose requires support and motivation. Effective leadership is crucial for driving and encouraging employee innovation and successfully implementing related changes (Franco & Matos, 2015; Love & Roper, 2015; Puccio et al., 2018; Hossin et al., 2023). Top management is crucial in establishing the right culture and structure, providing necessary resources, and motivating employees to execute a successful strategy (Brown & Anthony, 2011; Miao et al., 2019). Leadership’s role is to communicate a vision across the business and engage followers through both formal and informal interactions to achieve the desired outcomes (Gupta et al., 2004; Hossin et al., 2023). Thus, leaders must develop a supportive structure and mechanisms (Xerri et al., 2009) to share the firm’s vision with followers (Puccio et al., 2018). A proper innovative culture helps introduce changes to the firm by explaining the direction of change, motivating followers, distributing responsibilities among employees, and giving a sense of belonging to the firm’s social structure (Puccio et al., 2018).

The leader of the third company differs from the other leaders as he does not encourage innovative thinking and culture among his employees. He believes his role as a leader is to manage the company and develop ideas to help it grow. He acknowledged this approach:

“On a small scale, guys will suggest to me how we can go better with getting out of rubbish, for instance. And I will say great idea, fantastic” (MD3).

However:

“None of my guys here will think innovation that would only be me. (...) They are led by me” (MD3).

He further explained:

“It is not part of their remit. I lead the company, and I take the company in the direction by coming up with the product using my experience and market knowledge” (MD3).

The leader of the third company embodies a traditional leadership style that relies on authority. This approach follows a top-down innovation pattern that does not foster creativity or freedom among employees in lower organisational positions (Mainemelis et al., 2015). From a resource-based view perspective, this leader's strategy restricts the firm's ability to utilise its human capital as a source of innovation, diminishing its competitive advantage (Barney, 1991; Hoskisson et al., 1999). Social capital theory also suggests that a lack of social capital, including trust, reciprocity, and shared norms, can hinder knowledge sharing and collaborative innovation (Nahapiet & Ghoshal, 1998).

Delegation

The activities related to the innovation project are assigned based on its specific requirements. As a result, the level of involvement of various departments may vary. Similarly, the Managing Directors' involvement as project leaders in the five companies under review can range from leading the project alone to co-leading it or not being directly involved. From a Resource-Based View perspective, a firm's innovation ability depends on leveraging its unique internal resources, including leadership, employee skills, and organisational processes (Barney, 1991; Wernerfelt, 1984). Leadership's involvement in innovation projects is crucial in determining a firm's ability to utilise its intellectual and human capital to create competitive advantages (Kim et al., 2015; Johnsson, 2017). Social Capital Theory also emphasises the significance of networks, trust, and shared knowledge in promoting collaboration and innovation (Nahapiet & Ghoshal, 1998).

Managing Directors as Sole Project Leaders

The Managing Director serves as a project leader for two companies, SME3 and SME4. Both leaders are first-generation business owners, company creators and idea generators. None of them hire skilled workers or professionals, as products are made through manual processes, and technical knowledge is not necessary. Managing Directors have the most significant experience in leading the project. However, although MD4 is a product idea generator, she still encourages and supports employees to be more innovative. She believes that employees can make a significant input in a process and the product, as *'they are working intimately with*

the product every day' and see things that "*could be done quicker, or more efficiently*" (MD4). This aligns with social capital theory, as it highlights the role of relational social capital in promoting trust and the sharing of ideas between leaders and employees (Adler & Kwon, 2002). By fostering an open innovation culture, MD4 enables employees to engage in problem-solving and continuous improvement, leveraging their tacit knowledge as a resource for the firm (Subramaniam & Youndt, 2005).

In contrast, the MD3 approach is more autocratic, prioritising his own experience and market knowledge over employee contributions. He declared:

"They do not take a hands-on approach to innovation. I lead the company, and I take the company in the direction by coming up with the product using my experience and market knowledge" (MD3).

This leadership style reflects a highly centralised decision-making process that limits the growth of social capital within the firm (Burt, 2000). Employees' knowledge and capabilities remain underutilised, and innovation becomes reliant on the leader rather than the organisation's collective resources. The leader has significant power and decision-making capabilities, which can lead to tendencies toward micromanagement. Such firms may struggle with long-term sustainability, as dependence on a single decision-maker can impede adaptability and knowledge transfer (Ndidi et al., 2022).

Managing Directors as Co-Leaders

MDs exist as project co-leaders in the following companies: SME1 and SME5. While they still actively participate in the project and support the co-leader (s), their energy is focused more on the business side of the project, including resources, external collaboration, and commercialisation. Meanwhile, other co-leaders lead the development side of the project. This aligns with the RBV framework, which emphasises that firms must efficiently allocate and leverage both tangible (financial, technological) and intangible (knowledge, leadership) resources to maintain competitive advantage (Barney, 1991; Peteraf, 1993). MD5 explains that "*the whole commercialisation is usually down to David and me*" (MD5). However, employees are "*very much listened to*" (MD5) and have an impact on the project:

“Whoever has the most experience and has that innovative idea is the first to lead, and the rest of us back them, so it is not always me” (MD5).

This approach aligns with SCT, fostering structural and cognitive social capital through trust-building and knowledge-sharing within the organisation (Inkpen & Tsang, 2005). Employees are empowered to contribute to innovation, strengthening the firm’s collective intellectual capital (Subramaniam & Youndt, 2005).

A similar situation occurs within SME1, where the company leader is “trying to open a tap and encourage a lot of other people” (MD1) to express their ideas and actively participate in a project. She declares, *“If somebody comes up with the idea, I want them to be able to lead that project” (MD1).*

Delegation of Innovation Leadership

A situation where the projects do not involve the assistance of MD occurs only at one company, SME2:

“I used to be in the middle of all that, but not so much now. Now, again, that would be down to Chris. I put Chris in place to manage the innovation. He is the Technical Director” (MD2).

This reflects a strategic delegation approach, where leadership evolves as the business matures and necessitates new management structures (Muhos, 2014). From a Resource-Based View perspective, this transition enables firms to optimise their human capital by placing innovation leadership in the hands of individuals with specialised expertise, thereby enhancing efficiency and scalability (Kim et al., 2015). Additionally, Social Capital Theory posits that trust and robust professional networks within the firm are crucial enablers of such delegation (Nahapiet & Ghoshal, 1998). By appointing a Technical Director to oversee innovation, MD2 illustrates relational social capital, ensuring that leadership is distributed based on competence rather than hierarchy.

The varying degrees of managing director involvement in innovation projects across SMEs illustrate different applications of the resource-based view and social capital theory in shaping firm strategy. Autocratic leadership styles (e.g., MD3) risk underutilising employee capabilities, leading to potential innovation bottlenecks. In contrast, participatory and delegation-based models (e.g., MD4, MD5, and MD2)

enhance a firm's social capital, promoting knowledge-sharing and long-term competitive advantage (Adler & Kwon, 2002; Subramaniam & Youndt, 2005).

As businesses grow, the strategic delegation of responsibilities becomes essential to sustain innovation capacity and effectively leverage human capital as a resource (Muhos, 2014). Firms that balance leadership vision and employee-driven innovation are better positioned to achieve long-term success in an evolving market landscape (Teece et al., 1997).

Valuing people

Recognising the worth of individuals is crucial for any organisation. Various leaders demonstrate their appreciation for their employees in diverse ways, such as showing respect for their viewpoints, offering opportunities for development and growth, or providing financial incentives. From the Resource-Based View perspective, human capital is a key intangible asset contributing to a firm's sustained competitive advantage (Barney, 1991; Peteraf, 1993). Employees' skills, knowledge, and innovative potential are valuable, rare, inimitable, and non-substitutable (VRIN), making them essential components of innovation strategy (Kim et al., 2015; Johnsson, 2017). Empowerment, a critical aspect of social capital, varies within every company. Social Capital Theory posits that organisations flourish by cultivating substantial relational, structural, and cognitive capital, fostering trust, shared norms, and knowledge exchange (Nahapiet & Ghoshal, 1998). For example, MD2 claimed that at SME2, the Technical Director is *"in place to manage the innovation"* (MD2). Empowering the Technical Director to lead innovation at SME2, MD2 demonstrates trust in his expertise and delegates responsibilities. Similarly, MD1 and MD5 encourage employees to take ownership of their ideas, suggesting that whoever *"will come up with the idea I want them to be able to then lead that project"* (MD1) and, therefore, be allowed to develop their skills and experience because *"we are willing to our team feels that they can have that experience too"* (MD5). This approach not only enhances employees' skills and experience but also builds structural social capital by reinforcing horizontal collaboration (Inkpen & Tsang, 2005). MD5 further develops this by ensuring that employees receive formal recognition for their contributions:

“We give all credit to our staff team, who we get to work on in-house projects and products, and we’re developing our skills academy, doing that. People will always be given credit for that so that they can build their own portfolios, so that they can have that recognition that that’s about them” (MD5).

By acknowledging employees’ contributions and fostering a culture of recognition, MD5 cultivates cognitive and social capital, thereby strengthening employees’ sense of belonging and commitment to the firm’s innovation efforts (Adler & Kwon, 2002). This behaviour not only promotes personal and professional growth but also enhances the firm’s intellectual capital, a vital strategic resource (Subramaniam & Youndt, 2005). Moreover, leaders play a crucial role in creating an environment that encourages trust and knowledge sharing, essential components of social capital (Burt, 2000). MD5 exemplifies this by mentoring employees and ensuring open communication, which nurtures a culture of knowledge sharing and bolsters innovation. A well-developed framework of social capital enables firms to generate high-value behaviours, allowing employees to work productively and creatively (Hesketh & Fleetwood, 2006). MD5 believes everyone should be involved in projects and given the opportunity to provide input. She mentioned that their employees *“have a say in how and in what way the business is run”* (MD5).

In turn, MD3 decided to adopt a more monetary approach, offering financial incentives to retain employees:

“I look after them (employees) in a pastoral way. I look after them and their family, out after their working life; if there are some problems in their life, they know they can come to me. I pay insurance for them. I pay them bonuses, and I share the profit” (MD3).

While this strategy contributes to employee satisfaction, it lacks the depth of relational and cognitive social capital needed to foster innovation. Social Capital Theory highlights that, beyond financial rewards, trust, collaboration, and shared values are fundamental in facilitating innovation and knowledge exchange (Nahapiet & Ghoshal, 1998).

Although valuing people can take different forms, it is vital to do so, as human resources are essential assets of each company and an integral part of commercial success (Miller, 2014; Gonzalez-Loureiro et al., 2017). Firm resources, including human resources, are significant components of an innovation strategy (Barney,

1991; Kim et al., 2015; Johnsson, 2017). Companies that invest in human and social capital development gain a competitive advantage by harnessing employees' collective expertise, promoting innovation, and ensuring long-term business growth (Wernerfelt, 1984; Miller, 2014; Gonzalez-Loureiro et al., 2017). Employee appreciation strengthens morale, increases commitment, and enhances innovation performance, ultimately driving firm success (Ndid et al., 2022).

5.1.3 Business Competencies

Regarding a leader's business competencies, various skills and abilities were distinguished from the data and classified under two groups: business vision and resource management (Table 5.3).

Business Competencies	
Business Vision	Resource Management

Table 5.3 Leader Business Competencies.

Business vision

The concept of business vision involves recognising and utilising potential opportunities to enhance competitiveness and efficiency. This requires knowledge of the industry, market, and customers' needs (Prats & Agulles, 2009). A leader's business skills are demonstrated through their focus on customer satisfaction, market awareness, and ability to identify and pursue opportunities for growth. The competencies are summarised in Table 5.4 and will be discussed in more detail below.

Business Vision
Customer Orientation
Market Orientation
Exploring Opportunities

Table 5.4 Business vision components.

Customer orientation

All the companies share a common feature- putting customers first. The Managing Directors and other employees emphasised the significance of customers to the business. Companies have adopted a customer-centric approach that involves listening to their customers and addressing their long-term needs and desires. This approach also initiates the innovation process (SME1, SME2, SME3, SME5). For instance, MD3 highlighted that they “*grow by solving people's problems*” (MD3); MD5 suggested that “*customers' problems challenge us*” (MD5), whereas the Chemist in charge stated that customers' “*wants*” sparked the innovation activities at the company. He further explained that they are exploring the new physical forms of raw materials and the processes of incorporating them into boluses, as “*our customer, whom we sell to, believes that there is a massive market for getting essential oils into these boluses*” (SME1E1). Understanding customers and their needs increases value-adding opportunities and often triggers product innovation (Tzokas et al., 2015). Some researchers (e.g., O'Dwyer & Gilmore, 2019) say customer innovations are primarily incremental.

Likewise, the Technical Director claimed that the newest innovation came from customer enquiries. This proposal presents a confident suggestion for the innovative utilisation of the current system, creating a versatile range of products that can be effectively implemented across various domains. This, in turn, can establish a new and prosperous marketplace. The Technical Director explained:

“The industrial thing comes from a lot of inquiries that we receive from our existing product users. They say: ‘We have a problem in an industrial environment. Can we take your product and apply it to this?’” (SME2E1).

According to Lewrick et al. (2011), mature companies are more likely to be influenced by customer feedback regarding radical innovations. These companies prioritise customer orientation as critical in driving new-to-the-world product innovation (Tzokas et al., 2015).

Confident leaders have taken a proactive approach to meeting customer demands by providing additional services alongside their products. For instance, MD3 has included 'message treads' as a permanent feature of their product, which will not fade

over time, and has introduced luminescent colours to address Health and Safety concerns. On the other hand, MD4 has prioritised product personalisation. She explained:

“You could add monogram rivets, laser-engraved messages, and your family tartans. Another special thing we do is we number each frame so you can look up on our archive which distillery or cooperage the wood came from. We try to maintain history. Sometimes it is just the cooperage, but we try to keep that as something special, like a bit of Scotland that you can maybe pair whisky with as a gift” (MD4).

Similarly, MD4 demonstrates a proactive approach to meeting customer needs by seeking feedback and incorporating new ideas. She stated:

“We are constantly trying to come up with new designs because there is a need for us to be reimagining and coming up with different things” (MD4).

She further illustrated the importance of customer engagement in product validation:

“One evening, I made a wreath, and I just posted it on the group. I look for feedback initially for products. I put them in the pop-up shops that we are members of. If they sell well there, then it is something we should invest time in and start scalable manufacturing for” (MD4).

This concept aligns with the Social Capital Theory, highlighting the vital role that knowledge-sharing networks play in driving innovation (Inkpen & Tsang, 2005). By fostering trust and engaging with customers, SMEs gain valuable market insights that can be leveraged into competitive advantages. SMEs benefit from strong customer relationships, leveraging trust and direct engagement to co-develop new solutions. The case of MD4 exemplifies this dynamic by actively integrating customer feedback into its product development process.

Out of five small companies, three serve both individual and business customers. Surprisingly, these companies prioritise individual customers' validity over their business counterparts. For instance, SME2E1 declared they have a business model where *“we have our sales first, then we have a wholesaler”* (SME2E1). MD4 explained:

“There always will be value in wholesale stockists because it gets the brand out there. And also, they are very important because they are buying in large quantities and sharing your story with other people. However, the margins are much better selling directly to consumers” (MD4).

Customer orientation is a common practice in SMEs (Rahman, 2011) that helps maintain customer relationships (Tomaskova, 2018). It reflects customer needs (Tomaskova, 2018) and thus often impacts product development (Bayarçelik et al., 2014). These, in turn, result in more successful products (Nicholas et al., 2011) which fulfil customers' requirements (Tomaskova, 2018). By integrating customer orientation into their resource portfolio, SMEs can effectively convert customer insights into strategic capabilities that drive market success (O'Dwyer & Gilmore, 2019; Chaithanapat & Rakthin, 2021). However, this approach should not be viewed as a long-term growth strategy (Eggers et al., 2013). While customer knowledge is a crucial asset for firms, impacting their competitive advantage and increasing performance (O'Dwyer & Gilmore, 2019; Chaithanapat & Rakthin, 2021), it should not be considered a long-term strategy for growth (Eggers et al., 2013). According to the researchers, customer orientation is a responsive and reactive construct that is valuable in short-term and stable environments; however, it cannot be relied upon alone for long-term success. (Eggers et al., 2013). Companies that solely concentrate on fulfilling the stated demands of their customers within established and familiar markets run the risk of becoming stagnant and hindering future growth (Eggers et al., 2013). To mitigate this risk, SMEs should integrate a dual approach: leveraging customer insights to drive incremental innovations while simultaneously conducting extensive market research and investing in exploratory innovation. This aligns with the RBV perspective, which emphasises the strategic accumulation of unique capabilities to sustain long-term competitiveness (Barney, 1991). Furthermore, Social Capital Theory suggests that broader network collaborations—beyond immediate customers—can facilitate access to diverse knowledge and resources, fostering radical innovation (Nahapiet & Ghoshal, 1998).

Market orientation

The Managing Director of SME3 demonstrates a market-oriented approach through his behaviour. He actively monitors markets and trends, performing thorough analyses and responding to them accordingly. From the Resource-Based View perspective, his ability to leverage internal resources, such as analytical skills and production knowledge, allows the company to identify and capitalise on unique opportunities. Meanwhile, the Social Capital Theory explains how his external

relationships and industry insights enable him to identify market gaps. As an illustration, he identified a promising market for a product that the company had previously discontinued due to manufacturing complexities. After careful analysis, MD3 identified the primary factors that led to the discontinuation of production, addressed them, and resumed production of the product. He explained:

“I looked at the product (...). Why and how am I not making this anymore? I found four main reasons why we stopped producing it. (...) I was able to solve those problems (...). So, now we can manufacture this highly unique product that no one else makes” (MD3).

This decision reflects RBV by illustrating how firms gain a competitive advantage by recombining existing capabilities. Similarly, the ability to leverage knowledge from external relationships aligns with the Social Capital Theory, as MD3 used industry networks and market awareness to reintroduce a competitive product.

The director of SME3 has a rich history of identifying market opportunities and capitalising on them. Several years ago, the company observed a customer using a non-slip product and promptly introduced this innovative item to a market previously unaware of its existence, achieving remarkable success. He explained:

“I looked at one guy; I thought he was doing this in one industry sector, so I went to the others in the industry sectors and introduced it to them; they had never heard about it before. And I have orders from eighty percent of all contacted businesses” (MD3).

The company leveraged its internal resources to innovate (RBV) while utilising external social connections to introduce the product across industries (Social Capital Theory).

Demonstrating his proclivity towards market orientation is his persistent exploration of new markets where his company's products can be positioned:

“We do target marketing, so we send them to the areas (our product) where we think they can be used, and we also do a scatter graph (plot) marketing, where we put an advert in a railways magazine, a health and safety magazine, saying that we are solving problems” (MD3).

Similarly, SME4 is led by a market-focused individual. Initially, MD4 utilised a business-to-business (B2B) approach, selling primarily to wholesalers, souvenir

shops, and intermediaries. The company targeted both local and international markets, utilising Scottish heritage as a key marketing message. Tourism, including individual and incentive-based visitors, reached the local market. She explained:

“Incentive tourism is usually undertaken as a type of employee reward by a company or institution. Let us say, in the States, you have a group of the top insurance salesmen, a hundred of them, and the company pays for them to come to Scotland on a trip, and they usually have gifts throughout their travels. My products would be a perfect gift for that” (MD4).

MD4’s approach exemplifies RBV by strategically using existing company resources to develop a niche market. Moreover, her engagement with industry networks aligns with Social Capital Theory, as she leverages relationships within the tourism and retail industries to expand her market reach.

Following years of successful operation and substantial growth, the leader of the fourth company made necessary adjustments to their marketing approach in accordance with changing needs. She expounded on the changes made and the reasoning behind them:

“We have been mainly signed to wholesale stockists primarily. I would say our e-commerce trade has only been about 5-10 % of our business. I took a step back, and we looked at numbers and everything like that. The future is with e-commerce. Everybody is selling online, even all the shops I am stocking now. They have their online shops that are selling my products” (MD4).

This strategy shift aligns with the RBV, as it involves reallocating resources to enhance competitiveness. Furthermore, Social Capital Theory explains how SME4 effectively leverages its network within the industry to transition into new sales channels.

Being proactive in radical innovation requires a heightened focus on market orientation. This is especially true amid uncertainty surrounding a new market and product. SME2E2 has indicated that despite several years of attempting to innovate radically, the market was not yet ready to receive such innovations.

“People did not fully appreciate that they had a problem, to begin with. You were trying to sell them a solution to something they were not quite convinced of, yet it was an issue for them” (SME2E2).

This statement was further developed by the Technical Director, who agreed with it and added:

“For many years, we were pretty much product-led. We designed something, then took it to the market and hoped for the best. More recently, we have been trying to be market-led. ‘Is there a need? Is it a requirement?’” (SME2E1).

The importance of the market is more visible to the company since a new set of directors has been employed. They brought the knowledge with them, but also a willingness to learn and the importance of market research before the investment:

“We went to do the whole understanding of the market. We did some trials with some people, got some feedback, and produced a big, large data report on the market, the opportunity, understanding, the price point, understanding the need and also where the markets are, the potential, the opportunity and the size of what the business could be” (SME2E1).

In turn, MD5 is adopting a more holistic approach to the market by focusing on ethical business models and the well-being of society as an outcome of innovation, rather than solely on new technology or products. She believes in a reverse engineering approach and is attempting to utilise existing knowledge and technology to meet market demands. Her ambition is to take that approach and style *“in a more global context and make that more cross-sectoral and how it can fit across the industry”* (MD5).

The examples above demonstrate how leaders may adopt both reactive and proactive approaches in fulfilling the needs of their customers, including those that remain unspoken (Eggers et al., 2013). Businesses prioritising market orientation seek new opportunities and untapped markets to explore (Didonet & Diaz-Villavicencio, 2020). This approach enables firms to gain a deeper understanding of their customers' requirements, their competitors' strategies, and the overall industry, ultimately contributing to superior business performance (Gellynck et al., 2012; Solano Acosta et al., 2018; Chaithanapat & Rakthin, 2021). Market orientation plays a vital role in the success of incremental innovation (Bogers & Lhuillery, 2011; Mumford et al., 2015; Johnsson, 2017), and enhancing a company's competitive edge leads to better overall business performance (Udriyah et al., 2019).

In the case of SME1, market orientation is negligible. The company sells its product to only one customer. This product is further distributed under different brand names by a third party. Therefore, they do not choose their market; instead, they respond to the distributor's (their direct customer's) needs. Concentrating

exclusively on one client limits the company's development possibilities and puts firm growth at risk, thereby making stagnation possible (Eggers et al., 2013). A lack of market orientation restrains firms from identifying and developing capabilities necessary for long-term performance (Kumar et al., 2011).

The next element of business vision highlighted in the interviews was classified as exploring opportunities, which is further discussed below.

Exploring opportunities

Leaders admit that searching for new, valuable ideas regarding the product, its application, production process or organisational and business matters is essential to the company's development. Although they agreed that exploring an opportunity takes time and resources, successful innovation helps companies gain a competitive advantage, improve efficiencies, or help enter new markets. This idea aligns with the Resource-Based View, which emphasises the importance of leveraging unique resources for sustainable competitive advantage. Additionally, Social Capital Theory suggests that firms reap benefits from external networks and knowledge exchange. All of that, in turn, protects the firm against stagnation. Thus, discovering and recognising opportunities lead to creativity and innovation, contributing to overall business growth (Ng & Kee, 2018).

The Technical Director of SME2 stated that *“one of the things triggering innovations is the opportunity to grow and also the need to grow”* (SME2E1). He further explains that due to the seasonality of their business, they are *“looking at industrial things and other opportunities that would hopefully flatline some of the income and mean that we have got additional growth”* (SME2E1). Likewise, other participants also agreed that opportunities spark innovative activities. These opportunities may arise from the needs and problems of customers, markets, and the environment. For instance, MD1 admitted that for them, the trigger to innovation was *“a fact that we could not get into a modern market in the USA”* (MD1). The inability to enter a new market sparked a discussion within the company about potential legislative and regulatory changes that could also impact the ability to sell the product in the current market. MD1 explained:

“It was getting back to that mindset of if we innovate and if we look forward, we need to not only enter new markets but also protect existing markets. If we cannot sell this in America, the risk might be that Europe might ban it as well. (...) So what could stop us from existing?” (MD1).

Resolving a challenging issue brought new business prospects, fueling an innovative spirit. According to MD1, *‘once we identified an alternative coating, it turned out to be of great benefit to our company’* (MD1) regarding product quality and production efficiency. From a resource-based view perspective, this decision represents a firm adapting its resource base to sustain a competitive advantage. Social Capital Theory supports this example, as external regulatory awareness and engagement with industry bodies influenced the company’s strategic response.

In turn, MD4 capitalised on the customer's behaviour by leveraging the insights gained through observations and adapting their sales channels accordingly. This strategic approach enabled them to identify opportunities for growth and better serve their customers. She recalled that *they “did spend quite heavily on trade shows that first year, and it really worked for us” (MD4). However, “we have noticed a decline in people attending shows as well” (MD4)* and, thus, decided to change the sales channels to e-commerce.

“I have been working quite a bit with the Institute of E-commerce in Glasgow. I am looking to take on a grad student for data analysis so that we can really start looking at our analytics and building our e-commerce business and scaling it that way”(MD4).

Furthermore, MD3 recalled the situation, which significantly increased the demand for anti-inflammatory and fire-resistant building materials due to changes in fire safety and building regulations. This event presented an opportunity for SME3 to resume producing fire-resistant composites, a process they had discontinued years ago due to manufacturing difficulties. The Resource-Based View is clearly illustrated by SME3's restructuring of its internal processes to effectively harness and leverage existing knowledge for driving innovation. Additionally, Social Capital Theory provides valuable insights into how regulation changes and proactive engagement with industry stakeholders offer crucial information and perspectives, which are essential for informing this strategic decision-making process. MD3 summed up that after improving the production process:

“We can manufacture this highly unique product that no one else makes. I am back to an old product, but a different way of manufacturing it. I will call that innovation, taking an idea and rehashing it and being innovative with a production process” (MD3).

Eggers et al. (2013) claimed that the ability to identify market opportunities before competitors and create possibilities to exploit them contains traces of entrepreneurial orientation. This idea is further supported by the Resource-Based View, which explains how companies utilise their internal resources to sustain a competitive advantage, and by Social Capital Theory, which highlights the significance of networks in recognising and capitalising on opportunities.

Despite the intense focus on core products, leaders do not limit themselves to a single market. For instance, MD3 explained:

“I have a core product, and my innovation stands for doing something different with that core product. We are taking one singular entity (...), and we do things to make it into various products. And it does not belong to one market sector. There are many variations of where my product can go” (MD3).

The Technical Director of SME2 mentioned the expansion to different markets. Likewise, other leaders desired to conquer various markets with their core products.

The above approaches underscore a leader's willingness to explore potential growth opportunities. These opportunities often involve improving core products or processes, consistent with previous research indicating that small and medium-sized enterprises tend to focus on incremental innovation due to limited resources (Oke et al., 2007; Rehman, 2016; Colclough et al., 2019). Given the scarcity of resources for small firms, leaders are expected to leverage open innovation principles and collaborate with external partners to create value (Radziwon & Bogers, 2017). According to Dziurski and Sopińska (2020), seeking growth opportunities can pave the way for adopting open innovation practices. Varis and Littunen (2010) suggest that various sources of information and collaborative relationships support different types of innovation. By innovating products and creating new value for customers, firms can increase sales growth, as Ng and Kee (2018) show. To improve their processes and operational competencies, companies often collaborate with external experts, as noted by Carnahan et al. (2010) and Ng and Kee (2018). These minor

adjustments can sustain a firm's competitive advantage and improve its overall performance (Oke et al., 2007; Ng & Kee, 2018; Colclough et al., 2019).

Although leaders are open to new opportunities, they are also strong-minded, believing that new ideas must be turned into manageable projects leading to a successful business. MD2 mentioned:

“It has to be a business. It has to put food on the table and pay for itself. Otherwise, it is navel-gazing” (MD2).

The Technical Director confirmed it, stating that:

“We will not bring it to the table with the rest of the team until we feel it was a commercial benefit in it. Is there an opportunity to make some money here?” (SME2E1).

While not every opportunity was successful, an essential outcome of every tried one was new knowledge, experience, or network. MD5 stressed that *“there is always learning”* in every opportunity they have explored. She expressed:

“Mistakes happen because there is real value in what that pursuit was. Genuinely, it is not a mistake if we can extrapolate that value. We then can add that into the fold, and we see that as part of the journey that we are on” (MD5).

MD2 added:

“We have not had such a successful project yet (innovation with cooperation). We were able to learn from everyone we worked with. We have never really had one that crossed the line and turned into a profit” (MD2).

According to Davidsson et al. (2010), the success of small businesses depends on leaders' ability to identify and capitalise on opportunities. In today's competitive market, leaders must be creative in exploring potential opportunities and learning from these experiences (Randel & Jaussi, 2019). This opportunity exploration in small and medium-sized enterprises is closely tied to both the Resource-Based View and Social Capital Theory. The Resource-Based View emphasises how firms utilise their unique internal resources and capabilities to establish a lasting competitive advantage, while Social Capital Theory emphasises the value of networks, relationships, and external knowledge in adapting to market shifts. The strategic decisions made by SME leaders demonstrate how these theoretical perspectives work in tandem to enhance market responsiveness, drive innovation, and foster long-term

growth. A single idea can present multiple opportunities, so companies must innovate with a clear purpose that aligns with the overall vision and goals of the business (Davidsson et al., 2010) while also meeting the market's demands (Randel & Jaussi, 2019). Achieving these goals requires allocating specialised resources (Davidsson et al., 2010), which we will explore in the next section.

Resources management

The data has highlighted that effective resource management is integral to business competencies. Allocating resources appropriately is crucial for the success of any innovation project (Ledwith, 2014). Leaders must prioritise, plan, and manage work and projects using various resources that contribute to the firm's value creation (Ledwith, 2014; Uziene, 2015). Their ability to do so is based on prior knowledge and experience, which affects how they perceive resource value and value creation (Schmidt & Keil, 2012). This aligns with the Resource-Based View, which posits that firms achieve a competitive advantage by leveraging valuable, rare, and inimitable internal resources (Barney, 1991). The firm can wholly or partly control these resources, generally divided into internal and external resources (Table 5.5).

Resource Management	
Internal Resources	External Resources

Table 5.5 Resource Management.

Internal resources

All executives reached a consensus that the success of a project is contingent upon the organisation's internal resources and their potential utilisation for various purposes and stages of the project to attain the intended objective. Most of them asserted that their ability to innovate internally, utilising the resources at their disposal, is crucial. MD1, MD2, and MD4 stated that they are restructuring the business model to maximise internal efficiency and productivity. Consequently, more emphasis is placed on internal resources, aligning with the Resource-Based View's (RBV) focus on internal capabilities as a source of competitive advantage (Barney, 1991; Grant, 2009). MD1 noted that all initial concepts, from new raw materials to prototypes, were developed and tested in-house before being taken outside the firm

to validate the results obtained internally. MD2 suggested that before they see the need for external collaboration, *“we would tend to take it to a level internally”* (MD2). The Technical Director agreed with MD2 and added that they are:

“Looking at the resources and streamlining in the business as best we can to try and expose the opportunities we have got using the resources that we have” (SME2E1).

MD4 suggested they try to be self-sufficient and streamline all internal resources to suit the project's needs. She mentioned that *“the team has a really good mindset”* (MD4) and is very innovative:

“Within the workshop, the guys constantly come up with solutions to our problems. Innovating has not been that problematic for us. We can make our own solutions” (MD4).

Likewise, MD4 mentioned that they are *“reinvesting a lot”* to be able *“to treble or quadruple the capacity in this facility”* and to *“double our profits with resources we have”* (MD4).

Although leaders understand the need for external collaboration due to the scarcity of their resources, they emphasise the importance of internal resources in project success (Ledwith, 2014) and in fostering firm innovation (Demirkan, 2018). This aligns with the Resource-Based View, which emphasises that firms should focus on developing and exploiting their unique internal resources (Barney, 1991; Wernerfelt, 1984).

The approach presented by MD3 differs from others in that it focuses solely on utilising the company's internal resources in innovation processes. All work regarding new projects is planned and managed using the firm's internal resources only. All innovative activities, from idea generation through development to commercialisation, happened within the firm. MD3 declared that they *‘do not have any collaboration’* and that every activity happened 'in-house' using their resources. He further explains:

“Any financials we found ourselves, we have money, cash at the bank. So, for any developing work we will do, we will fund ourselves. We do everything in-house” (MD3)

This approach is based on the belief that the company is self-sufficient and can complete the entire innovation process within its boundaries and under its control. This approach is known as a closed innovation approach, where all activities within the company are conducted using only internal resources (Chesbrough et al., 2006; Herzog, 2008). Innovative ideas usually stem from confident leaders who have faith in their expertise and ability to create new opportunities, as Chesbrough (2003) and Herzog (2008) suggest. Furthermore, leaders with financial stability feel more comfortable and confident investing in new projects, enabling them to respond more quickly to market needs and threats while balancing the risks associated with new projects and increasing opportunities for innovation. This ultimately enhances the company's competitive advantage (Demirkan, 2018).

A company's intangible resources, such as human, technological, social, and organisational capital, are valuable and hard to replicate (Barney, 1991; Wernerfelt, 1984; Grant, 2009), making them strategic assets for gaining a competitive advantage in the marketplace (Michael et al., 2016; Nason & Wiklund, 2018). This also aligns with the Social Capital Theory, which emphasises the significance of relationships and networks in resource acquisition and innovation (Nahapiet & Ghoshal, 1998). To capture the associated benefits, companies seek to control and protect these unique resources (Nason & Wiklund, 2018). Additionally, many leaders believe that controlling innovation is necessary for success (Herzog, 2008).

External resources

Despite their efforts to innovate independently, many companies still require outside assistance. Innovating can be an additional burden on their daily tasks and responsibilities. A common challenge reported by participants is the lack of time, money, and knowledge needed to innovate. Additionally, the need for external resources can vary depending on the specific project and stage of development. This aligns with Hossain's (2015) assertion that SME collaboration depends on the intended purpose. As a result, leaders are seeking external resources to supplement any internal deficiencies.

Time management can often be a challenge for small businesses, particularly when juggling various tasks, including those related to research. The scarcity of time

is a resource that is frequently mentioned as a hindrance to their operations. MD1 resembles a situation where an attempt to solve a problem has failed due to a lack of time and knowledge:

“Going backwards by three years or so, when the Production Manager was just testing out a few different chemicals. Actually, the work he did was not so bad, but he had so many other things to do and could spend only a part of his time on that, and it was uneducated; it was born of the practical experience, it took a long period of time, it was over six months and we never really got to a suitable answer” (MD1).

Therefore, external resources are often acquired for activities that can be performed by external parties to save the company time. The Technical Director of SME2 admitted:

“It is purely because we do not either have the expertise on-site, or we do not have the time. Sometimes we engage with universities to go and do activities that we would like to undertake. However, we absolutely do not have the time, or we do not have the resource, or we do not have the opportunity to explore” (SME2E1).

Various studies on innovation management have revealed that the innovation process requires a significant amount of time, and SMEs often encounter difficulties due to their limited resources and time constraints. Consequently, adopting collaborative approaches is a valuable solution in reducing the time to market.

Seeking external funding sources for innovation grants or other forms of innovation funding is a common practice among most firms. The leader of SME1 claimed that recently, they were *“applying for a process innovation grant to improve our production facility”* (MD1). MD2 stated that after initial internal approval of the project, the company *“would then try to source grants that would help us with that (project) because we are quite a small company”* (MD2). The Technical Director of SME2 added that they *“will look up at the external funding sources available to support innovation”*. He added, *“whether it be materials, whether it be part cost, whether it be subcontracting management”* (SME2E1). MD4, in turn, mentioned that acquired grants help with their efficiency by *“identifying where we want to spend more time, where we are not making sales”* (MD4).

Small and medium-sized enterprises are known for their specialised expertise and focus on specific areas. However, innovation often requires diverse knowledge that

may not be readily available within these businesses (Benhayoun et al., 2020). Depending on the project's requirements, including whether they involve routine or core activities and necessitate specific expertise, leaders may collaborate with external resources to enhance their internal capabilities. Consequently, SMEs frequently outsource non-routine project needs to external parties to gain access to knowledge, expertise, or equipment that can facilitate innovation. This reliance on external partners aligns with the Social Capital Theory, which posits that firms benefit from external networks by accessing critical resources, knowledge, and opportunities (Nahapiet & Ghoshal, 1998). As articulated by the Supply Chain Manager, this approach allows SMEs to leverage external resources to overcome internal limitations and drive innovation:

“We need to access some skills or knowledge that we do not possess in-house. It does not make sense to bring new resources in for a time-limited project, so you have to outsource” (SME2E2).

Regarding core competencies, leaders often seek external assistance through consultancy or new employment to fill in any gaps in knowledge or expertise. This move helps to permanently integrate the acquired knowledge into the company's internal life cycle. For example, MD4 recommended that their company seek external support to gain insight into e-commerce and to facilitate the adaptation of their business model to changing circumstances. She mentioned:

“I suppose that is where we are struggling at the moment. Out within the sales capacity and going into this universe of e-commerce. (...) It is a whole other process that is out of my knowledge field, really. I am trying to learn as much as I can about it because I want to be knowledgeable about it” (MD4).

In the case of SME1, external resources were utilised to implement the necessary and specific changes to the core product, enhance knowledge about it, and support internal activities leading to its production. Employees highlighted the holistic support offered by MD1 to help them innovate. The production Manager stated:

“She (MD1) has brought in a lot of different resources to help us achieve—certainly, scientific knowledge of KTP and other aspects of automation within the factory” (SME1E2).

According to Radziwon & Bogers (2018), small and medium-sized businesses (SMEs) can benefit more from focusing on their core competencies instead of trying

to learn new things and investing time and money they do not have. Demirkan (2018) also notes that competitive advantage does not necessarily require ownership or control of resources. As such, outsourcing can provide the necessary resources for a project through inter-organisational collaboration (Demirkan, 2018; Radziwon & Bogers, 2018).

In turn, MD5, although also following the approach of utilising internal and external resources to innovate, her assumption is quite unusual. Internal teams are empowered to make decisions and try new things, encouraged to innovate, and supported heavily by external resources. The company ethos is based on a cross-collaborative and open approach, where the company's boundaries are extended outward to increase the innovative potential to serve the whole, not the individual. All work is planned and organised to use existing knowledge, competencies, and expertise to create new goods and spread them across:

“How do we (...) make things that are publicly funded more accessible rather than reinventing the wheel and refunding things that'd already been funded. Do reverse engineering and break the silos to be more cross-collaborative so we can actually have that small piece of money work in a bigger impact area” (MD5).

Collaborating for innovation assumes a new significance with the exchange of knowledge, expertise, and concepts among entities within the environment. As coined by Chesbrough, Open Innovation emphasises merging internal and external competencies to create value. Merging internal and external competencies to innovate and create value is the main idea and the concept of Open Innovation (Chesbrough, 2003a; Chesbrough et al., 2006; Herzog, 2008) and aligns with Social Capital Theory, where firms use external networks to access resources, increase innovative potential benefiting the environment (Stanisławski & Lisowska, 2015).

Opposite to others, MD3, when planning and organising innovative projects, refrains from involving external partners. He admits that:

“I do not have good experience with external people who want to, in any way, have input in the growth of my business. If anybody is going to grow my business, it is going to be me. I like to have all for myself, not greedy wise, but I like to be in control of everything myself. So, I do not do very well with collaboration and partners because it dilutes my influence on it” (MD3).

The only external collaboration recognised by MD3 is one based on buyer-seller cooperation.

“I am looking at collaborating with a marketing company that specialises in composites, and what they do; they take the cut of the product that you market. It is all agreed first, and it is a good way to work with” (MD3).

Again, the above practices support closed innovation, where all activities happen within the firm (e.g., Chesbrough et al., 2006).

5.2 Linking Leadership Competencies to Creative Leadership Approaches.

The preceding section synthesised a range of leadership competencies, including personal, interpersonal, and business-related ones. This section builds directly on the findings from Section 5.1, where these competencies were identified and categorised through a detailed analysis of empirical data. The leadership approaches presented here emerged through an iterative comparison of the results from Section 5.1 with established theories from the leadership and innovation literature. This abductive process enabled the formulation of a theoretically grounded and empirically informed typology of leadership within the context of SMEs.

Data from interviews, field notes, and memos were triangulated to capture observable leadership behaviours, relational dynamics, and decision-making styles. Through this process, three distinct leadership approaches were identified: **Approach 1**, **Approach 2**, and **Approach 3** (see Table 5.6). These were not predetermined categories, but rather developed inductively and then refined by aligning empirical patterns with insights from the literature on leadership and innovation.

Approach 1	Approach 2	Approach 3
First/second-generation leader Practical/managerial experience College/University degree	First-generation leader Practical/managerial experience Standard school education Idea generator	First/second-generation leader Practical/managerial experience College/University degree Idea generator
Decentralised authority Collaborative style	Centralised authority Directive and hierarchical	Semi-decentralised authority Shared leadership tendencies

Approach 1	Approach 2	Approach 3
Guidance and support rather than control Encourages creativity	Focus on control, roles, and compliance Low input from employees	Encourages feedback Balances freedom with final decision-making authority
Creative, highly motivated, educated followers	Low-skilled workforce Limited employee creativity	Creative and productive followers Collective innovation Recognition of contributions
Responsive to market needs Semi-open / open to external collaboration Semi-proactive innovation	Highly market-oriented Proactive, but closed to external collaboration	Customer-oriented Semi-open to external collaboration Semi-proactive innovation
MD2, MD5	MD3	MD1, MD4

Table 5.6 Summary of leadership behaviours and formation of leadership approaches.

The behavioural patterns observed across the firms were initially grounded in the leadership competencies identified in Section 5.1. These approaches reflect varying degrees of centralisation, employee involvement, communication style, and openness to external input. They also correspond to differences in how leaders perceive their role in facilitating innovation. **Approach 1** emphasises empowerment, trust, and decentralised control; **Approach 2** exhibits autocratic and hierarchical tendencies; and **Approach 3** demonstrates a balanced, participative leadership that integrates feedback while maintaining leadership authority.

Differences in leadership behaviour—particularly around power distribution, communication, and motivation—are rooted in interpersonal competencies, which are shaped by personal histories and values (Prats & Agulles, 2009). These behaviours directly influence employees’ willingness and ability to engage in innovation. From a Resource-Based View perspective, leadership acts as a strategic asset, enabling the mobilisation and deployment of resources to support innovation (Barney, 1991; Grant, 1996).

Moreover, leaders with strong interpersonal and relational skills can enhance the firm’s social capital (Nahapiet & Ghoshal, 1998), thereby increasing collaboration and knowledge exchange both internally and with external partners. The degree to

which leaders enable or constrain employee creativity is influenced by their ego, self-perception, and mindset, which in turn shape the organisation's overall innovation capacity.

These patterns were then compared with relevant theoretical perspectives to enhance conceptual clarity and validity.

5.2.1 Creative Leadership and Mainemelis' Typology

As discussed in the literature review, innovation is fundamentally connected to creativity (Kremer et al., 2019). Creativity is not limited to the realm of art but rather encompasses the ability to approach problems from new and unconventional angles. Therefore, creativity is an indispensable quality for leaders aspiring to lead their organisations towards progress and success (Collett et al., 2019). Therefore, drawing from the empirical data and guided by critical realist abductive logic (Ackroyd, 2004; Saunders et al., 2012, 2019; Vincent & O'Mahoney, 2014), the three leadership approaches were mapped onto Mainemelis et al.'s (2015) typology of creative leadership: facilitating, directing, and integrating.

- **Approach 1** aligns with **facilitating creative leadership**, characterised by the decentralisation of authority, encouragement of follower creativity, and the provision of resources and psychological safety. Leaders here act as enablers rather than controllers, trusting their employees to make meaningful contributions to innovation.
- **Approach 2** corresponds to **directing creative leadership**, where the leader retains tight control over decisions, sets clear expectations, and provides limited space for employee-driven innovation. Creativity is primarily leader-driven, and innovation is top-down.
- **Approach 3** reflects **integrating creative leadership**, which balances structure with flexibility. These leaders actively involve employees in idea development while retaining final decision-making authority. The approach fosters collective innovation through mutual respect and support.

This theoretical alignment emerged organically from the data, reinforcing the validity of the observed distinctions. This mapping was a product of abductive

reasoning, where empirical themes generated from real-world contexts were interpreted through theoretical lenses. This iterative dialogue between data and theory is central to the critical realist approach, which seeks explanatory depth beyond surface-level descriptions. As such, the typology serves not only as a framework for classification but also as a lens to understand how different leadership behaviours shape innovation potential in SMEs, which will be discussed in detail below.

5.2.1.1 Approach 1 -Facilitating

The leadership styles exemplified by MD2 and MD5 exhibit characteristics of facilitating creative leadership. This leadership style is characterised by several key features that are reflected in the actions of SME2 and SME5 leaders. These include promoting employee creativity by fostering innovative ideas, providing necessary resources, and granting greater autonomy in decision-making to employees (Mainemelis et al., 2015). This aligns with the Resource-Based View, which posits that firms gain a competitive advantage by leveraging unique internal resources, including leadership capabilities and employee creativity (Barney, 1991; Grant, 1996). The focus on developing creative solutions is seen as a means of enhancing organisational effectiveness. At the same time, the provision of resources and autonomy is intended to empower employees and enhance their sense of ownership and commitment to the organisation. Creating an environment and opportunities that encourage employees to innovate is part of a leader's organisational competencies (Mumford et al., 2002). Furthermore, although the leadership approach entails fostering an environment where employees are encouraged to act as the primary source of innovative ideas, the actual creative output of these employees is significantly influenced by the level of creative and supportive contributions made by their leaders (Mainemelis et al., 2015; Abecassis-Moedas & Gilson, 2018). This approach enhances the organisation's capacity for innovation and fosters a culture of creativity, which is evident in SME2 and SME5, ultimately conferring a competitive edge in the marketplace.

In facilitating creative leadership, possessing technical expertise is an indispensable quality. According to some scholars, this attribute is crucial for assessing innovative ideas and managing a diverse spectrum of projects (Mumford et

al., 2002, 2003; Amabile et al., 2004). Its significance cannot be overstated, as it enables leaders to make informed decisions, convey concrete and practical guidance to their subordinates, and facilitate the successful execution of objectives (Mumford et al., 2002, 2003; Amabile et al., 2004). Although technical competencies are undoubtedly beneficial and can streamline work processes, they are not an absolute requirement, as shown in this research. Based on the available evidence, both leaders have previous management experience but appear to lack the necessary technical expertise. MD2 assumes the position of a second-generation leader who inherited the family business from her father, the original product inventor, primary owner, and Managing Director. For a considerable period, the company focused on producing a single core product. However, changes in the market and customer demands necessitated innovation. Neither the leader nor her employee possesses the technical expertise required for the project. Consequently, MD2 decided to recruit a specialist with technical skills and experience in project management in the relevant technical field. The new director made significant contributions to the company's internal resources by enriching its knowledge base and streamlining its operations. This strategic initiative has significantly enhanced the firm's capabilities (Herzog, 2008), demonstrating how external resource acquisition through social capital can complement the Resource-Based View in driving innovation (Nahapiet & Ghoshal, 1998). As a result, SME2 has successfully transitioned towards new technologies and expanded its product portfolio, ultimately leading to an improved market position and an enlarged customer base. This, in turn, has bolstered its overall competitiveness within the industry, setting a solid foundation for continued growth and success. In turn, MD5 recognises the value of knowledge sharing and, therefore, does not believe possessing expertise in every field is necessary. Instead, she considers networking with experts from various fields a standard practice rather than a mere requirement. Collaborating and sharing knowledge among individuals involved in a process fosters creativity and drives ongoing innovation. Social Capital Theory underscores the value of such interactions, as social networks facilitate access to knowledge, resources, and expertise that may otherwise be unavailable internally (Adler & Kwon, 2002). In the aforementioned scenario, the leader's lack of technical expertise was effectively addressed through leveraging the skills of their

employees or forming external partnerships. This highlights the importance of a leader possessing organisational solid capabilities and interpersonal abilities to effectively navigate challenges and guide their organisation towards achieving objectives. Furthermore, such skills are transferable across diverse business domains, thereby significantly contributing to an individual's overall success and career advancement.

Furthermore, while the two MDs hold different perspectives on innovation and its role in the company, they both acknowledge its importance to the business's long-term success. Whether through a focus on financial gain or societal impact, innovation remains a critical strategic priority for the company. Therefore, both leaders have demonstrated a commitment to fostering the innovative potential of their employees through various stages of the innovation process. The relationship between leaders and employees is crucial in creating a climate that fosters creativity and innovation. This dynamic interplay is greatly influenced by the attitudes and behaviours of the leaders, as well as their level of involvement in the project (Yoshida et al., 2014; Guo et al., 2017; Lee et al., 2020). Social capital plays a vital role in this process by enhancing trust, collaboration, and the free exchange of ideas, strengthening innovation outcomes (Nahapiet & Ghoshal, 1998). For instance, an employee at SME2 suggested expanding their product into a new market, and the company responded with support and collaboration. External experts were brought in-house to contribute to the project's success. During the ideation phase, thorough market research was conducted in collaboration with the University to gain a deeper understanding of the market, customers' needs, and trends. The company then moved into the development phase, creating a prototype and examining all technical aspects in collaboration with universities and other small and large companies associated with SME2 through intermediaries. Eventually, the product was commercialised through a collaborative effort involving various external resources. At SME5, a customer presented MD5 with a problem they could not resolve. The issue was communicated to the employees, and the individual with the most suitable solution was tasked with leading the project, with the others providing support. MD5 established partnerships with universities during the idea generation phase, and the prototyping was carried out internally and in collaboration with external experts in

the field of dyes. While SME5 produced the new product for the client, MD5 facilitated the commercialisation process by connecting them with relevant intermediaries. The leader's supportive contributions to the ideas generated by others enabled all commercialised projects to be implemented successfully in the market. The bond between leaders and employees is integral to the success of any business venture, and a positive relationship can inspire employees to work productively and contribute to the organisation's growth. Therefore, leaders must cultivate a supportive and constructive relationship with their subordinates to foster a workplace culture that promotes innovation and creativity. Working together strengthens mutual awareness and trust, essential for employee creativity (Mainemelis et al., 2015). Even though these contributions may not be deemed creative in themselves, they encourage creativity in the workplace, enabling the implementation of new ideas.

One effective method for supporting and motivating subordinates to achieve these goals is to provide autonomy and empowerment, which is closely linked to facilitating context (Mainemelis et al., 2015). The leaders of SME2 and SME5 are known for offering their employees varying degrees of empowerment, providing them with the independence and resources necessary to succeed in their respective roles. For example, MD2 designated the Technical Director as her trusted advisor and gave him the authority to make crucial decisions regarding potential projects and their implementation. The Technical Director reviews all internal and external ideas, collaborates with other departments, and ultimately decides whether a project has potential, which is then communicated to MD2. MD2 primarily focuses on the business aspect of the project, with the support of other directors in the sales and marketing area. This characteristic behaviour reflects an approach where individuals are granted significant autonomy in decision-making and self-regulation. Meanwhile, the leader offers guidance and support upon request but does not actively intervene in the group's day-to-day operations (Tang, 2019). This approach allows individuals to exercise a higher degree of autonomy, making it a prevalent strategy in organisations where the employees possess exceptional skills and self-motivation (Tang, 2019). In this case, the Technical Director, being highly skilled and experienced, can be deemed suitable for such an approach. This leadership style is also effective when employees are experienced, highly motivated and take pride in their work (Tang,

2019), as with SME5. Each employee is allowed to facilitate the development and implementation of innovative and creative ideas. To that end, the company encourages its personnel to lead projects whenever they feel inclined to do so. Top managers support all project areas, but they also give employees the freedom to lead projects, make decisions, and gain experience from them (Tang, 2019). In addition, followers receive recognition for their diligent efforts and contributions towards completing projects and tasks. This acknowledgement is a testament to their hard work and dedication towards achieving organisational objectives. Implementing an approach that nurtures creativity and initiative while fostering a culture of collaboration and learning is known to promote a conducive work environment. This method also enhances the trust between leaders and followers. By providing employees with opportunities to take ownership of their work, MD5 fosters a stimulating and rewarding environment. Implementing these behaviours augments the autonomy of employee decision-making, bolstering their confidence and underscoring the importance and value of their contributions to the organisation (Mainemelis et al., 2015). As a result, the workforce exhibits higher levels of engagement and productivity, which is critical to the company's success and ensures that it remains at the forefront of innovation (Mainemelis et al., 2015).

This leadership style is best suited to environments where individuals are self-directed and capable of taking initiative (Tang, 2019). However, to cultivate a culture of creativity, effective leadership requires striking a balance between providing autonomy and structure (Mumford et al., 2002, 2003). While granting employees significant freedom is crucial, leaders must also maintain oversight to ensure consistent progress towards organisational goals. This approach enables leaders to stay informed and offer guidance and support as needed while also encouraging employees to take ownership of their work (Tang, 2019). Furthermore, implementing practices such as goal-setting, monitoring, and evaluation can enhance employee motivation and contribute to achieving long-term strategic objectives, ultimately boosting overall organisational performance. (Mainemelis et al., 2015).

Divergences exist between MD2 and MD5 regarding market orientation and resource management. SME2 has historically been a product-oriented company. The company has consistently invested in internal projects, research, prototypes, and

product manufacturing. However, when MD2 decided to innovate its business model by altering its management structures, SME2 adopted an additional market-led approach to its operations. As a result, the company began exploring the market to identify opportunities arising from changes in customer demands and emerging new market trends. SME2 has been actively exploring potential solutions in line with these opportunities. Furthermore, the company strives to innovate internally for incremental improvements, sometimes utilising suppliers when necessary to ensure the best possible results. However, when innovation is more radical, MD2 connects internal resources with external expertise to ensure the project's feasibility and the efficiency of the process implementation. Meanwhile, MD5 offers a solution that utilises existing knowledge and technology to address market demands. The approach involves fostering an open innovation culture whereby knowledge and expertise are shared across industries and sectors to tackle challenges. To achieve this, the entrepreneur closely monitors the market and identifies potential issues that may arise. Through a collaborative, cross-sectoral, and cross-industrial effort, these issues are resolved in a highly cooperative manner. This approach promotes innovation and ensures that problems are addressed promptly and efficiently.

The sample shows a prominent leadership style that closely aligns with facilitating creative leadership (Mainemelis et al., 2015). This approach is characterised by a leader who fosters the creativity of their team members by providing resources and support for creative problem-solving. While employees are the primary source of ideas, the level of support from the leader can significantly impact their ability to contribute creatively to the team (Mainemelis et al., 2015; Randel & Jaussi, 2019). This approach promotes creativity among all employees and supports bottom-up innovation. The leaders who adopt this strategy are particularly receptive to collaborating with external entities, more so than other companies in the sample. While these companies typically offer a limited range of products that are primarily the result of incremental innovation, they do occasionally pursue radical innovations. Such breakthroughs are often associated with changes in the firm's business model, including its organisational structure, adoption of new technologies, exploration of new sales channels, and entry into new markets. Additionally, these market- and product-led companies remain nimble and agile in their operations.

Figure 5.2 illustrates the visualisation of the primary attribute of facilitating creative leadership found in this study.

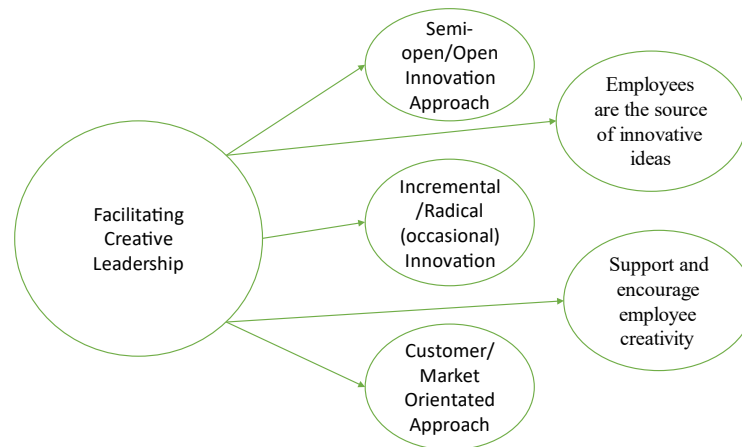


Figure 5.2 Visualisation of the primary attribute of facilitating creative leadership.

5.2.1.2 Approach 2 - Directing

The leadership style embodied by MD3 aligns with the prevailing literature, which advocates for a directing approach where the leader provides explicit guidance to subordinates who follow their orders (Lorinkova et al., 2013; Colovic, 2022). This approach entails that the leader's imaginative and innovative vision is materialised through the collaborative efforts of others, and credit for creative work is attributed to the leader (Mainemelis et al., 2015; Abecassis-Moedas & Gilson, 2018). MD3 exhibits a robust character, as evidenced by his fervent passion for his business, his eagerness to explore new prospects, and his decisive and sagacious approach, which is a direct result of his extensive industry experience. The individual opines that a leader who draws upon their industry experience and knowledge is indispensable for a business's success. Such a leader is well-positioned to make informed business decisions and navigate the industry's challenges. This view is widely held among experts and practitioners in the field, as it is widely acknowledged that the experience and knowledge of a leader can make a significant difference in an organisation's performance (Prats & Agulles, 2009). From an RBV perspective, the leader's accumulated industry experience and strategic decision-making capability

are valuable, rare, and inimitable resources that provide a competitive advantage (Barney, 1991). This strategic knowledge enables the firm to respond effectively to market trends and customer demands, reinforcing its ability to sustain profitability and growth. The leader's deep industry expertise aligns with the idea that firm-specific resources, including leadership skills and tacit knowledge, contribute to long-term business success (Grant, 1996).

Furthermore, his well-structured, focused, and proficient demeanour epitomises the essential characteristics for directing creative leadership. Furthermore, it is not unusual for a leader's personality to merge with the organisation's identity, thereby contributing to the establishment of a distinct corporate culture, as noted by Abecassis-Moedas and Gilson in 2018. The leader of SME3 places excellent emphasis on asserting his authority and fulfilling his responsibilities as a leader. He recognises the importance of developing a clear and compelling vision, creating strategic objectives and plans, and effectively communicating them to the staff. The leader of SNE3 is a strong advocate of segregating duties, as he believes his role is to spearhead innovative ideas and steer the company in the right direction, while others should follow suit. Decisions are made only by the leader who clearly understands his strategy and the company's objectives. This exemplifies a top-down approach, which is typical of directing creative leadership. This managerial philosophy is often associated with a lack of support for employee creativity at lower levels of employment (Nemeth, 1998; Colovic, 2022). Despite being heavily involved in every step of the innovation process, including idea generation, product production, and commercialisation, his ideas are realised through the efforts of others (Mainemelis et al., 2015). Employees are given specific tasks and instructions from their superiors (Lorinkova et al., 2013), leaving little room for creativity at the labour level (Mainemelis et al., 2015). However, incorporating employee contributions and input into a business is not always feasible. Instead, individual contributions are limited to ideas that may enhance the workplace environment, rather than providing substantive input into creating new processes or products. This leadership posture is often referred to as hierarchical or autocratic (Yukl, 1989). Mainemelis et al. (2015) suggest that not all tasks require creativity, and subordinates often seek guidance and direction from their leader. When clear instructions are provided, favourable

outcomes such as enhanced efficiency and a more straightforward path to task completion can be achieved. This is attributed to the establishment of a shared vision and the adoption of common values among followers. Consequently, leaders are crucial in providing direction and ensuring their subordinates align their efforts towards a common goal (Colovic, 2022).

Moreover, the leadership style of MD3 follows the replicator's approach to creative leadership (Sternberg et al., 2003; Mainemelis et al., 2015), which emphasises maintaining existing methods of operation. The leaders do not change the operational, technological, or business approaches as they believe everything is working well and the company is successful. Therefore, the company is led in the same manner as it was in the past, and the leader ensures that this approach is maintained (Sternberg et al., 2003). The company's leader has a clear vision for its management and future direction. For decades, the company has continuously replicated its strategy and organisational processes. The firm maintains an 'open door' policy, facilitating verbal communication and information exchange. Important information and actions are recorded in handwritten memos, and reports from managerial meetings are made on paper. These documents are then stored in physical folders, as electronic copies do not exist. The monitoring of current and new customers, as well as their orders, is conducted through an Excel file. Additionally, the company keeps a small sample of physical products they want to work on in a *'pending drawer'*.

Additionally, manufacturing processes have remained mainly manual and unchanged for many years. According to Sternberg et al. (2003), leadership that focuses on replicating successful strategies is more likely to work well during periods of stability. The company has been utilising the same methodologies for several decades, yet it continues to generate profits and sustain constant growth. This accomplishment can be attributed to prioritising customers and market needs and preferences. The management at MD3 has placed significant emphasis on monitoring market and customer trends to identify growth opportunities. The product line remains flexible and responsive to emerging opportunities, with new offerings dynamically expanding to meet market demands. This approach ensures that the products are always at the forefront of innovation and poised to capture new business

opportunities. Mainemelis et al. (2015), citing Conger (1995), suggested that creative ideas frequently arise from leaders' opportunistic exploration. This research often leads to revolutionary innovation from the visionary and imaginative leader's capacity to predict market and societal trends and recognise opportunities (Mainemelis et al., 2015). RBV supports this strategy by highlighting that firms that develop unique capabilities, such as anticipating and responding to market change, gain a sustainable competitive advantage (Barney, 1991). The company's leader capitalises on firm-specific competencies, such as tacit knowledge and established customer relationships, reinforcing the firm's market position (Peteraf, 1993). Social capital theory provides another lens through which to understand this leadership approach. While MD3 does not engage in external collaborations, the firm's internal network fosters strong ties among employees, enabling the efficient transmission of knowledge and coordination of efforts (Nahapiet & Ghoshal, 1998). However, lacking external collaboration may limit access to diverse knowledge sources, potentially hindering innovation (Burt, 2000).

MD3 has stated that they have not engaged in any external collaborations and have insinuated that they have never seriously considered doing so. The individual further acknowledges that they do not perceive the value in collaborating with external entities; therefore, it is not seen as a feasible option for the company. The leader collaborates with external companies as needed. However, this collaboration focuses on customer-buyer service rather than one that leverages the creative input of others. MD3 has preferred to maintain control over the project, stating that no one knows his business better than he does. As such, collaboration would be perceived as undermining their leadership role. This attitude is not only typical for directing creative leadership (Mainemelis et al., 2015) but also for leaders that cultivate close innovation, where the entire innovation process, from start to finish, takes place '*in house*' (Chesbrough, 2003; Herzog, 2008).

This leadership approach exhibits characteristics of directing creative leadership, wherein leaders issue orders rather than encourage exploration (Mainemelis et al., 2015; Randel & Jaussi, 2019). The leader serves as the driving force behind innovative ideas, overseeing their development and commercialisation. The realisation of these ideas through employees' work is facilitated by setting clear goals

and providing guidance to achieve creative outcomes. The directing approach prioritises hierarchical innovation, emphasising top-down innovation and obedience among lower-level followers rather than creativity. The leader who implements this strategy prefers internal innovation over seeking external partnerships, exemplifying a closed innovation approach. The company's market and customer-oriented leadership promotes constant innovation and diverse product offerings. While the company primarily focuses on incremental innovation, radical innovation is not absent and is often tied to new market opportunities and product development. Figure 5.3 illustrates the visualisation of the primary attribute of directing creative leadership found in this study.

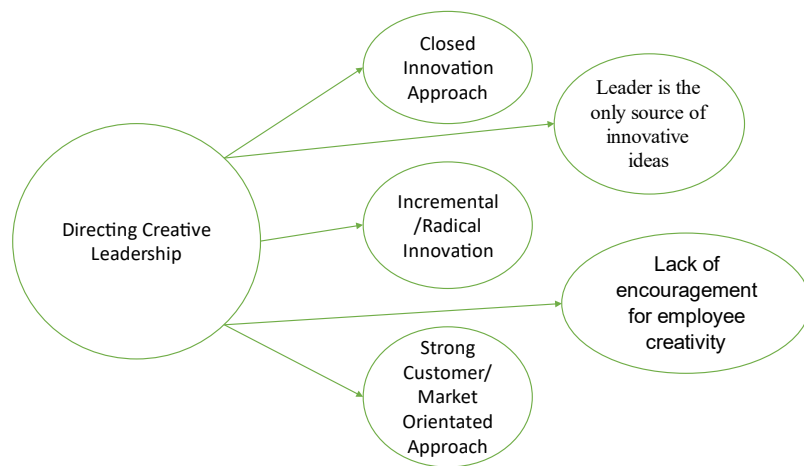


Figure 5.3 Visualisation of the primary attribute of directing creative leadership.

5.2.1.3 Approach 3 - Integrating

The third leadership approach from the research sample was oriented towards integrating context. This approach shares similarities with the concept of facilitating leadership, specifically concerning the active promotion and cultivation of a culture of innovation within an organisation by encouraging employees to think beyond conventional norms and collaborating as a team to enhance the innovation process. The approach also resonates with the directing approach, in which the leader is the primary creator of an innovative idea. However, the primary factor distinguishing the three approaches is the proportion of creative and supportive contributions made by

the leader and the follower (Mainemelis et al., 2015). The integrating approach involves blending the leader's creative vision and inputs with the diverse creative inputs of other professionals and team members (Mainemelis et al., 2015, 2019), resulting in a more collaborative approach to innovation. From the Resource-Based View perspective, integrating diverse expertise within the organisation provides a competitive advantage by leveraging unique and inimitable resources (Barney, 1991).

The manifestation of this conceptualisation is evident in the conduct of MD1 and MD4. Both leaders were the initiators of innovative ideas, and both required the input of other professionals to achieve the intended result. For instance, SME1 faced a challenging situation wherein alterations in legislation necessitated the company to revamp its product. Since SME1 lacked internal expertise, MD1 sought external assistance and collaborated with the University through the Knowledge Transfer Partnership (KTP) program, which provided the necessary expertise. After acquainting himself with the company's established standards and expectations and formulating initial product concepts, the associate began working on a project that involved cooperating with other colleagues within the organisation. However, they quickly realised that the production process would require radical changes and expertise not available in-house. Thus, MD1 partnered with two professionals, one in mechanical engineering and the other in chemical engineering, to address the specific requirements for a new manufacturing process and production facility. In turn, MD4 has recently decided to modify its business model by adjusting its sales channels and emphasising e-commerce more. However, due to a lack of expertise in this area, MD4 has partnered with an e-commerce institute that provides expertise in the theoretical and practical aspects of e-commerce. Through this collaboration, an expert has been able to tailor the process to the specific needs of SME4, enabling the company to implement e-commerce strategies effectively. This aligns with Social Capital Theory, which emphasises the role of social structures in accessing valuable resources and knowledge through relationships (Nahapiet & Ghoshal, 1998). Therefore, the innovative ideas of the MDs were combined with the creative contributions of other professionals involved in the project through interaction and participation (Abecassis-Moedas & Gilson, 2018), thus promoting collaborative

innovation (Collett et al., 2019; Mainemelis et al., 2019). Moreover, all actors involved in the project are part of social structures that prioritise specialist roles applicable to an entire industry or field (Mainemelis et al., 2015), such as chemists, mechanical engineers, chemical engineers, and e-commerce specialists. This methodology promotes an effective work environment where individuals with diverse areas of expertise, holding specific responsibilities and tasks, can collaborate to achieve a shared objective while appreciating the valuable contributions of different professionals and their distinct creative input. Thus, the leadership in integrating context is based on integrating a diverse range of creative ideas and establishing a shared sense of "authorship" of innovation (Mainemelis et al., 2015). Notwithstanding the strong emphasis on collaboration, the leader's identity as a primary creator is still discernible in both the project and the ultimate product (Harvey et al., 2019; Litchfield & Gilson, 2019).

Furthermore, such collective creativity appears to be the central theme in the integrating context during the innovation process. The analysis of empirical data has revealed that both internal and external processes characterise the phenomenon of collective creativity in small and medium-sized enterprises, the extent of which is mainly dependent on specific project requirements. A leader's approach to collective creativity with external entities is primarily situational and selective, predicated on determining its necessity during the innovation process. External collective creativity is an approach that focuses on acquiring specialised knowledge and expertise that is not readily available within an organisation. An example of this was discussed in the previous paragraph. It can be argued that small and medium-sized enterprises tend to engage in external collective creativity when faced with the need for more radical changes. This phenomenon is often observed when innovative solutions are sought to overcome challenges and achieve business objectives. This type of collective creativity is commonly referred to as occasional collective creativity in literature, and it pertains to situations where leaders work independently until contributions from other parties are necessary (Abecassis-Moedas & Gilson, 2018).

From a resource-based view standpoint, internal knowledge and expertise constitute critical intangible assets that contribute to sustained competitive advantage (Grant, 1996). As part of its leadership philosophy, companies value and appreciate

employee input, which is integral to improving project outcomes (Collett et al., 2019). In cases where the collective creativity process primarily involves internal actors, it will be referred to as internal collective creativity in the context of this research. This ongoing process primarily focuses on enhancing the company's internal operations and production processes. For instance, the implementation of MD4's creative idea was facilitated by the collaboration of a fellow employee, who provided valuable input to enhance the process and establish the necessary workstations to manufacture the products. The suggestions for improvement stem from the employees' desire to streamline, expedite, and enhance the process. MD4 has observed that their contributions are specific to their roles and positions, ensuring the entire process is optimised for efficiency. The primary objective of this process is to enhance the organisation's innovation potential and foster a culture of creativity. This is another example where the culture of innovation, i.e., an environment that fosters cooperation and support, aided by low hierarchy, amicable relationships, and a positive atmosphere, has a profound impact on creativity and collaboration among team members (Abecassis-Moedas & Gilson, 2018; Collett et al., 2019).

Furthermore, collaboration among professionals and the incorporation of diverse concepts can initiate co-leadership. For instance, MD1 developed an innovative concept for a new product requiring specialised scientific knowledge. The leader of SME1 decided to collaborate with an external expert who could provide the necessary expertise. Once the expert was onboarded and had assimilated into the company culture, they became a new team member. The expert's role was to find a solution to a scientific problem. Through close collaboration with various departments, the expert infused the initiative with technical and scientific expertise, playing a pivotal role in its development. As a result, the expert became a co-leader and oversaw the project's scientific component. During this phase, MD1 focused on supporting the co-leader by providing the necessary internal and external resources in various forms, as well as addressing the business aspects of the project. The approach to leadership may exhibit variation and change at different stages of the innovation process (Abecassis-Moedas & Gilson, 2018). Although MD1's involvement in the innovation process was direct and significant, the extent of her creative contribution varied depending on the project's stage and the creative input of others. In addition,

her supportive contribution was complementary to the stages where the creative contributions of others were more visible. Nonetheless, her leadership role and position were crucial to the project's conception, production, and ultimate success (Mainemelis et al., 2015). Based on available evidence, it can be inferred that the co-leadership model in small and medium-sized enterprises prioritises considering internal stakeholders, particularly employees, over external entities that lack formal affiliation with the organisation.

When examining the business competencies of the leaders, it becomes apparent that both MD1 and MD4 exhibit a pronounced emphasis on customer orientation. However, their approaches manifest significant differences. MD1 employs a reactive approach, wherein she responds to client needs as they arise or resolves issues as they occur, awaiting the client's reach out to the company. On the other hand, MD4 adopts a proactive approach, endeavouring to anticipate and meet customer needs and wants even before they become aware of them. Prior research has underscored the importance of comprehending customers' needs, wants, and expectations, as it is a potent asset leading to more successful products (Nicholas et al., 2011). Consequently, it provides a competitive advantage in the business landscape (Chaithanapat & Rakthin, 2021). Moreover, SME1's operations necessitate a more apparent market orientation, unlike the proactive approach demonstrated by the leader of SME4. Through conscientious monitoring of market trends and consumer behaviour, SME4's leader scrutinises data and offers innovative solutions that stay ahead of the curve. According to Solano et al. (2018), understanding the customer and market can yield substantial long-term advantages for a company's performance.

This leadership approach incorporates elements of integrating creative leadership, which involves synthesising various perspectives and ideas to produce innovative solutions. This approach fosters employee creativity by combining their unique contributions with those of the leader, who serves as the primary visionary and enlists the assistance of other professionals to bring their ideas to life. This approach is characterised by a more balanced distribution of creative and supportive contributions between the leader and employees (Mainemelis et al., 2015; Randel & Jaussi, 2019). Co-leading is often employed to integrate concepts, with one specialist responsible for the scientific aspect of the innovation process and the leader

overseeing the business and organisational aspects. The leaders implementing this strategy are receptive to external innovation and collaboration to fill gaps, resulting in a semi-open approach. Companies tend to offer a narrow selection of products, primarily due to incremental innovation. Radical innovations have occurred only once for each company and are typically linked to its business operations. Both companies are customer-centric, although one tends to lean towards a market-oriented approach and displays greater proactivity in its operations. Figure 5.4 illustrates the visualisation of this study's primary attribute of integrating creative leadership.

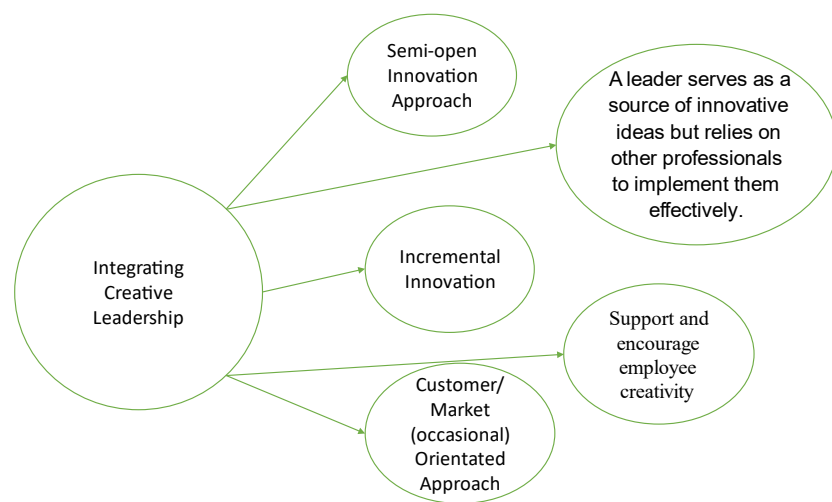


Figure 5.4 Visualisation of the primary attribute of integrating creative leadership.

5.3 Conclusion

This chapter presented the findings for the first research objective:

To investigate how the leadership approach impacts the way SME organisations approach innovation.

The aim was to delve into the leader's leadership techniques and their impact on the organisation's innovation culture. This analysis demonstrates that leadership in SMEs is a dynamic, context-sensitive process shaped by personal values, behavioural competencies, and relational dynamics. By grounding leadership approaches in empirical data (Section 5.1) and aligning them with Mainemelis' (2015) creative

leadership framework, this section provides a theoretically informed interpretation of how leaders influence innovation outcomes in SMEs.

The three approaches —facilitating, directing, and integrating —represent distinct pathways through which leaders mobilise people and resources, ultimately shaping the firm's innovation capacity. All three approaches are grounded in teamwork between leaders and employees. It is worth noting, however, that the facilitating and integrating approaches are significantly more collaborative than the third approach, which is primarily directive and cooperative. This implies that while all three approaches share a common goal of achieving organisational objectives through shared efforts, the facilitating and integrating approaches prioritise collective problem-solving and decision-making over individual contributions.

From a Resource-Based View perspective, leadership approaches prioritising collaboration leverage internal capabilities more effectively, integrating diverse knowledge and expertise within the organisation (Barney, 1991). The facilitating and integrating approaches align with this theory by fostering internal and external knowledge exchange, thus creating competitive advantages. In contrast, the directing approach, which relies more on internal resources and leader-driven creativity, exhibits a more closed innovation framework that may limit the development of innovative capabilities (Teece, 2007).

Additionally, the level of creative and supportive contributions demonstrated by leaders and followers throughout the innovation process varies across the three approaches. In particular, the contribution of followers in creative endeavours is neither necessary nor expected in the directing approach. However, such contributions are highly encouraged in the facilitating and integrating approaches. Additionally, leaders' supportive and creative tactics vary depending on the level and type of assistance required. In the directing approach, these tactics centre around giving direction and utilising internal resources to support followers. This approach appears to exhibit characteristics that are commonly attributed to closed innovation. Meanwhile, in the integrating and facilitating context, they frequently include utilising external resources of varying degrees and types, tailored to meet the specific requirements of each team and to overcome any unique challenges. These approaches

prioritise establishing a culture that encourages teamwork, fosters innovation, and promotes the exchange of knowledge and ideas. By embracing an open mindset, the company can leverage the collective knowledge and expertise of its workforce to achieve company goals, improve productivity, and drive growth. These strategies highlight the company's emphasis on an open culture rather than a top-down innovation, such as directing leadership. Still, the facilitating leadership approach leans towards a more open innovation strategy while the integrating approach falls somewhere in the middle, as discussed in the previous section.

Social Capital Theory (Burt, 1992; Nahapiet & Ghoshal, 1998) further explains the effectiveness of integrating and facilitating leadership approaches. By establishing strong social networks within and outside the organisation, these leadership styles enable knowledge sharing, trust-building, and collective problem-solving, which are crucial for innovation. As demonstrated by MD1 and MD4 in the case studies, the ability to access external expertise aligns with the social capital perspective, where leaders act as boundary spanners who connect internal teams with valuable external resources (Adler & Kwon, 2002).

These methodologies offer valuable insights into leaders' strategies for navigating the complex and multifaceted landscape of innovation. The study's results can help leaders improve their approach to innovation and align their leadership practices more effectively with their organisation's specific innovative needs.

Furthermore, this study makes a contribution to the existing literature on leadership in small and medium-sized enterprises by shedding light on the connection between creative leadership and firms' innovative strategies. To the researcher's knowledge, this topic has not been explored before. As such, the current study provides valuable insights into the potential impact of creative leadership on the firm's innovation strategy, thereby extending the analysis of creative leadership's influence on innovative approaches within the firm.

5.4 Limitations and Future Research

As with all studies, this one has limitations which suggest further research areas. Given that this research focused on established SMEs, it refrains from examining discrepancies among leaders from different generations or genders. However, it is

evident that leaders from the initial generation and female leaders exhibit a greater proclivity towards collaborating with external partners in the pursuit of innovation. This observation suggests that leaders from these groups are open to external viewpoints and keen on developing partnerships to further their innovation goals. This finding has significant implications for businesses and organisations that foster a culture of innovation, as it highlights the importance of diversity and collaboration in achieving innovative outcomes. The inquiry into the extent of the influence of gender and leader generation on the choice of a particular creative leadership approach for executing a unique innovation strategy in small and medium-sized enterprises presents an opportunity for further study.

Moreover, diverse approaches towards establishing and incorporating innovative leadership within organisations can arise due to numerous factors, including the developmental stage of the organisation, the company's magnitude, and the level of technological progress, among others. These factors are crucial in determining the most suitable leadership style to foster innovation, further enhancing the organisation's performance and growth. Therefore, it is essential to consider these factors while devising strategies to foster innovative leadership in organisations. These considerations warrant further investigation as a promising avenue for future inquiry.

This chapter employs an exploratory approach to illustrate the factors that determine how leadership impacts SME organisations' innovation approaches.

The following chapter focuses on the methods used by small and medium-sized enterprises to foster internal collaboration during innovation.

6 Findings and Discussion: Cross-Functional Integration (CFI)

The second objective of this study aims to investigate cross-functional integration, which is a significant component of the intra-organisational factors that contribute to the innovation capability of firms (Mendoza-Silva, 2020). This study intends to explore the nature and extent of cross-functional integration during innovative processes within established small and medium-sized enterprises by answering the second objective of this research:

To explore the mechanisms small and medium-sized enterprises utilise to foster internal integration during innovation.

The study's qualitative methodology, which included semi-structured and focus group interviews, as well as research-based observations, enabled in-depth data analysis, facilitating a thorough exploration of the research objective. The study results are presented below, with a focus on providing a comprehensive understanding of the research objective. The study outcomes will contribute to the existing knowledge base in the field and inform future research in this area.

Cross-functional integration (CFI) fosters a sense of integration around a sequence of activities. Placing it within a process-oriented perspective and aligning it with a firm's broader objectives could lead to a better understanding of the CFI concept (Frankel & Mollenkopf, 2015; Pellathy et al., 2019). Therefore, incorporating cross-functional integration into the innovation process of small and medium-sized enterprises is not just a theoretical concept but a valuable approach that can aid established small businesses in effectively integrating diverse functions and streamlining their operations to achieve common goals, emphasising the practical relevance and applicability of the findings.

The primary objective of this research is to examine the various forms and mechanisms of integration that occur in the workplace during innovation processes and to comprehend the fundamental goals of these activities. By analysing the nature of these mechanisms, a more profound understanding of the innovation process in

small firms can be attained, leading to the development of strategies to enhance the effectiveness of innovation efforts in the future.

Section 6.1 provides an overview of the general mechanism of cross-functional integration in established small and medium-sized enterprises. This section is divided into sub-sections, each examining a key component of cross-functional integration. The first three sub-sections explore the components of knowledge communication (Section 6.1.1), goal collaboration (Section 6.1.2), and activity coordination (Section 6.1.3) between functions. Each component comprises smaller blocks representing interaction, communication, information sharing, joint involvement, and coordination, which are discussed separately in their respective sections. Additionally, the first section briefly touches on the level of cross-functional integration (Section 6.1.4). In Section 6.2, the descriptive analysis offers a comprehensive examination of cross-functional integration, highlighting both the similarities and differences present among the various firms. Section 6.3 presents a model that visualises cross-functional integration, which was developed based on the findings presented in Section 6.1. This model provides a general understanding of the integration of the workforce in SMEs. Finally, the chapter concludes in Section 6.3, while limitations and areas of interest for future research are discussed in Section 6.4.

6.1 Cross-Functional Integration (CFI)

During the data collection phase, the interviewees were asked to provide their opinions regarding their perceptions of internal integration throughout the innovation process. This involved depicting diverse behaviours and actions exhibited by employees and managers of their respective organisations while working on a project. The collected data showed that these activities primarily focused on transferring knowledge, coordinating activities, and collaborating on goals between the functions (Pellathy et al., 2019). These processes are mainly facilitated by mechanisms of interaction, communication, knowledge sharing, joint involvement, and coordination of various organisational units, which aligns with previous studies (for e.g.: Troy et al., 2008; Frankel & Mollenkopf, 2015; Pérez-Luño et al., 2019; Pellathy et al., 2019). These mechanisms were subsequently categorised into three distinct cross-functional categories: communication, collaboration and coordination

(Table 6.1), in line with Pellathy et al., (2019), and they are discussed in the following sub-sections.

Cross-Functional Integration		
Cross-Functional Communication (Knowledge)	Cross-Functional Collaboration (Goals)	Cross-Functional Coordination (Activities)
Interaction Communication Information Sharing	Joint Involvement	Coordination

Table 6.1 Components of internal integration.

6.1.1 Cross-Functional Communication

Upon conducting a comprehensive analysis of the gathered data, it was observed that the respondents who were interviewed and asked about internal work related to the innovation project primarily focused on the information flow mechanisms. These findings align with previous research emphasising that cross-functional integration's primary goal is acquiring knowledge (Weber & Heidenreich, 2018). Specifically, they emphasised interactions, communication and knowledge-sharing (Troy et al., 2008; Gonzalez-Zapatero et al., 2016; Pellathy et al., 2019) as a form of exchange, transmission and processing of information (Song & Montoya-Weiss, 2001; Swink & Schoenherr, 2015). Effective communication channels and knowledge-sharing practices were highlighted as essential factors impacting the overall project outcomes, which aligns with Pellathy et al., (2019). Such practices operate both horizontally and vertically, with different levels of intensity among the actors involved, whether directly or indirectly, in the project.

These mechanisms will be further explored in the following sub-sections.

6.1.1.1 Interaction

Individuals' attitudes and behaviours are greatly influenced by their interactions with others. Therefore, social interaction plays a significant role in promoting collaboration within the workplace, as these interactions can lead to unique relationships among coworkers, going beyond just primary or mechanical

connections (Li & Chen, 2012). Based on the participant feedback, “*a whole range of interactions*” (SME2E3) exists among colleagues. “*There is very much interaction*” (MD1) spanning various levels of hierarchy, an essential aspect of the firm's daily work routine. Interpersonal interaction and a keen awareness of the unique traits and characteristics of the other person involved foster trust (Ahn & Kim, 2017). This, in turn, is a crucial step towards developing a more cooperative and productive work environment that enables individuals to exchange ideas, distribute knowledge (Candi et al., 2018), share resources, and establish relationships (Gonzalez-Zapatero et al., 2016) simultaneously valuing employee contributions and promoting respect, support, and camaraderie. The participants rated these interactions highly valuable, indicating that the small company environment, low hierarchy, and physical proximity facilitated such interactions. MD1 explained that “*our size helps the fact that we all interact with each other*” (MD1). MD5, in turn, suggested that “*we work very collaboratively with our team, and it is a very flat structure*” (MD5). This perception has fostered a supportive and familial atmosphere within the organisation, promoting a welcoming and encouraging environment often associated with small firms (Abecassis-Moedas & Gilson, 2018; Werner et al., 2018).

Furthermore, conversations with participants revealed high morale and intense work satisfaction, with many praising the company's atmosphere and everyday work relationships as “*absolutely excellent, I would have said*” (SME2E3). Observational data collected during several on-site visits confirms that an environment of positivity and relaxation exists, where employees interact organically throughout the workday. Firms that foster a strong sense of community and social capital can benefit from increased collaboration, successful knowledge sharing, innovation, and overall performance (Swanson et al., 2020). These observations align with the existing literature, which posits that positive interactions can significantly influence employee satisfaction and efficiency and are essential to the success of any enterprise (Griffin & Hauser, 1996; Gonzalez-Zapatero et al., 2016).

The present study delineates diverse channels through which interactions occur, including verbal, nonverbal, and formal and informal mechanisms. It emphasises the importance of formal and informal efforts to achieve integration and recommends that they be implemented concurrently (Marlow et al., 2010; Ferreira et al., 2019).

Formal interactions within a business are often exemplified by official meetings, which may include team meetings, functional meetings, or organisational meetings. Such meetings require more formal language and structured expressions to communicate effectively. The proceedings of meetings entail a combination of verbal and nonverbal communication. By effectively comprehending both forms of communication, individuals can foster robust relationships, instil confidence, and achieve superior outcomes in their respective domains (Pagell, 2004). Furthermore, recognising the importance of formal and informal communication can significantly improve communication at various organisational levels. This, in turn, can lead to better overall performance and success (Pagell, 2004).

According to the respondents, these meetings are more than simple gatherings to review project data and progress. Instead, they take on the form of interactive sessions where participants engage in discussions, exchange feedback, share experiences, pose questions, and seek solutions. Such meetings are expected to foster a collaborative environment that facilitates communication and decision-making:

“We all sat down and had a discussion. Various points have been made, discussed, and dismissed. So, it has been quite a shared experience. There has not been any one person who said this is what we are doing. It has been quite an interactive and open discussion” (SME1E2).

MD1 added that since the company adopts a more open approach to innovation and external collaboration, the internal meetings are conducted in a more structured and organised manner, as they are run “*under a structured arrangement*” (MD1). However, they are still flexible enough “*to stop things*” (MD1), rethink as “*if that is not working, why is it not working and what are the solutions*” (MD1), get various opinions and try to come up with another solution.

Meetings often result in the creation of minutes or action points, which are subsequently reviewed and addressed. Formal meetings provide a platform to comprehend the diverse parties involved in a project and, as a result, facilitate discussions from different perspectives. Additionally, such forums enable parties to avoid underestimation, as several employees from different departments convene to discuss the problem or topic at hand (Gonzalez-Zapatero et al., 2016).

On the other hand, informal interactions between colleagues are the most common form of interaction. Whether a quick chat in the hallway or a social gathering over coffee or lunch is crucial in fostering positive working relationships (Gonzalez-Zapatero et al., 2016; Nguyen et al., 2018). Informal and relaxed interactions allow coworkers to use conversational language and expressions—such comfortable and effortless communication results in better collaboration and a more united work environment. Firms with a well-established network of internal relationships enjoy a free flow of communication, close interaction, resource exchange, and improved teamwork performance (Swanson et al., 2020). Participants mentioned that daily interactions, including direct communication and continuous dialogue between coworkers and managers, “*build trust*” (MD1) and foster mutual respect among peers. Participating in social networks can help individuals develop cooperative and civic-minded habits, promoting a culture of solidarity and boosting trust among members (Bhandari & Yasunobu, 2009; Swanson et al., 2020). According to the mechanical engineer, trust and strong working relationships have proven to be an effective way to bypass the need to involve managers in every new idea, as there is no need “*to go through the managers with everything you do*” (SME2E4). He added that due to constant interactions, the manager “*knows me, and he knows what I am doing*” (SME2E4). Therefore, when something does not require a significant expenditure of resources, he works on it with the production staff, as “*it is quick and gets stuff done*” (SME2E4), streamlining the decision-making process and increasing efficiency. Constant interactions and a shared conversation facilitate the diffusion of a shared vision and mission, decentralising the work environment and rendering constant control and supervision unnecessary (Pylypenko et al., 2023). Respect towards fellow employees, in turn, is evident in appreciation for their invaluable contributions towards maintaining exceptional quality standards. The quality control supervisor praised others' knowledge and competencies, stating that “*the knowledge that some of them possess (...) is invaluable and (...) mind-blowing*” (SME1E3). The supervisor also mentioned that it is unreal how some employees “*keep up on top of everything*” (SME2E4). Social interactions influence communication, and transparency among colleagues working on the project facilitates trust, which is the foundation of successful collaboration (Ahn & Kim,

2017; Swanson et al., 2020). By fostering social interactions within the team, members can establish a sense of mutual respect, openness, and accountability. This, in turn, promotes a positive work environment where individuals can feel comfortable sharing their ideas and concerns. Cultivating trust among team members paves the way for greater productivity, innovation, and success (Batterink et al., 2010).

Furthermore, informal interactions can help to reduce misunderstandings in cross-cultural communication (Maltz & Kohli, 2000) and provide valuable insights into employees' experiences, backgrounds, and perspectives that, in turn, help individuals develop a deeper understanding of each other's style of communication and their *"strengths and weaknesses"* (MD3). Such interactions can facilitate an analysis of employees' skills and guide them towards realising their potential by *"pushing their boundaries (...) to be open with themselves, open with the innovation, the creativity"* (MD5) while also providing support where needed, which creates stronger relationships and contributes to more successful collaboration. MD5 mentioned:

"We trust that what they have done, they have done it with the best intentions, but mistakes also happen because there is real value in that pursuit. Genuinely, if we can extrapolate that value and it is not really a mistake, we add that into the fold and see it as part of our journey" (MD5).

The cultivation of transparency in the workplace requires the establishment of open and effective communication channels between colleagues. This, in turn, engenders a shared understanding that is conducive to fostering a positive atmosphere and a collective commitment to the common goal (Batterink et al., 2010). Effective communication and positive social interactions are the cornerstones for developing trust and mutual respect among team members. Such trust and respect can lead to the creation of stronger bonds and the cultivation of camaraderie, ultimately resulting in increased job satisfaction, motivation, and productivity (Ton & Hammerl, 2021).

Participants noted that collective effort is particularly valued when a quick meeting is required to solve a problem and a broader perspective is needed. This is especially true when companies are faced with more significant challenges:

“One of the things we tend to do quickly when we have an issue is bring everyone down, and we literally thrash it out on the whiteboard, cover some ideas, and then basically go away and do that. The challenge is ensuring you are sitting down to discuss the main things” (SME2E1).

Such informal and ad hoc meetings align short-term processes with long-term planning. These meetings facilitate the synchronisation of immediate and long-term objectives by allowing for adjustments to be made as necessary (Pimenta et al., 2016). Such gatherings enable a flexible approach to organisational strategy, ensuring the company can respond to market changes and adapt to new circumstances. By tuning the short-term processes, organisations can leverage their resources to achieve their long-term objectives more effectively (Pimenta et al., 2016).

According to the participants, one of the main signs of informality in organisational interactions is the level of accessibility to managers. All managers have declared an ‘open door’ policy. The R&D Designer has confirmed the informality in relationships and interactions between functions representing different hierarchical levels, stating, *“If I want to speak to the head of sales and marketing, I walk to the office and knock on the door” (SME2E3)*. MD5 goes even further, admitting that they have resigned from offices and are working in open-space offices *“so that we can all interact in a capacity” (MD5)*. A high level of accessibility is often perceived as a positive attribute, as it can foster a sense of openness, transparency, and collaboration within the firm. A flat hierarchy, a friendly environment, and positive manager-employee relationships create a space that enables team members to seek guidance, feedback, and support when required (Swanson et al., 2020). This creates a comfortable and safe space where employees feel confident, valued, and appreciated. As a result, they feel more motivated and committed to their work, leading to increased productivity and better overall performance (Swanson et al., 2020).

Furthermore, specific interactions between managers and employees have been observed to exceed the boundaries of the professional domain. In this context, Managing Directors have acknowledged the importance of extending support to their

personnel beyond the workplace. Specifically, MD3 has expressed his willingness to help employees and their families beyond the workplace.

“I look after my guys in a pastoral way. So, I look after them and their families. Out of their working life, if there are some problems in their life, they know they can come to me. I pay insurances for them, (...) I pay them bonuses, I share the profits, and in return, I need to know that they are on-site with me” (MD3).

Likewise, MD5 underscores the need to offer assistance and resources to employees *“even in cases where they may have had health issues and were not able to contribute to the organisation's economic success”* (MD5), as it aligns with the ethical principles of her organisation. Investing in the overall well-being of employees can have a profound impact on the workplace. Trust is built by fostering a sense of care and consideration, inspiring positive engagement and cultivating a sense of belongingness (Rothkegel et al., 2006; Brunetto & Farr-Wharton, 2007). This, in turn, leads to deeper investment in one's work and increased support for the organisation. Research shows that employee engagement can significantly impact organisational behaviour, including employee attitudes, absenteeism, and turnover rates (Robertson-smith & Markwick, 2009). Many managing directors have identified the benefits of these efforts, with low employee turnover being a prominent one. By fostering employee well-being, businesses can reap the rewards of a more engaged and loyal workforce.

6.1.1.2 Communication

Effective communication is crucial for any organisation and can be achieved through formal and informal channels (Rothkegel et al., 2006). Compared to large organisations, internal communications at small and medium-sized enterprises are seen as more straightforward and often informal (Marlow et al., 2010), as confirmed by this study. With fewer hierarchical levels, communication lines are often shorter, allowing for more direct and open communication between employees and management. Both verbal and written communication, including *“emails, phone calls, meetings”* (SME1E2, SME2E1), were mentioned as typical forms of information exchange within small firms. Still, the primary focus was that genuine, in-person interaction held more value in exchanging information than relying solely on information systems (Pagell, 2004). Furthermore, all respondents agreed that

company size does help *“the fact that we all do communicate with each other”* (MD1) and *“we tend to know very well what is going on”* (SME2E1). The chemist in charge stated that *“we chat about things a lot”* (SME1E1) and, therefore, *“there is no need for sitting down and having a big meeting”* (SME1E1) as *“we all know what is happening when it is happening, what is to be expected of everybody”* (SME1E3). The unstructured exchange of information spontaneously while dealing with problems and opportunities is a significant determinant of team effectiveness (Pagell, 2004). Supply Chain Manager agreed that *“the communication is easy and (...) get immediate feedback”* (SME2E2). He further explained:

“If something goes wrong in assembly, I will know immediately because the scrap will start piling up on my desk. The feedback is there. It is immediate” (SME2E2).

Internal communication is critical to organisational operations (Holá, 2012). Communication must be frequent and informal to ensure that knowledge is shared effectively (Menon et al., 1997). The impact of internal communication on employee job performance, work behaviour, and attitudes is profound and cannot be overstated. Furthermore, internal communication has a positive influence on employee loyalty. These findings underscore the importance of effective internal communication in promoting a healthy organisational culture, which in turn can enhance employee motivation, retention, and productivity and underscore the importance of maintaining open lines of communication within an organisation (Holá, 2012).

Establishing cross-functional teams and implementing job rotation strategies effectively foster organisational communication (Pagell, 2004). Shifting between functions allows individuals to explore new skills and experiences, which helps them better understand how to use their relationships with peers to develop innovative products (Clercq et al., 2013). Such practices facilitate the exchange of ideas and knowledge across different departments, resulting in a more cohesive and collaborative work environment. Moreover, job rotation enables employees to gain a better understanding of the organisation's operations and goals, thus promoting a more holistic perspective and enhancing their problem-solving skills (Pagell, 2004). A comprehensive view and improved comprehension of different operations can lead to more effective communication. Thus, employees are encouraged to *“wear more*

than one hat” (SME2E1). Most respondents indicated that while they have specified roles and responsibilities, they maintain flexibility in their positions. Managers actively encourage their employees to expand beyond their assigned boundaries and engage in various aspects of their work to gain a deeper understanding and approach their duties from a fresh perspective.

“It is not like... you just do that, and that’s it. If there is a need... For instance, Doug and Rachel will get involved in the box’s design. Marketing may come up with some ideas. Rachel and Doug will put it into practice and see what this one looks like. Then there will be feedback back and forth, so it is not just purely design. There is an element of understanding suppliers, packaging, and stuff like that” (SME2E1).

This situation is even more visible at micro companies where professional identity is usually very fluid, and individuals are expected to perform multiple tasks; thus, *“everybody can do everything”* (MD4) around the workshop. The lack of defined roles can lead to a culture of experimentation, with employees encouraged to try different functions and gain diverse experiences. This approach underscores the absence of a structured division of labour within the workshop, as noted by MD4: *“We have not divided up the workshop in such a way that people have set tasks”*. As a result, the employees can explore various roles and develop a range of competencies. MD5 further added:

“We only have them (titles) because we are legally obliged to (...) it is a very flat structure. We all work together...and whoever has the most experience and innovative idea is the first to lead, and the rest of us back them up” (MD5).

The adoption of cross-functional teams and job rotation can prove beneficial to businesses seeking to improve communication and promote greater organisational effectiveness (Pagell, 2004). According to some researchers, firms with a flexible approach to their functional structure possess a higher capacity to foster innovation (Lawson & Samson, 2001).

The data analysis has also revealed the existence of a more structured style of communication. Formal, cross-functional meetings in small and medium-sized enterprises are often conducted at a higher hierarchical level. They aim to evaluate potential innovation projects, change business strategies, or exchange progress-related information and updates among managers of various functions. While

assessing innovative ideas, “*there is a core people, the body of people that would be involved in that*” (SME2E1) and “*guys in management positions need to be involved*” (MD3). The purpose of this communication is to evaluate the project from various perspectives and ensure that the project's full potential is fully explored. By doing so, directors and managers can leverage their diverse expertise and objectively evaluate the project's feasibility. The technical director added:

“Coming from a technical, I oversee and understand the technical implications, and we will get a commercial director who understands the industry and the impact that it will have on the business. That is going to start level if you like (...) We will not bring it to the table with the rest of the team until we feel it was a commercial benefit in it” (SME2E1).

These meetings are characterised by a structured and disciplined communication approach, distinguishing them from other forms of communication. The primary goal of project progress meetings is to ensure that all stakeholders are informed about the project's developments and are aligned (Pagell, 2004). Moreover, these meetings are pre-scheduled and, therefore, often miss the opportunity to address a problem or issue as it arises.

6.1.1.3 Information Sharing

Information at the firms is generally shared mostly verbally, through “*small chats and small meetings in people’s offices or workshops*” (SME1E1) or via telephone conversations. These informal modes of communication function as the primary means of sharing ideas and facilitating collaboration among team members. Such channels are often preferred over written communication, which is time-consuming and less conducive to exchanging ideas. Establishing good relationships among employees positively impacts their willingness to share knowledge and its frequency (Ahn & Kim, 2017). Effective knowledge transfer can provide companies with a foundation for competitive advantage (Xerri et al., 2009). Moreover, these modes of communication can foster a more dynamic and productive working environment that values open discussion and the free flow of ideas. By fostering a culture of collaboration and encouraging individuals to share their expertise, organisations can leverage the collective intelligence of their workforce to drive improvements in products, services, and business practices (Xerri et al., 2009). This approach allows companies to gain a competitive edge and position themselves for long-term success

in their respective industries. Therefore, companies must invest in strategies and initiatives that promote knowledge exchange and facilitate open communication across all levels of the organisation. It is essential to remember that for effective knowledge sharing, a foundation of trust must exist between members of the workplace social network (Xerri et al., 2009).

Specific organisations conduct “*monthly presentations*” (SME1E) concerning the progress of ongoing projects. These presentations communicate information, proposals, or reports to an audience and are typically more structured and formal than other forms of verbal communication. Interestingly, employees have expressed that this mode of information sharing is highly informative and beneficial for all staff members. “*This is something we can do more of throughout the company*” (SME1E2), as not all employees attend functional meetings. The practice of sharing information amongst employees is highly valued, as it nurtures a culture of inclusivity and positively contributes to their overall well-being in the workplace (Swanson et al., 2020). The innovation process involves the core actors, their supporters, and other parties to whom the innovation may indirectly impact. This is where connectivity comes into play; it allows these parties to connect with the core actors and their support groups. An individual who is well-connected to the community reaps immense benefits from the social capital that the community possesses (Swanson et al., 2020). This asset is fundamental to community members, as it helps them achieve their personal and professional objectives. Similarly, organisations that foster communal social ties and social capital stand to gain from increased collaboration, innovation, and overall performance (Swanson et al., 2020). Promoting a sense of unity and shared purpose reflects the cognitive dimension of social capital, which fosters mutual trust throughout an organisational network by uniting employees with common goals and enhancing their commitment. In turn, it is an essential determinant of cross-functional knowledge sharing because of its role (Nguyen et al., 2018). Thus, organisations must recognise the value of this practice and incorporate it into their workplace policies and procedures. Doing so will benefit employees and contribute to the organisation's overall success.

Furthermore, the respondents emphasised that the written form of information sharing is more formal than the spoken form. This form is essential for

manufacturing companies implementing Quality Management Systems (QMS), as they must comply with strict and formal procedures to meet legal requirements (Magodi et al., 2020). Each process stage must be carefully documented and executed by legal standards and industry best practices. Any information communicated across various functions must be recorded for future reference and review. The Technical Director of SME2 explained:

“We do have a quality procedure: product research, design, and development. As an ISO-9001 company, we have many procedures in place for our quality management system. One is about how we innovate and deal with product research, design, and development” (SME1E1).

Information sharing is a reciprocal process that necessitates conveying information to all members of an organisation. This exchange process facilitates a deeper understanding of the matter. In this regard, organisations with versatile and adaptable structures support the development and implementation of novel ideas. Additionally, this allows managers in each department to introduce modifications that other departments within the organisation can adopt (Ahmed et al., 2021).

Numerous firms have made significant improvements to their internal procedures by embracing innovation (Marlow et al., 2010). According to the Production Manager, tracking and addressing issues were previously challenging due to insufficient documentation and the absence of a formal system for reporting. He mentioned:

“There has not been a formal reporting system. (...) We had very basic notes recording what we had done, which was not well structured or reviewed at all” (SME1E2).

In support of the statement, MD1 expressed:

“Production Manager on his own was doing a little experiment here and there and writing it down in a Word file, but we were not reviewing it regularly, so we did not have a schedule for him to do one experiment a week (...). So it was very much his discretion to fit it in; it was recorded on a bit of paper. So, he was there, on his own, not really talking to anybody, and the feedback coming to me was ‘...yyy it is not really...well maybe... yy I think we really need to try that’” (MD1).

The chemist in charge emphasised that, since recent changes were implemented within the company, all aspects of the production process, ranging from raw material testing to final product production, have been thoroughly documented to ensure

traceability. If an issue arises with a particular product, a thorough investigation is conducted, resulting in a report that outlines the root cause of the issue and provides recommendations for future enhancements. Subsequently, the management team reviews and approves the proposed modifications before being implemented into the production process. This approach ensures that the product maintains the highest level of quality, with continuous improvement over time. In addition, the level of formality tends to shift when new employees join the company, especially when they come from a larger organisation (Marlow et al., 2010). The head of SME2 mentioned that everything now is more structured: *“Because of his (technical director) background in larger corporations, he is more disciplined”* (MD2). She further added:

“Previously, it was all more amateur, but one of the new directors has started introducing things like actually capturing projects. You start off with why you are doing this and what your plans are. You finalise. (...) He is actually thumping into everybody to write down their findings so that we do not have somebody else head down this lane again. (...) and in five years, maybe someone will go this way again, but you already know it is not working for your company. Check, that is why it did not work. Maybe in those five years, things have changed. You can actually try that again, but check it first. Otherwise, you are just revisiting old ground” (MD2).

Respondents identified a range of internal communication channels for sharing information in written form. These included email, instant messaging platforms, and intranet systems (Song & Song, 2010). Employees are apprised of significant documentation changes or updates through the internal email system. Formal notifications are sent to employees' email addresses to inform them of critical changes. These notifications contain links to the updated documentation. This process enables the swift and accurate dissemination of information, ensuring that all employees are aware of any updates or changes to documentation. The quality control supervisor explained:

“We have an email, Lamer, and meetings to keep everybody in the loop about what is happening. (...) Lamer is a kind of platform. So, anything that happens, you can link into your emails, so if you update a process, everybody has also updated on it” (SME1E4).

Among various forms of written communication, facilitating information sharing and documenting discussions in reports, memos, minutes and *“action points”* (MD3)

are particularly noteworthy. MD3 stated that all decisions made at management meetings are recorded and updated, and their physical written form is kept in the folders:

“We sit, and we have a bite-sized discussion. We just talked about things, and sometimes I will make a point, and that is the actions. They got a copy of them and brought them to the following week's meeting. I asked if you had done this and done that. So that is our line of communication. It works and is simple and effective” (MD3).

Sufficient communication channels, such as email, mobiles, forums, or management systems, help foster an open and two-way information-sharing system (Xerri et al., 2009). These documents enable effective collaboration and decision-making, providing stakeholders with concise and precise information. Reports and memos are beneficial for conveying complex information, while minutes serve as a record of meetings, ensuring nothing important goes unnoticed (Prabavathi & Nagasubramani, 2018). Incorporating these forms of written communication can significantly improve communication and facilitate informed decision-making in any organisation, making them indispensable tools for the modern business or academic setting (Prabavathi & Nagasubramani, 2018). Moreover, the written documentation and subsequent updates are preserved in physical and digital formats, ensuring a permanent record for future reference. This practice helps to maintain the integrity of the message, which can be retrieved and utilised as necessary. Keeping two copies of records serves as a safety net against loss and enables quick and easy access to information at any given time.

An additional form of information shared, observed in various small and medium-sized enterprises, is the utilisation of a “*suggestion box*” (MD1, MD2, SME2E1) that serves as a formal feedback mechanism. This mechanism enables employees to submit formal suggestions for adjustments to their work environment (Haddad et al., 2020). It is a bottom-up approach initiated by individuals occupying lower-level positions in the hierarchy and aiming to reach management. The anonymous suggestion box provides a platform for everyone to voice their opinions, which are later considered, analysed, and potentially implemented or discarded based on the analysis's outcome. Managers have reported that most informal and formal suggestions received through this mechanism “*are not direct innovation ideas but*

rather relate to lean processes” SME2E1). The anonymity provided by the suggestion box gives employees greater confidence and the ideal opportunity to share their ideas and thoughts.

6.1.2 Cross-Functional Collaboration

Cross-functional collaboration primarily focuses on achieving common goals through joint efforts (Pellathy et al., 2019). The main goal of the firm is concentrated around “*economic benefit (...), core benefit*” (MD5) mainly and for “*societal benefit, (...) environmental benefit*” (MD5). To achieve the company’s goal, the firm needs to drive innovation and develop new products, which will drive the company’s growth, improve its efficiency and production processes, and enhance its performance. Any company must set clear goals in order to optimise its performance. Achieving these goals requires a collaborative effort from all functions involved, including those at the project's core, those who assist in its implementation, and those who respond to changes. By working together, these functions can better understand their roles and responsibilities, evaluate their contributions, and ultimately achieve the desired outcome. Moreover, unique challenges faced by different areas of the supply chain must be taken into account. Only then can these goals be accomplished, ultimately enhancing the company's overall performance (Pellathy et al., 2019). Joint involvement is an excellent opportunity for different functions to collaborate and achieve the desired objective.

6.1.2.1 Joint Involvement

The participants stressed the importance of involving employees from diverse positions in collaborative projects to enhance mutual understanding and cross-functional awareness, foster different perspectives, and facilitate problem-solving (Su et al., 2019). This involvement occurs on two levels: direct and indirect. Direct engagement typically involves employees actively participating in the ideation, development, and implementation phases. These employees are encouraged to participate in functional meetings to adopt a more “*holistic approach*” (SME2E1) towards projects. The Technical Director emphasised the importance of attending functional meetings to gain a better understanding of the overall business. Such meetings, he asserted, offer an opportunity to delve into the intricacies of the organisation's operations and gain insights into its inner workings. He admits to

“consider how we can have our marketing guys look at different issues in our department’ (SME2E1). With a similar approach, SME1E3 emphasises the importance of a production manager's wide-ranging expertise, stating that *“his involvement in research and development, production, and engineering can prove useful across multiple functions” SME1E3).* By enabling cross-functional collaboration, these meetings foster a more holistic understanding of the business, which, in turn, can lead to more informed decision-making. Technical director underpinned:

“It is quite good that I look after the research and development and supply chain function, but I am also very aware of other areas as I sit at the sales and marketing meetings, as do some of the guys in the room. We understand what is happening across the business. We have a holistic approach to looking at the business and understanding what goes on in the business” (SME2E1).

Such functional meetings encourage all participants to share their expertise, knowledge, and insights, ensuring that the project is viewed from multiple perspectives. Meeting participation is crucial to identifying potential issues, risks, and opportunities. The involvement of others who specialise in distinct areas can often help to evaluate the feasibility of proposed solutions as *“they can just look at things and know straight away, yes, that is going to work, that is not going to work, or we might have a little bit of problem here” (SME1E4).* By doing so, the company can develop practical solutions and strategies to help its teams achieve their goals and objectives.

Moreover, joint meetings are also essential to foster a more innovative culture, *“to make sure that we spread it out amongst the company” (MD1),* and promote a collaborative work environment, as one person *“cannot be the only driver of this” (MD1).* Employees are highly encouraged to regularly engage with management and openly discuss any concerns or suggestions that could contribute to the project:

“Everything that we do in the business is shared with the team, so we ask for their input on all of our innovations, and they are allowed to contribute” (MD5).

Likewise, any thoughts and ideas about product improvements are highly welcome:

“They are working intimately with the product every day. If they see something is taking ages (...) or it could be done more efficiently, they have a suggestion that

they think, I say, 'Okay. Let us trial it for a week, see how it goes.' I am open for them to try different things" (MD4).

Regarding indirect involvement, the participants notably emphasised the relevance of employees not directly involved in the innovation project. These individuals are crucial in providing feedback, support, and resources to the project without actively engaging in its day-to-day activities. *"All the guys on the factory floor are encouraged to come forward" (SME1E4)* with feedback, suggestions, or improvement ideas as *"they are the ones who strongly deal with things day in and day out" (SME1E3)*. Furthermore, these individuals frequently play a role in promoting transformation by adjusting processes and procedures. For instance, administrative personnel: *"They have to deal with all the paperwork, and purchasing, and invoicing, and paying off" (MD1)*. Similarly, the quality department, *"if it is a new source of raw material coming in, it has to be checked, tested" (MD1)*. Therefore, they must devise novel testing methods and develop effective handling of raw materials. This underscores that every team member contributes significantly to the project's success, regardless of their designation. By working with diverse viewpoints, a more comprehensive and well-rounded outcome can be achieved that considers the needs and opinions of everyone. A mechanical engineer has emphasised the importance of *"consider the production guys" (SME2E4)* when working on a project. *"We take the idea we have got and jump through next door. (...) and speak to the guys" (SME2E4)*. He mentioned that it is crucial to think about the production process before implementing the project, as the production team must *"put it together, and everything that is going to be put in there" (SME2E4)*. The engineer believes that by keeping the production team in mind, they can ensure smoother and more efficient project implementation.

A vital element of involving all employees in innovative projects is understanding context-building knowledge and the need to seek information. MD1 explains that everybody at the firm, at some point, *"are pulled into the process and helping" (MD1)*; therefore, *"they have to understand why he (scientist, chemist) is doing it, why he is trying to get that information from them" (MD1)*. It enables individuals to understand better the expectations placed upon them and their potential role in the process, as *"they are the ones who have to do it" (MD1)*. Understanding

how one's knowledge is connected to that of other group members is crucial for comprehending why one performs their job in a particular way and how their work contributes to achieving the organisation's goals (Swanson et al., 2020). Therefore, involving everybody in the project helps organisations create a more inclusive and practical culture of innovation that promotes collaboration, creativity, and continuous learning. Explaining the process and its aspects is necessary to increase mutual understanding between different departments and to distribute knowledge more effectively, thereby supporting further operations (Swink & Schoenherr, 2015). Employees from various departments absorb knowledge in different forms and utilise it in different ways (Basadur, 2004), which results from differences in backgrounds, personalities, language, and organisational responsibilities (Griffin & Hauser, 1996; Pérez-Luño et al., 2019). Therefore, each project requires a leader who can recognise the different learning needs and address them accordingly (Pimenta et al., 2016).

The value of human resources in innovation projects cannot be overstated. Managers widely agree that the company's most valuable asset is its people. Active participation is undoubtedly crucial for innovation (Johnsson, 2017). However, even indirect involvement can positively impact the work organisation and help adapt to changes during innovation. Such dialogues can help foster a more productive and efficient work environment, promoting collaboration and mutual respect between staff and leadership. Therefore, it is essential to value and encourage all forms of contribution towards the innovation process.

Nevertheless, one manager held a divergent perspective on innovation projects, advocating for a pivotal role as an orchestrator:

“I talk to others, but I am the one who works on a project. (...) I will pull them and say ...listen I am trying to develop this, so here is what I think we should do. And someone will come in and say...listen, do not do that; maybe try this... because they have experience. (...) It is not part of their remit, but they like to be involved in something new, new things that are happening” (MD3).

The approach underscores the directing leadership style that an autocratic leader adopts. It is not uncommon for talented leaders to find collaboration unnatural. Their professional upbringing in a culture that prizes hierarchy and deference to authority often fosters rugged individualism, which propels their careers (Carucci & Velasquez, 2022).

6.1.3 Cross-Functional Coordination

A cross-functional coordination perspective is an essential component of efficient internal integration (Pellathy et al., 2019). It involves integrating activities across various functional areas to maximise efficiency. This integration necessitates the sequencing and timing of such activities to ensure seamless communication, collaboration, and efficient resource utilisation. By adopting this approach, an organisation can achieve better outcomes and enhance its overall performance (Pellathy et al., 2019).

6.1.3.1 Coordination

Due to their size, small companies often lack a dedicated project leader. As a result, most managing directors are directly engaged in leading the project. This aligns with the earlier-mentioned fact that owners are involved in all aspects of the business (Wiklund et al., 2003; Wiklund & Shepherd, 2003). However, the level of engagement observed among firms was highly dependent on factors such as the firm size, technological advancement or the level of autocracy displayed by its leaders. These factors influenced employee participation and involvement in the organisation's innovative projects. Based on the research conducted, three distinct coordination models were identified. These include models where the managing director serves as a project leader, the managing director co-leads the business side of the project, and the managing director does not participate in the project. These models demonstrate the active involvement of the company's leaders and employees in driving innovation projects, highlighting the integration of diverse structures within these initiatives.

The first model involves the managing director overseeing the innovation process, which makes them the implicit project leader for SME3 and SME4. According to Blackburn et al. (2013), owner-managers are a firm's most critical resource, and their management skills and commitment are often the most influential factors affecting SME performance and growth (Bayarçelik et al., 2014; Hossin et al., 2023). While their reasons for spearheading the initiative may differ, they share three key similarities: firstly, they are first-generation business owners, hence the

primary source of idea generation, product creation, and overall company development; secondly, they hold a wealth of experience in leading projects and enterprises; and lastly, they do not employ skilled workers or professionals. The primary distinction between these two leaders lies in their approach to innovation. MD4 cultivates a work environment that fosters creativity, innovation, and initiative. Employees are encouraged to share their ideas for improvement, explore new possibilities, and “*try different things*” (MD4) around the workshop, taking the initiative. However, due to the company's small size, MD4 developed new products and manufacturing processes and “*I am the only one doing external things at the moment*” (MD4). Meanwhile, the rest of the team focuses on working collaboratively on internal improvements. It can be inferred from the leader's approach that the MD4 possesses both managerial and strong leadership qualities. According to Yukl (2012), leadership is a process that influences and facilitates activities and relationships in a group towards achieving a common goal, which is evident in MD4 behaviour. Moreover, she communicates a vision throughout the organisation and engages followers in realising that vision, which was also recognised as a leadership attribute (Gupta et al., 2004). In contrast, MD3 is an autocratic leader who openly proclaims, “*I talk to others, but I am the one who works on a project*” (MD3). He further explains:

“None of my guys here will think innovation... that would only be me. I am not saying that it is a bad thing, but they have their jobs. I lead the company, and I take the company in the direction by coming up with the product, using my experience and also using market knowledge” (MD3).

MD4, on the other hand, embodies more managerial characteristics that emphasise stability and the ability to adapt and maintain existing standards (Puccio et al., 2018) with a dash of entrepreneurial traits such as innovativeness, creativity, and a willingness to take risks (Howard et al., 2019). This type of individual can recognise opportunities, seize them, and turn them into profitable ventures (Vanhaverbeke et al., 2012; Cacciolatti & Lee, 2015). Moreover, it is worth noting that the traits and skill sets of managers, leaders, and entrepreneurs tend to overlap, as pointed out by Yukl (2012). However, the way they apply these skills is different because they have different objectives in mind (Puccio et al., 2018).

The second model, in which MD assumes the role of project co-leader, is apparent in two companies, namely SME1 and SME5. While MDs continue to participate actively in the project, their focus has shifted to the business side, which includes organising resources, collaborating with external parties, and promoting the commercialisation of the project. In contrast, other co-leaders are responsible for leading the development side of the project. The two managing directors, MD1 and MD5, have made it clear that they are committed to promoting and encouraging their employees to take the lead and provide full support to the project (Mainemelis et al., 2015). Moreover, they declared that they want to “*spread it out amongst the company*” (MD1) and “*make sure that innovation stays at the heart of the business and that everyone's involved in that*” (MD5).

MD1 mentioned that to understand that innovation is a team effort (Dahlander & Gann, 2010). “*It took a change of generation, a changing ownership, and changing personnel in a business*” (MD1). Therefore, as the new leader, she is “*trying to open a tap and encourage many other people*” (MD1) to take part in innovative endeavours and “*if somebody comes up with the idea, I want them to be able to lead that project*” (MD1). A similar stance presents MD5. She explains, “*the whole commercialisation is usually down to David and me*” (MD5). However, she added,

“Our people (...) are very empowered. They are very much listened to. (...) Although Dave and I have the most experience in that area, we are willing to let our team feel they can have that experience, too. (...) whoever has the most experience and has that innovative idea is the first to lead, and the rest of us back them” (MD5).

MD5 further explained that any in-house product is signed with the company logo and abbreviation BY, so the project leader “*is given credit for that project*” (MD5) and “*can have that recognition*” (MD5) of the ownership, which additionally motivates employees to take the lead.

As follows, the project leader for each new project may vary. Research showed that the person with the most comprehensive knowledge in their field becomes a “*hub of connections between all of the departments*” (MD1) and, thus, becomes an unspoken project leader. This aligns with previous research indicating that small firms rely on their managers, senior employees, or other professionals to drive knowledge management processes, such as creation, transfer, and utilisation (Pérez-

Luño et al., 2019). The chemist and co-leader of SME1's recent innovation project has attested to this fact, stating:

“At the moment, I am really the pivot where everything goes around. So, production staff will come if we have a problem (...), I will pick up on it, and I will raise it with others (...) to see the best way of resolving it. Then (...) I will take it back to the production to look and see if they are happy with the solution I am proposing” (SME1E1),

Nominating a project leader to coordinate the innovation process helps mitigate potential communication problems between employees representing various functions (Griffin & Hauser, 1996). The person leading a project manages innovation by creating a comprehensive project plan or its specific parts, overseeing a small team, facilitating communication across departments, supervising tasks, and reporting progress updates to the co-leader or higher-level management. The chemist confirms that *“there is an element of me being a manager of it”* (SME1E1). He further explains:

“I have been looking at ways to mitigate against problems coming through. That process involves me identifying a problem, reporting it to management, carrying out an investigation, making a recommendation, and then seeing it through. It's been a couple of instances where I have gone through that process, and we noticed an improvement with the product” (SME1E1).

Small businesses must have a capable project coordinator who possesses the necessary skills and resources to lead the project to success. He establishes connections with various internal stakeholders and creates social capital, an asset that can be shared among individuals in social networks. Social capital encompasses trust and cooperation, which are vital for effective communication, mutual trust, and personal relationships. By encouraging knowledge sharing and organisational learning, social capital can enhance the innovative performance of an organisation (Golmoradi & Ardabili, 2016).

The final model pertains to the scenario where projects can be executed without the intervention of a Managing Director, and this circumstance is limited to one organisation. The head of SME2 stated:

“I used to be in the middle of all that, but not so much now. Now, again, that would be down to Chris. I put Chris in place to manage the innovation. He is the technical director. Also, because of his background in larger corporations, he is

more disciplined in ensuring that communication and everything else work fine” (MD2).

This situation arose when the company underwent a phase of growth and expansion into new markets. Consequently, they realised the need to restructure their management system and organisation. The owner had to acquire new skills and prioritise organisational managerial tasks. As a result, the organisation became more formal, with work being adequately defined and delegated to the proper personnel (Jones, 2009; Gupta et al., 2013; Hysi, 2013; Muhos, 2014).

MD2 further stressed that innovation projects are evaluated by three directors who *“assess the opportunity from a sales point of view, commercial point of view, marketing point of view and technical point of view” (MD2)*. The project is then discussed with the MD to explain and *“understand that the projects that we look to set and the direction we are looking to go, are in line with the firm's business strategy” (SME2E1)*. After the MD approves it, the idea is explained to other employees. The technical director oversees innovation projects at the idea generation and development stage. This position requires technical and organisational knowledge, strong leadership, and the ability to communicate effectively with team members and top executives (Pérez-Luño et al., 2019). The commercialisation stage is supervised by marketing and sales directors. In SME2, three project leaders cooperate, supervising the areas where they hold directorships across multiple projects.

Summarising, the internal coordination observed in small and medium-sized enterprises reveals notable variation along two key dimensions: the centrality of the Managing Director in driving innovation and the degree of employee empowerment through cross-functional collaboration. This can be further articulated through three distinct paradigms, each emphasising the crucial role of cross-functional coordination and active leadership engagement in fostering innovation. Below (Table 6.2), a detailed summary accompanied by a visual matrix is presented to illustrate the behavioural patterns prevalent across the five SMEs, labelled SME1 through SME5. This representation aims to capture the nuanced interactions and collaborative dynamics integral to their operational frameworks.

SME	Model Type	Role of Managing Director	Coordination Approach	Employee Involvement
SME1	Model 2: Co-Leadership	MD is actively involved in the business and commercial side, co-leading with a technical expert.	Innovation led by a subject-matter expert (chemist), MD, oversees business alignment.	Medium / High: Employees encouraged to take initiative; projects led by the most capable.
SME2	Model 3: Delegated Leadership	MD removed from daily innovation; delegates to Technical Director.	Formalised management, functional directors assess and run innovation across their departments.	High: High employee involvement throughout the project and across all levels.
SME3	Model 1: MD as Sole Leader (Autocratic)	MD leads and controls innovation exclusively.	MD centralises decisions, directs innovation; limited cross-functional collaboration.	Low: Employees are not expected to innovate, but to follow the MD's direction.
SME4	Model 1: MD as Sole Leader (Collaborative)	MD leads innovation with strong engagement and encouragement of staff.	Participatory leadership with a focus on internal process improvements and idea-sharing.	High: Staff encouraged to suggest ideas and work on internal innovation.
SME5	Model 2: Co-Leadership	MD focuses on business and commercialisation, co-leading with employees and external experts.	Innovation is distributed based on expertise; MD promotes a collaborative environment and recognition.	High: Empowered staff lead projects, receive credit and recognition.

Table 6.2 MDs and employee involvement in CFI across the SMEs.

6.1.4 Cross-Functional Integration Level

The integration level refers to the degree of integration between functions within a firm and is closely associated with joint activities and teamwork aimed at achieving common goals (Pimenta et al., 2016). The respondents were asked about the involvement of each function in an innovation project. They commonly agreed that an innovative project requires teamwork, and therefore, all employees have a role to play, however big or small, in the innovation process at the company. From the collected data, it is noticeable that the participants understand that each stage of the innovation process requires different involvement of various functions (Bhuiyan, 2011). The degree of commitment varies, and some functional involvement can be down to particular stages only, as other skills are needed (Love & Roper, 2015). Moreover, they emphasise that integration is “*project specific*” (SME2E1) as innovative projects differ from one another (Bhuiyan, 2011). As such, a general overview of the integration-level phenomenon will be provided without delving into the specifics.

Upon analysing the integration process from a product innovation perspective, it was observed that during the initial stage of the innovation process, where the idea is assessed for feasibility, the decision-making authority rests with the Managing Director (s) in micro firms, such as SME4 and SME5, or firms with a centralised leadership structure, like SME3. The MD3 and MD4 approaches are characterised by opportunism. While MD4 presents a “*let us give it a try*” (MD4) attitude, the MD3 approach relies on the leader's intuition to address customers' issues and ideas:

“It is a weird thing, but I have always been good at that. Knowing myself what is going to be good and what is not. It is almost an instinct” (MD3).

He further added:

“I talk to many customers, and in conversation, they would say, I need this; this could be done. (...) I will be able to tell them yes or no within 10 minutes. If I am interested, I will take it forward and make a sample” (MD3).

MD5, on the other hand, states that the decision to start the project depends on whether “*we can make improvements for society and the environment*” (MD5), even if they need “*to invest money and let it cost us*” (MD5). It is down to “*three of us in*

the core operational team” (MD5). MD5 represents a very ethical and “innovative way of business approach” (MD5).

Conversely, in organisations with formally designated functions or departments, the decision-making process entails a confluence of technical and business expertise. One of the leaders suggested that *“three directors review what came in and assess the opportunity from a sales, commercial, marketing, and technical point of view”* (MD2). This was confirmed by a technical director, who stated that *“the initial conversations will tend to be myself and the commercial director, as well as the sales and marketing”* (SME2E1). The assessment of the project's viability falls under the purview of these structures. As suggested by the Managing Director, it is always subject to double-checking by both internal and external parties to ensure accuracy and thoroughness. She explained that a thorough evaluation should be conducted to assess the project's practicality and viability. This step is vital to ensure the project can be implemented successfully in line with the expected outcomes. She mentioned:

“We had already proven to ourselves that. We knew it worked, but was there a market for it? To prove that there was a market for it, we had to bring in external, independent market research” (MD2).

The Technical Director elaborated further on that:

“We went to do the whole understanding of the market, the proof. I suppose ultimately, we also did some trials with some people, got some feedback, and ultimately, produced a big, large data report on the market, the opportunity, understanding the price point, understanding the need and also where the markets are, the potential, the opportunity and the size of what the business could be. From that, we then obviously identify the need to bring in some additional resources to fund the next stage, which was a concept stage” (SME2E1).

SME1 is a B2B company whose customers' needs are vital in the idea generation stage. The company's recent organisational strategy modifications have made evaluating new projects more meticulous and based on structured internal analysis, resulting in more technical efficiency. Nevertheless, SME1 still relies on market research provided by the customer. As a result, the company focuses on the project's technical and practical aspects. SME1 actively explores new ideas and works closely with its customers to meet their requirements. All projects are tested on a lab scale, and then scientists and MDs decide whether to proceed based on their feasibility.

The second phase of the innovation project is the New Product Process Development (NPPD) stage (Cooper, 2008), where greater collaboration between different functions is evident. Although MDs are involved to varying degrees throughout the innovation project, the NPPD stage sees less direct involvement from MDs and more instances of support and encouragement. New Product Development (NPD), which is part of the product innovation process, primarily focuses on the technical aspects of the product (Cooper, 2008). Consequently, the technical department, if present, assumes a pivotal role in the successful execution of the NPD project. Therefore, in SME1 and SME2, which have technical functions within their ranks, the representatives of these functions fulfil the managerial roles. They oversee the project and organise and distribute work among the team while actively participating. According to the Managing Director of SME1, the project leader “*will reach out to whatever department he thinks he needs on that particular aspect*” (MD1). Employees representing different functions “*are pulled into the process*” depending on “*particular aspect*” and “*process stages*” (MD1) needs. These decisions are made ad hoc and can be implemented almost immediately as working practices and relationships in smaller firms are flexible, informal, and devoid of bureaucracy (Tidd et al., 2005; Marlow et al., 2010; Love & Roper, 2015). In SME2, their technical staff collaborates closely and participates in all stages of new product development. Often, members who are directly involved in the NPD stage work beyond the scope of their duties. These tasks comprise managing marketing and sales inquiries and assessing the feasibility of production floor operations. The Technical Director explained:

“Marketing may come up with some ideas. R&D Designer and Mechanical Engineer will put it into practice and see what this one looks like. Then there'll be some feedback back and forth, so it's not just purely design. There is an element of understanding suppliers, packaging and stuff like that” (SME2E1).

The mechanical engineer provided further clarification, emphasising their forward-thinking approach to include further stakeholders responsible for dealing with that product. “*We also take into account the production guys and how they have got to put it together and everything that is going to be put in there*” (SME2E4).

The successful results of the trial are then integrated into the project. The technical director concluded:

“As a business, we actually do pretty much everything from an R&D innovation supply chain, but we also do the marketing, sales, commercial aspect, and industry understanding” (SME2E1).

On the other hand, SME4 and SME5 are micro-companies with no official departments. As a result, most employees have flexible job functions, which is characteristic of a horizontal structure. According to MD5, only managers have a job title because *“we are legally obliged to”* (MD5), but they do not follow a rigid job structure apart from that. These companies strongly emphasise collaboration and teamwork, encouraging employees to work across various functions and departments. The focus is on skills, expertise, and performance, with roles based on competencies. MDs, especially first-generation leaders, play a crucial role in NPD as they often develop the manufacturing process. MD4 explains, *“We had to really develop manufacturing processes that take into consideration the variance in the wood”* (MD4). Employees are participating in the NPD by developing process and product improvements. MD4 elaborated:

“They just work as a team. They come up with ideas. They are working intimately with the product every day. If they see something is taking ages or it could be done quicker, better (...) I am just really open for them to be trying different things” (MD4).

In turn, MD5 suggested that although the management team has *“the most experience in that area, we are willing to make our team feel that they can have that experience too”* (MD5). Therefore, she further explained:

“We work very collaboratively with our team, and it is a very flat structure. We all work together. (...) whoever has the most experience and has that innovative idea is the first to lead, and the rest of us back them, so it is not always me” (MD5).

In instances where SME has a centralised leadership structure, creative collaboration during the NPD stage may not occur. MD3 clarified this by stating, *“I run everything,”* and added, *“I talk to others, but it's me who works on a project”* (MD3).

This stage is often based on a trial-and-error approach. In order to support new product development, it is essential to have effective communication structures in

place that facilitate experimental-based learning, open sharing of information, and interpersonal interaction (Ahmed et al., 2021).

The final stage of the innovation process, known as the commercialisation stage, typically involves either the sales and marketing departments (Cooper, 2008), if they exist within the company, or the managing director, who acts as the firm's representative. In the current sample, there are four firms where the managing director serves as the business representative. SME2 is the only firm with dedicated Marketing and Sales Directors. However, the technical director is still included in commercialisation to some extent. He explained:

“We went through a lot of prototype testing and verification, and then, ultimately, transitioned into the production stage and commercialisation. We have always been thinking about commercialisation back in its early stages, as well as the support and ability aspects of how we would support the product” (SME2E1).

In general, integration is not universal, and the degree of integration across projects needs to be tailor-made (Rubera et al., 2012) as each process stage requires different information-gathering activities (Bhuiyan, 2011). Depending on the level of novelty involved, incremental and radical innovations require different innovation capabilities, which in turn affect the level of knowledge required to achieve success (Aas & Breunig, 2017). Therefore, the degree of internal integration within an organisation is closely associated with joint planning, process problem-solving, goal setting, and teamwork to avoid conflicts (Pimenta et al., 2016).

Moreover, Gemser & Leenders (2011) claimed that cross-functional cooperation is a resource investment decision that requires scrutiny, which was further confirmed by this research. Some respondents noted that, while the company places a high value on innovation, it can be challenging to find time for it amidst their daily tasks. The Technical Director explains that *“the challenge we have is we are also trying to run a business” (SME1E1)*. He further added:

“I am looking to involve people in innovation and moving forward, but there is always a balance between: we need to go and do the day job and innovate to make money to move the business forward” (SME2E1).

Furthermore, although managers stated that they *“encourage people to innovate” (SME2E1)* and *“a lot of them now are much more involved” (MD1)* in the projects

than before, they are also aware of employees' skills and capabilities. They understand that only some people at the company will directly participate in innovation activities. However, they all need to work together and get the work done *"because he (project leader) needs the resources of many different people because he cannot do all by himself"* (MD1). This statement is especially relevant to people working on the production floor, who are recognised as an essential link in implementing innovation on the *'shop floor'* (OECD, 2018a).

6.2 Internal Integration: Activities, Behaviours, and Actions Across SMEs

This study employs social capital theory and the resource-based view as a theoretical framework, and critical realism as a philosophical perspective, to investigate the assimilation of various functions that facilitate innovative activities and ongoing change. These lenses collectively allow for a nuanced examination of the enabling structures, behaviours, and mechanisms through which cross-functional integration unfolds in small and medium-sized enterprises.

Social capital has been widely used to explain the value that social relationships can generate (Nahapiet & Ghoshal, 1998; Herbane, 2019). In the context of critical realism, actors are embedded in social structures—such as teams, departments, or organisational units—that hold emergent causal powers (Elder-Vass, 2007; Brown, 2014). These structures are continually shaped by human agency and social interaction, resulting in dynamic and evolving patterns of integration (Stutchbury, 2022). Cross-functional integration, in this light, emerges through cooperation and communication among individuals working on related innovation tasks (Bhuiyan, 2011). As actors interact, they co-create social structures that both enable and constrain behaviour, leading to the formation of new knowledge and the development of relational assets (Jeske & Calvard, 2021; Pellathy et al., 2019).

These structures are more than the sum of their individual contributions; their arrangement and the relationships between their parts create emergent properties—causal mechanisms that are not reducible to individual actions (Elder-Vass, 2007; Sorrell, 2018). When mobilised, these mechanisms produce events that may be observable as changes in knowledge sharing, collaboration, or innovation

performance. This systemic process enhances the firm's social capital, serving as a catalyst for innovation by fostering trust, shared understanding, and collective learning (Ahn & Kim, 2017).

Within established SMEs, cross-functional integration tends to occur horizontally between departments across each phase of the innovation process—from the front end of innovation (FEI) through to new product/process development (NPD) and commercialisation. Each stage of innovation demands distinct expertise and knowledge (Cooper, 2008), resulting in a complex web of connections that give rise to emergent structures with varying powers (Elder-Vass, 2007; Brown, 2014). These structures are context-sensitive, reflecting not only the functional roles of employees but also the temporal and relational configurations of teams as they address evolving innovation tasks.

Based on the findings presented in Section 6.1, which detailed behaviours and practices associated with communication, cooperation, and coordination, this section offers a narrative account of how internal integration manifested across the five SMEs. Drawing on observational data and interview evidence, the following descriptions illustrate how integration was enacted in practice, whether formally through processes and routines or informally through interpersonal dynamics. By interpreting the patterns and nuances emerging from the fieldwork, the researcher aims to provide a richer understanding of how leadership approaches, organisational culture, and the practical realities of innovation shape internal collaboration within resource-constrained environments. The descriptive account presented below offers a holistic view of cross-functional integration, highlighting both commonalities and differences across the firms.

SME1

SME1 exhibited a moderately structured approach to internal integration, primarily driven by technical staff and the managing director. Innovation activities typically commence with feasibility assessments and internal technical analyses, followed by laboratory-scale testing to validate concepts. Cross-functional involvement occurred on an as-needed basis, with various departments being brought into the process at different stages of development. The firm demonstrated a pragmatic awareness of

operational constraints, acknowledging that while internal collaboration was valuable, it had to be balanced with daily workloads and other responsibilities. As such, project leaders exercised discretion in assembling cross-functional support, often guided by technical requirements and project timelines. While the process was largely top-down, employee involvement was encouraged, particularly when their specific expertise could enhance project outcomes. Notably, the organisation had recently undergone structural changes to clarify innovation-related responsibilities, suggesting a growing maturity in how it coordinated internal knowledge flows.

SME2

In SME2, internal integration was highly developed and central to the firm's innovation strategy. Innovation activities typically began with joint discussions involving commercial, technical, sales, and marketing directors, ensuring that strategic, market, and technical considerations were embedded from the outset. Market research and technical testing were carried out in parallel during the early phases of project development. Behaviours across the organisation reflected a strong team ethos and a willingness to collaborate beyond formal role boundaries. Employees across functions routinely engaged in discussions about feasibility, process limitations, and implementation strategies. The technical director played a pivotal role in facilitating this integration, coordinating input across multiple departments as projects evolved. While staff occasionally noted tension between innovation projects and routine duties, there was a shared understanding that collaboration was essential to ensure the viability and scalability of new ideas. SME2's approach reflected a formalised yet flexible system that leveraged cross-functional dialogue to strengthen innovation delivery.

SME3

In contrast, SME3 represented a highly centralised model where the managing director tightly controlled innovation. Activities related to idea generation, evaluation, and development were typically initiated and led by the MD, with minimal formal input from other departments. While employees supported project execution, decision-making authority and project vision remained concentrated at the top. Internal collaboration was limited and largely informal, reflecting a reliance on

individual leadership rather than systemic integration. The MD's approach was responsive and intuition-based, driven by direct interactions with customers and personal assessments of market needs. As a result, innovation projects were often reactive and lacked structured cross-functional planning. This approach offered speed and autonomy but risked underutilising internal expertise and creating bottlenecks during implementation.

SME4

SME4 demonstrated a hands-on, team-based model of integration rooted in close relationships between employees and management. Innovation activities were grounded in manufacturing experience and often emerged through experimentation and problem-solving on the shop floor. The managing director played an enabling rather than directive role, encouraging employees to identify and test potential improvements during their routine work. Behaviours across the organisation reflected a high degree of trust and autonomy, with employees contributing to innovation regardless of formal titles. Integration occurred organically, supported by shared goals and physical proximity, rather than structured planning. Employees' deep familiarity with processes and products allowed for real-time innovation without the need for elaborate coordination mechanisms. This flat, collaborative structure facilitated swift and practical innovation, although it may limit scalability for more complex projects that require strategic alignment.

SME5

SME5 offered the most decentralised and ethically driven model of internal integration. Activities associated with innovation were initiated by a core operational team that assessed feasibility; however, leadership of specific projects could be assumed by any employee with relevant experience or insight. The organisation operated with an intentionally flat structure, eschewing hierarchical decision-making in favour of collaborative and competency-led practices. Behaviours reflected a culture of empowerment and shared responsibility, with team members openly contributing to and even leading innovation efforts irrespective of their formal roles. Actions were guided by a combination of personal ethics, social values, and business goals, and internal collaboration was fluid and adaptable. Employees worked in

multifunctional ways, drawing on their diverse experiences to co-create solutions. Integration in SME5 was not only a function of organisational design but also of deeply held values that prioritised inclusivity and trust.

The five SMEs examined in this study showed different approaches to cross-functional integration during their innovation processes. These differences reflected not only the size and structure of each organisation but also its leadership style, employee empowerment, and organisational culture. While all firms engaged in some form of cross-functional activity, the nature, consistency, and intentionality of these practices differed markedly. The summary of different approaches to cross-functional integration is presented in Table 6.3.

SME	Integration Type	Decision-Making	Team Involvement	Innovation Style	Structure
SME1	Moderately integrated, technically led	MD + technical staff	Ad hoc cross-functional	Structured, pragmatic	Functional roles with flexibility
SME2	Highly integrated, cross-functional	Multi-director group	Multidisciplinary collaboration	Process-driven, market-informed	Formal departments
SME3	Low integration, MD-centric	Sole MD authority	Minimal	Intuition-based, reactive	Centralised
SME4	High informal integration	MD supports team input	Shop-floor driven	Trial-and-error, adaptive	Horizontal, informal
SME5	Competency-driven, flat structure	Core team consensus	Open, skill-led	Ethically motivated, participatory	Very flat, flexible

Table 6.3 Summary of approaches to cross-functional integration.

6.2.1 Comparative Reflections on Cross-Functional Integration

The cross-case comparison reveals a spectrum of internal integration models, from highly centralised and leader-driven (SME3) to decentralised and competency-based (SME5). In firms like SME2 and SME1, integration was structured and process-oriented, drawing on cross-functional knowledge to manage innovation risks. By contrast, SME4 and SME5 relied on informal mechanisms, trust, and employee initiative, demonstrating that effective integration can occur outside formal structures. Leadership style played a critical role in shaping integration practices,

where leaders empowered employees (as in SME4 and SME5), leading to more distributed and inclusive innovation. Where leadership remained centralised (as in SME3), innovation remained bounded by individual vision and capacity.

These findings highlight that internal integration in SMEs is not one-size-fits-all; rather, it is context-specific, shaped by organisational culture, leadership approach, and resource availability. Nevertheless, effective integration, whether formal or informal, was found to enhance knowledge flow, strengthen feasibility assessments, and improve alignment between innovation goals and operational realities. The social capital built through repeated collaboration enabled SMEs to better adapt and innovate within their environments.

The most significant impact and highest level of integration occur during the New Product/Process Development stage. This aligns with prior research suggesting that cross-functional integration is best achieved at the project level, where robust connections in time and communication exist among individuals and groups working on interrelated tasks (Troy et al., 2008; Bhuiyan, 2011). This stage of the innovation process requires an integration level, which entails combining different business units, functions, or processes within an organisation to achieve a shared goal of creating a new product or process (Salomo et al., 2007; Cooper, 2008). By aligning the different units' objectives, resources, and capabilities, horizontal integration can help minimise duplication of efforts and optimise productivity. It also fosters cross-functional collaboration, enhances knowledge sharing, and ensures that the product development process is more efficient and effective (Pérez-Luño et al., 2019).

Due to constantly changing social structures that possess various causal powers (Stutchbury, 2022) through which knowledge is created, the extent of integration across projects cannot be uniformly applied and is dependent on the specific requirements of each project (Griffin & Hauser, 1996; Rubera et al., 2012). Therefore, the information-gathering activities associated with each stage of the process necessitate customisation to achieve optimal outcomes, as noted by many researchers (e.g., Griffin & Hauser, 1996; Bhuiyan, 2011; Gemser & Leenders, 2011; Rubera et al., 2012). Thus, internal integration in SMEs is inherently project-specific, shaped by context, actor relationships, and the evolving demands of innovation work.

6.3 Cross-Functional Integration Model (CFIM)

To further interpret the internal integration dynamics identified in the study, the observed behaviours, activities, and roles within SMEs were mapped onto a **Cross-Functional Integration Model (CFIM)**, a three-layered model of organisational participation in innovation projects. This model, illustrated in Figure 6.1, conceptualises three zones of actor involvement: the core, the support structure, and the cloud. These zones represent varying degrees of proximity to innovation decision-making and implementation, providing a valuable framework for visualising how integration unfolds in small, multifunctional firms. Moreover, the model emphasises the importance of each function in the innovation process, whether directly or indirectly involved.

The Core: Who Drives and Delivers the Innovation

The core composition depends on the type of innovation under consideration. This sphere is represented by the actors with the most extensive knowledge in the respective fields. The primary actor responsible for creating the core is the leader, co-leader or both. Concerning process or organisational innovation that does not need to be commercialised, the core is represented by the unit that the innovation process concerns and the MD who is responsible for providing the necessary resources to ensure the successful implementation of the changes. These resources can be obtained both internally and externally, including tangible and intangible assets such as grants, equipment, expertise, and knowledge. For instance, if an SME is focused on process innovation, then the production department becomes part of the core. Regarding product innovation, the core typically consists of two overarching units: R&D and the Business unit (including the MD, Marketing, or Sales). These units are essential for the success of the innovation process, as they provide the necessary structure and support for the development and implementation of new ideas (Troy et al., 2008; Brettel et al., 2011). The principal mandate of the business unit is to identify novel avenues for growth, successfully commercialise a product, and sustain the company's positive reputation among the public (Cacciolatti & Lee, 2015; Hempelmann & Engelen, 2015). A Marketing Director may or may not be present, depending on the workplace size. In the study, only one firm hired such an

expert. Therefore, in general, the business unit is represented by the Managing Director. The Research and Development function, in turn, generates novel research concepts, determines long-term research objectives, and defines the product's technical specifications (Hempelmann & Engelen, 2015). The Technical Director, Industrial Chemist, and Product Champion represent this unit in the sample.



Figure 6.1 Cross-functional Integration Model. The visualisation of cross-functional integration at established small and medium-sized enterprises.

The Support Structure: Who Responds and Contributes to Delivery

The support structure, in turn, is characterised by the in-project team, which is designed on an ad hoc basis to support the project and respond to the needs and changes of the core. These may vary in terms of quantity and complexity, and thus, a diverse array of knowledge, experience, and resources must be employed to adequately address and integrate them into the overall project (Rubera et al., 2012; Pimenta et al., 2016). The in-project team appears at various stages throughout the process, and its configuration is tailored to the specific task at hand (Gonzalez-Zapatero et al., 2016). To ensure success, it is essential to have a robust support structure to provide the necessary assistance to the project's core. This will facilitate a streamlined and efficient workflow, ultimately aiding in achieving the main

objectives and goals of the endeavour. In the context of innovation at established small and medium-sized enterprises, the support structure identified during cross-functional integration can be classified into three distinct categories:

a. *The puzzled support structure* approach involves employees who have a deep understanding of their roles and the project. Their involvement in the project is reactive, and communication primarily occurs through the project leader. While not directly involved in the primary aspect of the project, their work is directly impacted by it. Thus, they must respond to changes and report their outcomes directly to the project leader. The entire project can be fully assembled only by combining the pieces like a puzzle.

b. *The synergic support structure* approach is a framework in which employees carry out their official titles and, therefore, have specific duties and responsibilities while actively being involved and seeking involvement from other functions to solve problems. Self-motivation and open collaboration with other functions are vital characteristics of this approach. Employees are heavily involved in innovation projects, influence the project and remain informed of developments in this area.

c. *The fluid support structure approach* is characterised by fluid functionality. In this approach, employees are empowered to perform various tasks within the workshop and hold general job titles that allow flexibility in their work environment. This approach emphasises open collaboration among team members. This structure is typically observed in micro firms, where the emphasis is on maximising productivity and efficiency through a dynamic and agile workflow in the business aspect of the project.

The Cloud: Who Adapts to the Innovation

The cloud serves as the external layer of the cross-functional integration model, which is not directly involved in the project but is somewhat influenced by it. As a result, it adapts to the changes introduced by innovation, for example, in a firm's administrative department. The cloud does not exist as a separate entity in a micro firm; instead, the business function absorbs it.

The Cross-Functional Integration Model (CFIM) identifies all stakeholders involved in the innovation process. It aligns and assigns tasks to the responsible

entities or teams based on project requirements. Clearly defining roles and responsibilities facilitates the formation of a cross-functional team and designates a team leader to oversee the process and ensure coordination. This helps clarify the key functions involved in innovation and ensures that they understand their roles and the roles of others. Moreover, the model also identifies points where different functions interact, communicate, or require collaboration and helps to allocate resources at various stages of the process. It helps identify stages where external expertise may be necessary due to the firm's various driving forces for collaboration.

The CFIM necessitates regular reviews to facilitate swift modifications to roles, resources, and strategies based on performance data and feedback. It is imperative to maintain meticulous documentation to record the entire process, encompassing decisions, challenges, and implemented solutions. Upon the culmination of the innovation process, a comprehensive review becomes essential to evaluate successful approaches and identify areas for improvement in future projects. The CFIM can be universally applied to any project or a specific innovation stage and changed into a chart.

To summarise, the organisation's structure comprises a nested framework encompassing various departments, each with its respective relationships and individual characteristics. This structure is characterised by a complex interconnectivity, whereby each element simultaneously impacts and is impacted by others (Easton, 2010). Integrating cross-functional teams into the innovation practices of small and medium-sized enterprises is a complex process involving both visible and hidden mechanisms. Understanding these mechanisms is crucial for successful cross-functional integration and can lead to improved innovation outcomes. The core is built from individuals (entities) that interact with each other, creating a social structure characterised by emergent powers (causal powers). The core interacts with support structures (other entities/structures of entities) and a cloud that gathers around the core, creating relations that, through causal properties, will affect one another (necessary relations) or may affect one another (contingent relations) and create the mechanism (interactions, communications, joint participation, information sharing). This mechanism causes events that could be, but

not necessarily, empirically observed or measured (Easton, 2010), such as project progress, a prototype or a report from an experiment.

From the perspective of the Resource-Based View, the development of new capabilities, such as knowledge, skills, routines, and learning mechanisms, stems from internal processes shaped by complex social structures. These capabilities are path-dependent, firm-specific, and difficult to replicate (Colbert, 2004), making them valuable, rare, inimitable, and non-substitutable (VRIN). Within SMEs, employees across different functional areas hold critical resources—including expertise, experience, and contextual knowledge—that are often tacit and embedded in daily practices. Through cross-functional integration, firms can recombine these resources to generate new capabilities (Barney, 1991; Kostopoulos et al., 2003; Radicic, 2014), enhancing their innovation capacity and long-term competitiveness (Cohen & Levinthal, 1990). When this is successfully achieved, internal integration itself becomes a source of sustained competitive advantage, consistent with RBV logic.

In this context, the support structure of the Cross-Functional Integration Model plays a pivotal role as a dynamic space for combining and enacting knowledge. It allows employees to respond flexibly to project needs, share tacit expertise, and co-develop solutions, activities that reinforce organisational routines and contribute to firm-level learning. When these micro-level processes are systematically integrated and aligned with strategic objectives, internal integration itself becomes a VRIN resource, consistent with RBV logic.

Aligned with Social Capital Theory, the model also highlights the importance of relational structures and trust-based collaboration in enabling innovation. Strong internal ties between individuals in the core, support, and cloud layers facilitate the exchange of information, foster a shared understanding, and promote mutual accountability. These relational networks facilitate the formation of a cohesive innovation culture, where communication flows smoothly, decisions are more effectively interpreted, and collective learning is enhanced. Thus, building internal social capital across all three zones becomes not only a social necessity but also a strategic enabler of innovation.

6.4 Conclusion

This chapter presents findings for the second research objective:

To explore the mechanisms small and medium-sized enterprises utilise to foster internal integration during innovation.

The primary goal of this study is to expand current knowledge and gain a deeper understanding of the cross-functional integration mechanisms in established small and medium-sized enterprises. Therefore, this research is centred around a process-oriented approach that contextualises a sequence of activities enacted within firms during the innovation process, as Frankel and Mollenkopf (2015) suggested.

The outcomes of the present study validate earlier research that highlights the significance of cross-functional teamwork in small and medium-sized enterprises. This collaboration aims to exchange information, work together towards common objectives, and coordinate activities to achieve business goals (Pellathy et al., 2019). The mechanisms of integration are often informal and project—and stage-specific. Hence, the extent of integration across projects must be customised according to project-specific needs, which aligns with Bhuiyan's (2011) and Rubera et al. (2012) findings.

Research indicates that projects typically have two or more leaders, with one overseeing the technical aspects of the project and the other managing the business aspects. Both leaders are, to some extent, involved in the other's area. In most cases, the Managing Director serves as the coordinator of the business function. At the same time, the employee with the most significant knowledge about the area covered by innovation becomes the de facto project leader, acting as the primary point of contact between various functions. The technical project leader's role is to foster mutual understanding and integrate the various activities of different functions to achieve a common goal.

Furthermore, this study is a valuable contribution to cross-functional integration in small and medium-sized enterprises. It proposes a Cross-Functional Integration Model, the three-layered model of organisational engagement in innovation. This model offers valuable practical insights for managers in small and medium-sized enterprises seeking to strengthen internal integration. In practice, this model encourages SMEs to move beyond rigid role definitions and adopt a more flexible

and communicative organisational structure, especially during innovation initiatives that require cross-functional collaboration and adaptive behaviour.

From a managerial perspective, the model highlights the importance of actively managing the boundaries between the core, support structure, and cloud. Leaders should not only focus on setting direction (core) but also foster mechanisms that enable sense-making and knowledge sharing across all levels of the organisation. By recognising the latent capabilities present in each layer, managers can better mobilise their internal resources and build adaptive capacity across the organisation.

Furthermore, this model serves as an exemplary visual representation of the actors involved in the innovation process, enabling them to understand their respective roles and those of others comprehensively. Moreover, by applying this model, the study reveals how innovation in SMEs depends not only on leadership direction but also on the ability to build behavioural bridges across functions—linking strategic intent, operational execution, and peripheral adaptation into a cohesive process. Although interactions among colleagues may not directly result in innovation, they play a crucial role in supporting the process and fostering a positive and supportive workplace culture that encourages creativity and progress.

6.5 Limitations and Future Research

The present study examines cross-functional integration practices among established small and medium-sized enterprises that operate in the low-tech sector of the Scottish business landscape. It is acknowledged that the context in which cross-functional integration is studied is of critical importance (Frankel & Mollenkopf, 2015). Those practices may vary in start-ups or companies operating in the high-tech sector, which could be a path for further research. It is also necessary to investigate whether similar mechanisms of cross-functional integration exist in the service sector or in different countries.

Furthermore, it would be advantageous to validate the model of cross-functional integration on a larger sample of firms, as the current study is based on a limited sample size. Additionally, it would be pertinent to examine the model based on the company's size, particularly in micro, small, and medium-sized enterprises. This would provide a more comprehensive understanding of the model's efficacy and

applicability across various company sizes, enabling organisations to make informed decisions regarding cross-functional integration.

The present chapter adopts an exploratory approach to exemplify the nature of collaboration across different functions throughout the innovation process. Subsequently, the following chapter focuses on the collaborations of small companies with diverse external entities to foster innovation and ensure a sustainable competitive edge.

7 Findings and Discussion: Inter-Organisational Collaboration (IOC)

This chapter examines the third research objective, which pertains to the critical role of inter-organisational collaboration in enhancing innovation capability at the firm (Mendoza-Silva, 2020). The ultimate aim of this section is to address the last research objective:

To explore how small and medium-sized businesses establish and leverage their networks to foster innovation.

Examining network experience, creation, and operation at the firm level provides valuable insights into understanding network strategy. Specifically, exploring the external collaboration requirements of small and medium-sized enterprises, followed by an analysis of the breadth and depth of such collaboration, can help identify the factors that facilitate or hinder it. Analysing the above, this study aims to investigate the degree to which small businesses opt to engage in external collaboration. This approach enables a comprehensive understanding of network strategy.

This chapter delves into the driving forces behind the company's external collaborative efforts, as outlined in Section 7.1. Subsequently, in Section 7.2, the scope and extent of networking are expounded upon, followed by an in-depth analysis of the factors that facilitate such collaborations in Section 7.3 and the obstacles that hinder them in Section 7.4. In Section 7.5, the report consolidates the findings and presents a metric for network utilisation. Lastly, Section 7.6 presents the concluding remarks for this chapter, while Section 7.7 addresses the limitations and outlines potential future research paths.

7.1 Driving Forces for External Collaborations

The setup of networks relies on the specific requirements of each project (Pittaway et al., 2004). The rationale behind a company's decision to engage in external collaboration significantly influences the identification and selection of potential partners. Thus, comprehensively examining the motivating factors behind external collaborations will facilitate a thorough understanding of the network's origins and subsequent utilisation.

All participants were asked to elaborate on the underlying motivations driving their companies to actively pursue and establish collaborations with external partners. It was revealed that the engagement of small and medium-sized enterprises with external entities is geared towards fulfilling three fundamental requisites essential to the operations of these smaller businesses. Small companies' first and foremost need was to supplement the internal resources required for innovation. The second need was to validate the internal product quality and its usefulness through external sources. Lastly, the third requirement focuses on building the business's social, economic, and ethical values, which are essential for CSR. Research confirmed that internal constraints and, thus, firms' drivers for external collaboration are more significant for SMEs than external drivers (Enkel et al., 2009; Van de Vrande et al., 2009; Dziurski & Sopińska, 2020). Upon further examination, three sources of influence elucidate six recurrent themes. These themes are outlined in Table 7.1 and further explored in the subsequent sections.

Driving Forces					
Internal Constraints		Validation		Corporate Social Responsibility (CSR)	
Non-Financial Capital	Financial Capital	Proof of Market Demand	Support of Claims	Society	Environment

Table 7.1 Driving forces' themes for networking.

7.1.1 Internal Constraints

Within the realm of internal constraints, two recurring themes emerged as significant factors driving the company's decision to engage in external collaboration. These themes, specifically non-financial and financial capital, were linked to insufficient resources required to propel the innovation process, ultimately hindering the company's ability to achieve its objectives (refer to Table 7.2).

Internal Constraints	
Non-Financial Capital	Financial Capital

Table 7.2 Internal constraints.

7.1.1.1 Non-Financial Capital

Upon examining internal constraints, it became clear that non-financial capital was the most prominent theme and key driver for companies seeking external collaboration. The most significant obstacles were time, followed by the necessary skills, expertise, and knowledge required to adopt, implement, and sustain innovation (see Table 7.3). Furthermore, businesses sought to cultivate effective networks to enhance internal knowledge, acquire essential resources for organisational growth, identify new opportunities, and establish a foothold in the market.

Non-Financial Capital		
Time	Skills, Expertise, and Knowledge	Appropriate Networks

Table 7.3 Non-financial capital constraints.

Time

The primary and most frequently cited factor influencing the establishment of external collaborations for innovation projects was time, specifically the lack of it. Participants understand that innovation is a complex process that requires a “*lot of talking and planning and thinking*” (MD1). They recognise that “*even just time to stop things*” (MD1) is necessary to rethink and revisit the project in order to find a new solution to arising problems. Successfully realising innovation-related goals demands significant resources, including considerable time, to achieve the desired outcomes (Acar et al., 2019). The Production Manager even suggested that “*it frustrates me the time it takes to get it done*” (SME1E1). Thus, when it comes to innovation, “*time is always a challenge*” (SME2E1), and small companies face significant threats in their innovative efforts due to a “*lack of time*” (SME1E2).

Traditionally, companies relied on in-house staff to carry out activities related to product improvements or process enhancements. However, this approach has become progressively problematic due to the increasing complexity of the market, the escalation of competition, and the intricacy of projects (Chesbrough et al., 2006; Spithoven et al., 2013). The lack of time becomes even more significant when these activities are new and unknown to the firm. The company must undertake additional activities related to the innovation process while simultaneously managing day-to-

day operations. Despite the importance of innovation, companies primarily focus on maintaining profitability as *"the challenge we have is we are also trying to run a business"* (SME2E1). This highlights that innovation is an additional task rather than a daily duty. Time is often the most critical resource to introduce new ideas and concepts (Puech & Durand, 2017). MD1 shared her experience of undertaking internal development work, which unfortunately did not yield the expected results. She explained:

"The Production Manager was just testing out a few different chemicals. The work he did was not so bad, but he had so many other things to do and could spend only a part of his time on that, and it was uneducated; it was born of practical experience (...). It took a long period of time, over six months, and we never really got to a suitable answer" (MD1).

The opportunities come with additional responsibilities requiring the time and knowledge investment to explore and develop new ideas and test and refine potential solutions (Puech & Durand, 2017). Unfortunately, these assets may not be readily accessible within a given organisational structure. Exploring opportunities without dedicated personnel has become quite a challenge for companies. According to a 2017 study by Puech and Durand, the lack of time for innovation is a prevalent issue in firms. Increasing pressure from daily operations, alongside the need for efficiency and operational performance, often results in utilising all available time, eventually leaving limited or no time for innovation and intrapreneurial activities. This phenomenon impedes an organisation's innovation and evolution (Puech & Durand, 2017).

To overcome this challenge, one potential solution is for companies to collaborate with external organisations with the necessary resources and expertise to help them capitalise on these opportunities, as confirmed by the Technical Director of SME2. He stated they had done what was necessary and *"engaged with external partners purely to outsource activities that we would like to undertake, but we absolutely do not have the time to explore"* (SME2E1). By collaborating with external partners, firms can leverage the expertise and resources of others to accelerate the development process and reduce the time to market (Spithoven et al., 2013b).

Skills, Expertise, and Knowledge

The inadequacy of an organisation's skills, knowledge, and expertise has also been identified as a critical constraint to innovation and one of the main reasons for external collaboration. This factor falls under the purview of internal constraints and is further classified under non-financial capital. As emphasised by MD1, the lack of necessary competencies renders organisations unable to innovate effectively and, in turn, hampers their ability to gain a competitive advantage. MD1 explains:

“The drivers of going external is simply because we understand we cannot do it in-house. We do not have the right people, with the right education, with the right understanding. So, we have to go outside” (MD1).

The innovative capacity of an organisation is heavily reliant on its human capital, which comprises the knowledge, skills, and abilities of individual personnel (Ahn & Kim, 2017). However, small businesses are often challenged in attracting and retaining skilled personnel, who are often drawn to larger companies because of better remuneration packages, benefits, and job security (Vandenberg et al., 2016).

Consequently, small businesses may not invest sufficiently in employee development, limiting their personnel's knowledge and experience to the company's operational areas. As a result, employees often acquire skills and knowledge through informal internships and learning by doing while working for the firm (Hervas-Oliver et al., 2016; Vandenberg et al., 2016). This tendency leads companies to support innovative initiatives that leverage their existing capabilities, investing more frequently in incremental innovations than in radical ones that require new knowledge from outside the company (Oke et al., 2007; Van Es & Van Der Wal, 2012; Laforet, 2013).

Moreover, existing literature highlights notable disparities in skills, expertise, and knowledge within business and management domains (Van de Vrande et al., 2009; Naudé et al., 2014; Hayton, 2015; Agostini & Nosella, 2019). It is not uncommon for smaller organisations to appoint individuals to managerial positions based on their length of service, with those who have a longer tenure being more likely to assume such roles. This tendency is particularly apparent in the statement made by the production manager:

"I have no qualifications of any type, just a lot of experience with all the products (...). We did a lot of building with our own equipment and machinery. (...) I have spent thirty years here and know how this place works. I do not necessarily know what is available outside the company" (SME1E2).

Furthermore, it is widely accepted practice for the position of managing director to be passed down from one generation to another within an organisation. MD1 shared that when her father decided to retire, the family faced a crucial decision regarding the future of their company. She went on to explain:

"He wanted to retire at some point. He was thinking about what to do with the company. So after a lot of discussion between the family. Would we hire somebody from outside, or would we sell the company? (...) It seems quite an opportune that I have the skills to run a business. I had been a partner in a legal firm, so I knew about hiring staff and about the regulations. I had an understanding of the accountancy side of it. And already in our company, we have a Production Manager who is experienced with all the production issues. Therefore, I left law full-time and came into this business. Initially, just as dad's side cook, so he was still there. But gradually he would hand things over to me and I took more and more and a dad then finally retired" (MD1).

The Managing Director of SME3 put forth a similar declaration:

"My area of speciality and expertise was on the job, learning the job from the shop floor. So, when my father invited me to join his company, he advised me: "You can have a start, but if you want to go on, you must be better than everybody else in the factory. Otherwise, I cannot give you nepotism. You must learn all aspects of the job". And that is what I did, learn everything. I learn through experience. All experience" (MD3).

This tradition allows the successor to inherit a wealth of knowledge and expertise that is highly relevant to the organisation's operating areas (Calabrò et al., 2019). Although this practice contributes significantly to the continuity and stability of the organisation's operations, it is often limited to the operational area.

Additionally, all MDs have reported having prior experience in managing positions. However, despite their past involvement in business or managerial roles, most Managing Directors still require external assistance to effectively oversee business operations, manage personnel, and pursue new ventures. MD2 stated that upon assuming the role as a newly appointed leader, she recognised the need for mentoring the business sphere:

"I was very open to people who could teach me and advise me on what I was doing. I knew HP invoices and had a basic understanding of business. The first

mentor I got was East Dumbartonshire Enterprise Trust. Their role seemed to be developing companies to a certain point, and then they would feed the Scottish Enterprise' (MD2).

MD4 has expressed a similar sentiment, acknowledging the limitations of self-learning and the necessity of seeking guidance from an expert:

"I suppose that's where we're struggling at the moment in our innovation, not physically in the workshop but out within the sales capacity and going into this universe of e-commerce. (...) There are all these other things that are happening where I understand the main concepts of it, and I will constantly be learning more, but I might need to get an expert who can take us to another level in it that I cannot at the moment" (MD4).

A thorough understanding of work-related practices is crucial for fostering innovation and enhancing a firm's competitiveness. However, this knowledge is not confined solely to processing capabilities, but encompasses a broad spectrum of areas, including understanding marketing products, distribution methods, production technologies, and activities related to the shop floor (H. Gupta & Barua, 2018). Nevertheless, small and medium-sized enterprises have encountered challenges in this regard. These challenges are attributed to the dearth of skilled personnel, limited access to information and knowledge, and inadequate managerial capacity, which continue to impede the growth and sustainability of SMEs. Therefore, external expertise in internal innovation is imperative (Narula, 2004; Lee et al., 2010b; Spithoven et al., 2013; Wynarczyk et al., 2013; Vanhaverbeke, 2017). Partnering externally with diverse collaborators offers a valuable means of accessing a wide range of skills, research, knowledge, equipment, and funding (Rothwell & Dodgson, 1991; Chesbrough, 2003; Herzog, 2011). This approach enables innovative organisations to decrease development costs, enhance innovation productivity and novelty, and reduce time-to-market, as exemplified by prior studies (e.g., Chesbrough, 2003; Enkel et al., 2009; Huizingh, 2011).

Appropriate network

Another factor recognised as an internal constraint that falls under the non-financial capital category refers to *the absence of an appropriate network*. MD1 expressed that they found themselves in situations where they realised the necessity of innovation and identified areas that required innovation. However, they face

challenges in finding the right expertise due to their limited network connections. She elaborates:

“We then moved to how we get what we want if we do not have the knowledge ourselves. Who can help us? That leads to a long search for whether we should just hire somebody or try to look into it ourselves. Which person will give us the skills? Is one person enough? How much can we afford to pay?” (MD1).

This lack of a network hampers the firm's ability to access the right expertise, resulting in a time-consuming and costly process of identifying the ideal partner for collaboration. Therefore, without a suitable network, an organisation or individual may struggle to achieve their objectives, including developing a product or process, accessing a new market, or exploring new opportunities.

Therefore, businesses must invest in building and maintaining a robust network that supports their growth and success in a rapidly evolving marketplace. The participants agreed that an appropriate network is crucial for providing an entry point into a given market, offering invaluable connections to potential customers and partners, fostering relationships, and facilitating access to a broader knowledge and expertise base. The interviewees declared the importance of engaging with external parties *“to make linkages”* (MD2) and *“build a tribe”* (MD4) that then lead to *“new paths of business, easier sales channels or more sales channels”* (MD2). In the context of new opportunities, MD3 express that gaining entry into specific markets often necessitates the assistance of an individual *“with suitable connections who knows the industry and the market there”* (MD3), highlighting the importance of appropriate network connections.

MD5 highlighted the crucial role of building connections, emphasising that it is beneficial and essential to unleash the full potential of knowledge that exists in the world but is locked within various fields. She elaborates that there are *“people who are absolutely localised on that specific industry sector where they have that expertise, they have that knowledge, but they are not big networkers”* (MD5).

Establishing connections and participating in social interactions can lead to more profound, broader, and successful information sharing. This, in turn, can improve the organisation's future abilities, rendering social capital a crucial asset that impacts its overall achievement (Ouechtati et al., 2022). Moreover, by implementing appropriate

network configurations, managers can effectively leverage their capacity for innovation, proactivity, and risk-taking, setting their firm apart from competitors. This is particularly true in their ability to attract and utilise network resources efficiently (Jiang et al., 2018). Building network relationships enhances reputation and visibility, helping to address issues related to limited resources, experiences, and credibility. This can lead to identifying new market opportunities and building market knowledge, contributing to SME success (de Jong & Hulsink, 2012; Lin & Lin, 2016).

7.1.1.2 Financial Capital

The second subtopic, internal constraints, was financial capital, which encompassed the inadequacy of financial resources (see Table 7.4). Financial resources refer to the funds and assets used to finance an organisation's activities and investments, which can come from internal and external sources.

Financial Capital
Inadequacy of Financial Resources

Table 7.4 Financial capital.

The company leaders have expressed their commitment to driving organic growth by investing capital in future initiatives. “*We have been just steadily growing organically: reinvesting a lot, loaning a bit*”, emphasises MD4. Consequently, the companies had financed most minor project enhancements and specific components of significant undertakings through internal mechanisms.

While investing in projects is essential for business growth and expansion, such investments can have a significant impact on financial capital and cash flow. Companies that invest in projects may face the challenge of limited cash flow, which may only be sufficient to meet the firm's current expenses. The Supply Chain Manager explained that investing in a product requires the enterprise to invest in its inventory, thereby freezing the cash flow. He stated:

“Because we have to buy things to minimum order quantities, we may have to buy a stock that lasts two years. If we decide we want to implement a change. We have got to use that stock before you can implement it” (SME2E2).

The Research and Development Designer has confirmed that the innovation has challenged them with holding stock of high-value parts:

“That was something that we really had not experienced before. We would maybe have an occasional out-case for injection mould tooling or something like that. But we were never in a position where we needed to place out orders for eighty thousand pounds worth of stock. (...) that had a massive effect on cash flow within the organisation“ (SME2E3).

Investment in innovation is also closely associated with investment in human resources. As MD1 explained, for SME1, innovation begins with recruiting individuals who can solve the company's problems. She added, *“The KTP (Knowledge Transfer Partnership) was a first commitment by the business to invest in a change in an actual product itself“* (MD1). Organisations that aspire to innovate successfully must invest in their workforce to ensure the availability of necessary skills and knowledge to drive innovation. Prior research suggests that a highly educated and skilled workforce is essential to build absorptive capacity that facilitates the assimilation, integration and commercialisation of external research (Teirlinck & Spithoven, 2013; West & Bogers, 2014; Spithoven & Teirlinck, 2015). Absorptive capacity represents a valuable asset that determines an organisation's ability to innovate and compete in its marketplace, following the resource-based view (Spithoven & Teirlinck, 2015), thus amplifying the firm's financial performance (West & Bogers, 2014).

MD4 expanded on the issue of limited cash flow and mentioned that it could also be linked to customers' delayed payments. She mentioned that *“a lot of larger companies have sixty or ninety-day invoicing systems”* (MD4), which can be challenging for small businesses and heavily affect their cash flow. The lack of adequate cash flow represents a significant obstacle for small business owners who seek to invest in their respective enterprises (Mazzarol, 2014; Pierre & Fernandez, 2018). Therefore, *“your growth is limited by your cash flow in many ways”* (MD4).

Small and medium-sized enterprises need financial resources to enhance productivity, sustain operational liquidity, and remain competitive. Effective financial management supports the survival, expansion, and overall prosperity of SMEs (Nunes et al., 2013; Rao et al., 2023). When SMEs face financial constraints,

they may collaborate with public authorities to access financial capital through grants or loans. Business owners and senior managers have declared that they have been seeking opportunities to support new projects with funds raised through government and local authority programs, such as innovation grants, tax breaks, or apprenticeship training grants, rather than acquiring bank loans. A few participants mentioned that their company is a Scottish Enterprise account-managed company. Therefore, they have assigned advisors who inform them of “*what grants are available within the scope*” (MD4) and thus, “*if an innovation opportunity arises, we will look at the external funding sources available to support that*” (SME2E1). MD2 has stated that the projects are being financed primarily through internal funds, to some extent, and then “*we would try to source grants that would help us with that because we are quite a small company*” (MD2). The Technical Director has confirmed that external financing is supplementary capital for the ongoing project. He cited a recent project as an example that requires substantial investment and demands more time and resources than initially estimated. As a result, it was imperative to provide external grants to support this project and ensure its completion. He stated:

“Unfortunately, we have been through a time where we have invested heavily, and I mean probably more than the business we would like to (...). A holistic growth approach did not come. That is not what we were expecting. (...). We need to slow things down and look at all funding opportunities to help that growth” (SME2E1).

Similarly, SME1 encountered unforeseen expenses when they realised that launching new products would entail a substantial investment in process innovation. As a result, they opted to collaborate with a development agency to obtain innovation grants, so they are now “*applying for a process innovation grant from Scottish Enterprise*” (MD1). The Managing Director explained that this was necessary to ensure the continuity of their product development efforts “*to ensure that we can apply that to our product*” (MD1).

The scenarios mentioned above have highlighted the significance of government-endorsed initiatives and financial resources in fostering innovation at established small and medium-sized enterprises. Chesbrough (2003) contends that governments encourage businesses to pursue external collaboration by financially supporting these processes. Innovators are more likely to externalise their innovation processes when

they receive public funding. Therefore, the availability of financial support for external collaboration serves as an essential motivator (Dziurski & Sopińska, 2020).

SME3 is the sole company in the analysed sample that does not pursue external funding. The company's leader has affirmed that they possess sufficient cash reserves in a bank, which allows them to finance their projects independently: *"Any projects we fund ourselves"* (MD3). Consequently, it is plausible that financial stability is one of the critical drivers for the company's decision to abstain from external collaborations.

While multiple factors contribute to a supportive business environment, securing sufficient funding is essential for the success and growth of small businesses (P. Rao et al., 2023). Financial support is a crucial prerequisite for conducting innovation-related activities. Established small businesses require technology upgrades to acquire the latest technological advancements and skills, enabling them to compete effectively with their counterparts. Access to finance is essential to achieving this goal. Adequate financial resources can help address research and development needs and marketing expenses, and most importantly, facilitate the necessary investment in assets required for innovation (Gupta & Barua, 2018).

7.1.2 Validation

The second theme, *validation*, refers to situations in which SMEs establish relationships with external organisations to demonstrate demand and understand the market, or to support their claims regarding their products (Table 7.5).

Validation	
Proof of Market Demand	Support of Claims

Table 7.5 Validation factor.

MD2 declared that the last project was technology-driven; therefore, external *proof of demand* was required before the company invested in mass production. She mentioned, *"We had already proven to ourselves, we knew it worked, but was there a market for it?"* (MD2). The Technical Director added that the company began engaging with academia on a market research project to understand the market *"where we will take the product"* (SME2E1). Likewise, MD4 stated that before they

“invest time and money in and starting out scalable manufacturing” (MD4), they do a pilot production and engage the customers through social media or pop-up shops to look for feedback.

Market research is crucial to gaining insights into customer needs, preferences, behaviour, market trends, and the competitive landscape. With valuable information about their target market, companies can develop products and create marketing campaigns that directly appeal to consumers. It is recommended that companies conduct market research before investing in a new product to uncover opportunity areas for product development, market segmentation, and evaluation of alternative concepts (L. A. Cacciolatti & Fearne, 2013).

In turn, when it comes to *claims support*, SMEs often use external institutions to confirm the results obtained through the in-house test. The quality supervisor stated that they outsource the analytical testing to back up the tests they have done in-house. She mentioned:

“Once we have done in-house testing, we submit our products for external analytical and practical tests to ensure that what and how we expect is happening is actually happening” (SME1E3).

SME3 and SME2 also confirmed this. The former mentioned that they *“use external laboratories only for British Standard testing” (MD3)* to verify standards for combustible materials and to prove that their products *“pass certain fire regulations” (MD3)*. They later suggested that they work with external institutions like Universities, for example, and use external reports to support a company's claims. *“We tend not to make claims unless we have got fundamental evidence that what we are about to say or do or whatever, has some form of back-up”*, explained SME2E1. The evidence from the report is often used as their *“market message”*, as noted by SME2E1. This statement was also strongly suggested in a pilot study.

Expanding business opportunities often entails entering new, unfamiliar markets where the company's product and reputation may be unknown. Vanhaverbeke et al. (2012) argue that a company's reputation is associated with its ecosystem and cannot be relied upon outside of it. Consequently, external collaborations can be instrumental in enabling small and medium-sized enterprises to build their reputation and foster customer trust (Lin & Lin, 2016).

To substantiate SMEs' assertions concerning the quality of their raw materials, products offered, or manufacturing processes, firms often engage with established third-party organisations that validate the product's compliance with the requisite standards and regulations (Vanhaverbeke et al., 2012). Such certification is compelling evidence to buttress the claim and is frequently leveraged as a marketing message to promote the product's quality and reliability.

7.1.3 Corporate Social Responsibility (CSR)

At the level of *Corporate Social Responsibility*, two key aspects were highlighted: *society* and the *environment* (Table 7.6).

Corporate Social Responsibility	
Society	Environment

Table 7.6 Corporate Social Responsibility.

These two elements were the primary reasons for SME5 to engage in external collaboration, thereby enhancing society and the environment. MD5 declared:

“It is really that simple for us. Does it benefit a person? Does not need to be us. Does it benefit people? Does it benefit the environment? That is why we collaborate” (MD5).

MD5 suggested that they are looking at the business differently. Thus, their rationale for engaging with external parties is different and concerns the well-being of people and the planet *“because that is the right thing to do” (MD5)*. She explained that they are ‘networkers’ whose target is to connect people, share knowledge, and *“use the technology that already exists out there to make it more compliant and beneficial for the environment and people” (MD5)*.

This strategic business management approach enhances society and the environment by engaging in or supporting ethically oriented practices, sustainability, and sharing and promoting ethical goals and values. Environmental and social behaviour was the primary rationale for one company to start external collaboration and innovate. They collaborate to share knowledge and enhance the well-being of people and the planet. The behaviour where social and environmental rationale plays the primary role in integrating CSR into business strategy is linked to owner personality, as discussed by Jenkins (2006).

7.2 Network Portray

The significance of social relationships and values in cultivating competitive advantage and innovation within firms has been extensively established in prior research (Ouechtati et al., 2022). Consequently, comprehending the decision-making process of small and medium-sized enterprises when selecting external partners is a pivotal aspect of network strategy. It is essential to understand the fundamental principles that govern the formation and operation of networks. This entails identifying potential allies and selecting suitable partners to meet specific requirements.

7.2.1 Search for the Partners

Small and medium-sized enterprises heavily rely on their business and personal networks to identify potential business partners. According to the R&D Designer, *“it is much better to go with somebody who has been recommended to you by somebody you know”* (SME2E3). SMEs typically have limited resources and, therefore, may struggle to conduct extensive market research for suitable partners. As such, the strength of their relationships with their contacts becomes crucial in their ability to establish new business partnerships and expand their operations. MD1 explained:

“It was an outside influence. I have a friend who runs the company, and she has been through the KTP process. So, having lunch with her as I do quite regularly and chatting over the issues, how do we actually develop this (the product)? She said it sounded like KTP (...). And she took matters out of my hand by phoning her contact at KTP, and then they phoned me, and they were in the next day and said, right, what can we do?”(MD1).

MD4 also highlighted the importance of her contacts, stating that she received valuable assistance and recommendations from her membership in Women's Enterprise Scotland (WES), a business networking organisation. She elaborated on that:

“I am heavily involved in a lot of the local women's business networking community (...). WES has been a really, really great platform for me (...). We have a WhatsApp group where I can ping a message like, "I am looking for an IP lawyer. Does anybody know a good IP lawyer?" Or "I am having a real problem with cash flow. Does anybody know any great loans or grants going on at the moment?" (MD4).

Additionally, smaller businesses often utilise intermediaries to connect with external partners. MD1 noted that they collaborate with development agencies such as Scottish Enterprise and Scottish Manufacturing Advisory Services since *"they have contacts"* (MD1). Therefore, the company engage with these entities in recruitment to locate a suitable partner. This statement supports previous findings suggesting that involving professional actors, such as innovation intermediaries, can help find the right partner (e.g. Lee et al., 2010; Holzmann et al., 2014; Montelisciani et al., 2014).

One of the leaders suggested opportunistic methods for making the right connections, saying, "How we find this person is sometimes as much by luck as by recommendation" (MD1). The chemist explained that a few months back, they had attended the Growth500 course, where they had the opportunity to interact with representatives from other companies. He elaborates:

"A couple of months ago, when we were looking for people to work with for a new coating on a big scale, we remembered that we met that person from a Booth Welsh on a course. We sent an email to them, and that led to a collaboration. Booth Welsh is gonna come on board. They will work with us as a consultant on the chemical engineering side of things. (...) That is something that would not perhaps happen if we would not engage in that course" (SME1E1).

Organisations often rely on recommendations from preexisting networks, whether business, social, or institutional, to select collaborative partners for business ventures. These recommendations are valuable resources for firms seeking to establish productive collaborations aligned with their strategic goals and objectives. Utilising these networks allows organisations to identify potential partners that are well-suited to their needs and have a proven track record of success. By leveraging these recommendations, firms can maximise the likelihood of establishing mutually beneficial partnerships that facilitate long-term growth and prosperity.

7.2.2 Networking Partners

During interviews, companies were asked to specify the types of organisations with which they collaborated to support innovation within their respective companies. The results revealed a collaborative relationship with various stakeholders, including public sector organisations (universities, research centres, development agencies) and private sector organisations (customers, suppliers, and

other companies) (Table 7.7; a complete list of collaborators is included in Appendix 4), depending on their specific needs (de Jong & Hulsink, 2012). Organisations establish external connections to gain access to vital resources, opportunities, and influence, creating a foundation for collaboration and knowledge exchange between different entities. This dynamic process fosters the development of new insights, subsequently enhancing innovation capabilities (Al-Omoush et al., 2022). Selecting collaboration partners is “a project-specific process” (SME1E1) that requires thorough evaluation. Potential partners are selected based on various factors, including their expertise, location, reputation, and alignment with the firm's goals and values. As MDs state, selecting “the right person is crucial”.

Networking Partners	
Public Sector Organisations	Private Sector Organisations

Table 7.7 Networking partners for small and medium-sized enterprises.

7.2.2.1 Public Sector Organisations

Public sector organisations are owned, operated, and financed by the government. They include universities, research centres, and development agencies that provide support services. Unlike private entities, these organisations are not driven by profit motives (Oparaocha, 2015). Their services include consultancy, networking, financial and legal assistance, access to research facilities, and general and in-depth knowledge (Table 7.8).

Public Sector Organisations	
Consultancy	Development Agencies, Universities
Networking	Development Agencies, Universities
Financial Aid	Development Agencies
Research	Universities
General / In-Depth Knowledge	Universities
Legal Assistance	Development Agencies

Table 7.8 The role of public sector organisations in collaboration with SMEs.

Among the respondents, development agencies and universities were the most popular choices. Scottish Enterprise, a development agency supported by the Scottish Government, was highly sought after for its consulting, networking, and financial services. Interface UK played a similar role. The respondents mentioned that they worked with development agencies to:

- Secure funding for their projects; *“We have the process with Scottish Enterprise to apply for a process improvement grant” (MD1).*
- Seek collaboration opportunities; *“Basically, Interface UK is an interface between business and academia, (...) they will go and reach out to all universities and see who has expertise or areas of fields of knowledge or study in this area” (SME2E1).*
- Improve processes; *“We have been working with the Scottish Manufacturing Advisory Service quite a lot. We are always working to improve what we are doing (...)” (MD4) or,*
- Address legal matters; *“At Entrepreneurial Spark, they heavily advise protecting your brand. They help us with that process” (MD4).*

Meanwhile, universities have become a valuable resource for SMEs seeking general knowledge, conducting research, obtaining professional equipment, and expanding their professional networks. R&D Designer said they *“use the universities for various research”* (SME2E3) from the marketing area to one related to product/process. MD1 mentioned that current innovation work is done in collaboration with Strathclyde University and the Chemistry Department through the Knowledge Transfer Partnership project. The firm developed the initial product concept, which was produced and tested in-house. After that, the samples were returned to the university for analysis using professional equipment unavailable at the firm. The Production Manager added:

“The University is providing us with an awful lot of help and a lot of guidance. (...) They are all full of knowledge, general knowledge or a much broader level of knowledge than we have” (SME1E2).

Some SMEs have also leveraged universities to demonstrate market demand, validate product properties, or find tailored solutions to specific problems. The

Technical Director added that university research is further utilised *“as a new market message, a new opportunity, (...) some form of backup” (SME2E1).*

Small and medium-sized enterprises often face challenges conducting independent research due to their limited financial resources and lack of expertise. To overcome these challenges, collaborating with public sector organisations can provide access to essential resources, promoting growth and development. The services they offer were repeatedly chosen during one innovation project at various process stages, depending on project requirements.

In addition, industry-academia collaborations can offer numerous benefits, including reduced R&D costs, shared resources, and risk mitigation (H. Gupta & Barua, 2018). Universities and research centres are excellent sources of inventive and pre-industrial knowledge (Brunswicker & Vanhaverbeke, 2015). Partnering with universities and research centres can help SMEs obtain scientific and engineering knowledge to improve their products and processes, recruit scientific and engineering personnel and conduct basic and long-term strategic research (Pellegrino, 2017). Relations with public sector organisations are based on mutual benefits. These networks of relationships can form and lead to the development of resources that can benefit both the firm and the community (Ouechtati et al., 2022). In return, they gain practical experience, access to data, and the opportunity to apply the shared knowledge in practical applications, such as publications, case studies, or reports. These relationships reflect the hallmarks of open innovation.

Moreover, most SMEs struggle to identify and connect to appropriate knowledge partners and networks (OECD, 2018). Often, public sector organisations act as intermediaries in finding the right partner (e.g. Holzmann et al., 2014; Montelisciani et al., 2014).

7.2.2.2 Private Sector Organisations

Businesses and individuals often turn to private sector organisations to leverage their unique skill sets and resources. These organisations are highly valued for their specialised industry knowledge and expertise, as well as their state-of-the-art equipment, extensive networking capabilities, and innovative ideas (Table 7.9). By

collaborating with private sector organisations, businesses and individuals can gain a competitive edge in their respective fields and achieve their goals more efficiently and effectively. Whether through partnerships, collaborations, or outsourcing, private sector organisations are essential in driving innovation and progress in today's business landscape. The individuals interviewed mentioned a variety of entities, including suppliers, customers, and companies of various sizes. Research showed that collaboration with private sector partners is often limited to a particular process stage (FEI or NPD).

Private Sector Organisations	
Specialised Industry Knowledge and Expertise	Suppliers, Other Companies
Networking	Other Companies
Professional Equipment	Other Companies
Innovative Ideas	Customers

Table 7.9 The role of private sector organisations in collaboration with SMEs.

Suppliers assert their possession of specialised knowledge, skills, and expertise. Respondents have emphasised the importance of engaging with suppliers as “*we are industry-reliant, so we would go to our supplier because they have got the specialist knowledge in that field*” (SME2E3). R&D Designer mentioned they “*use the suppliers for different problems*” (SME2E3), particularly when encountering issues or defects with raw materials, as “*they have the knowledge about how the material behaves*” (SME2E3). The Supply Chain Manager and Technical Director confirmed that suppliers have “*expertise and industry knowledge*” (SME2E1).

Working closely with suppliers can provide valuable industry-specific expertise, including technical insights on raw materials, machinery, equipment, workforce and competitors (Laursen & Salter, 2006; de Jong & Hulsink, 2012; Saguy & Sirotinskaya, 2016). This knowledge can be applied to production processes and manufacturing activities, reducing costs and time for new product development and improving product/service market adaptability (Nieto & Santamaría, 2007; Varis & Littunen, 2010). Furthermore, such collaboration could enable partners to share risks

and expedite the development of new products, thus improving product quality and driving organisational competitiveness and technological advancements across various sectors (Martínez-Costa et al., 2019).

On the other hand, customers can be a valuable source of inspiration for organisations through their feedback. They play a crucial role in generating fresh and innovative ideas to help businesses stay ahead of the competition. *“We grow by solving people’s problems”*, expressed MD3, who further emphasised that many of the company's products directly result from customer requests. The chemist reported that the client initiated a recent project *“looking at the potential of including essential oils into the boluses”* (SME1E1). They have identified an untapped market opportunity and, thus, *“believe that there is a massive market for it”* (SME1E1), suggested Chemist. Similarly, SME2 credits its customers for inspiring innovation. In both cases, customer feedback was a valuable source of inspiration for the respective companies. As mentioned by SME2E, *“the industrial thing comes from many inquiries that we receive from product users”* (SME2E1).

Collaboration with customers has been widely recognised as a valuable source of external knowledge for developing innovative products and, thus, often the primary source of innovative ideas (Laursen & Salter, 2006; de Jong & Hulsink, 2012; Wynarczyk et al., 2013) and thus, competitiveness at SMEs (Bocconcelli et al., 2018b). Customer-based innovation, or co-creation, is a process where the customer plays a vital role as an idea generator (Greer & Lei, 2012). Although individual customers themselves do not participate in the innovation process, business customers can indirectly influence it. Customers can provide valuable suggestions and insights into market trends, which can be leveraged to improve the final product (Riggs & von Hippel, 1994; de Jong & Hulsink, 2012; Bocconcelli et al., 2018).

Furthermore, it is not uncommon for small and medium-sized enterprises to collaborate with *other companies* of varying sizes. According to respondents, such collaborations are often initiated to obtain expertise. Supply Chain Manager stressed:

“If the job is an issue, we work with companies like design houses. We will work with local companies. We might talk to several of them while looking for somebody to help with the current project” (SME2E2).

In turn, the managing director of SME1 mentioned that innovating a process required working with two companies of different specifications. She elaborates:

“Currently, at the stage of implementing the new process and all equipment, we cooperate with two different companies. One has mechanical, electrical and robotic experience. The second company is knowledgeable about working in dangerous, explosive atmospheres and with flammable materials” (MD1).

Sometimes, companies must collaborate with external firms to meet service requirements unavailable within the organisation. For instance, MD3 faced a scenario where a client demanded a product of a specific form that the company was not producing. In such situations, the company leaders opt for the services of another small company to fulfil the client's requirements and ensure the desired product shape is delivered. In turn, the R&D designer emphasised that sometimes, the companies they approached for service *“may not be able to do the job, but they may be able to recommend somebody else”* (SME2E3), highlighting the importance of networking in identifying suitable partners.

Small organisations can establish various linkages through strategic alliances with other, often similar firms. Such alliances can be both formal and informal, providing significant benefits to the partners involved. Collaborative research and development, exchange of information or services, and technical support are among the advantages of such partnerships. For SMEs, forming alliance networks can be an effective strategy for building mutually beneficial relationships and improving overall performance (Gupta & Barua, 2018). No collaboration with competitors was mentioned during any of the interviews.

One emerging trend identified among the respondents was a reluctance to engage in external collaboration. While this leadership approach was relatively uncommon, it represented a divergent perspective from their peers regarding the value of external partnerships. Any collaborations with external partners were typically limited to customer/seller relationships, such as working with a marketing agency to help commercialise a new product and enter a new market. As noted previously, these collaborations were grounded in a customer-seller model:

“They take the cut of the product that you market. It has all been agreed first and is a good way to work with” (MD3).

Once again, it is evident that MD3 follow a closed innovation model in his approach. This model involves limiting external collaboration and relying solely on internal resources to innovate and develop products or services (Chesbrough, 2003).

7.2.3 Point of Engagement

Respondents were asked about the point at which the firm began collaborating with other entities during the innovation process. It was determined that the timing and nature of such partnerships depended on the firm’s unique objectives and requirements. As such, entities collaborated with different organisations at varying stages. Table 7.10 illustrates the innovation process, highlighting the various stages companies undergo in collaborative efforts with external partners. It is essential to note that the experiences of numerous companies suggest that collaboration is not merely a one-time occurrence but a continuous process throughout the innovation journey. For instance, the SME2 approach to market research initially involved collaborating with universities. However, they continued to partner with them throughout the phases of the NDP using their research centres (wind tunnel) and commercialisation (new market message). A similar situation was recognised at SME1. They began with a literature review at the University to explore the potential solution through product development, facilitated by KTP (through the University). This highlights the importance of long-lasting partnerships and how external perspectives can contribute to the creation of innovative solutions.

Front End Innovation (FEI)	New Product Development (NPD)	Commercialisation
Universities (Research/ Finance/ Networking)	Development agencies (Finance / Networking / General Business Knowledge)	Development agencies (Finance / Networking / General Business Knowledge)
Customers (Innovative Ideas)	Universities (Research / Specialised Knowledge/ Equipment /Finance / Networking)	Universities (General Marketing Knowledge / Finance / Networking)

Suppliers (Specialised Knowledge, e.g. about raw materials)	Suppliers (Specialised Knowledge)	Other Companies (Specialised Knowledge/Service/ Market Entry Point)
Development agencies (Finance / Networking / General Business Knowledge)	Other Companies (Specialised Knowledge/Service/ Equipment)	

Table 7.10 Collaborative relationship at certain stages of the innovation process.

Although the interview results indicate that networking breadth with diverse external partners is essential for innovation practices, networking depth appears to be more relevant among manufacturing SMEs in Scotland. The amount of external sources involved in innovative activities (*external search breadth*) for SMEs is relatively small compared to the extent to which firms utilise these external sources in their innovative activities (*external search depth*) (Laursen & Salter, 2006). Firms collaborated with various external partners to address internal resource, expertise, and knowledge shortages. This collaboration led to the development of new products and processes, as well as increased operational and managerial knowledge, enabling companies to introduce a new product line and expand their business into new markets. On the other hand, SMEs use the same services repeatedly. Deep and close relationships with the same partners increase the trust and support that goes beyond the services offered and provide a better understanding of the company's behaviour. This statement aligns with Vanhaverbeke et al. (2012), who noted that personal relationships and trust play a crucial role in SME collaboration, enhancing collaboration effectiveness and increasing support.

7.3 Factors Facilitating External Collaboration

In external collaboration, selecting an appropriate partner plays a pivotal role in the success of small and medium-sized enterprises. SMEs consider various factors, such as social, organisational, cognitive, and geographical proximity (Vanhaverbeke et al., 2012). These factors are critical in evaluating the suitability of potential collaborators and determining the most appropriate course of action. Therefore, the third step in network strategy assessment was to identify and analyse factors facilitating external collaboration. Five key factors facilitating external collaboration

were identified from the data. Three factors —appropriate partner, comparable size, and previous experience —were associated with *the Partners’ Attitudes and Perceptions*. The remaining two factors —knowing your needs/ managing your expectations, and having a mutual understanding —were linked to *the SMEs’ Attitudes and Perceptions*. The factors are summarised in Table 7.11 and discussed further in this section.

Partners’ Attitudes and Perceptions	SMEs’ Attitudes and Perceptions
Appropriate Partner	Knowing Your Needs / Managing Your Expectations
Comparable Size	Mutual Understanding
Previous Experience	

Table 7.11 Factors facilitating external collaboration.

7.3.1 Partners’ Attitudes and Perceptions

This group of attributes (Table 7.12) is designed to facilitate interactions between small businesses and their partners. These characteristics are essential for small businesses to establish strong partnerships founded on cooperation and mutual understanding. Therefore, it is essential to identify and cultivate qualities that foster collaboration. By prioritising these traits, partners can establish a collaborative environment that nurtures creativity, productivity, and success.

Partners’ Attitudes and Perceptions	
Appropriate Partner	Champion/Focal Person Personality, Trust Accessibility Engagement/ Support Mindset
Comparable Size	
Previous Experience	Familiarity, Confidence, Trust

Table 7.12 Partner’s attitudes and perceptions.

Appropriate Partner

One of the initial considerations was identifying *the appropriate partner*, who was connected to a key person or champion, and assessing their *personality*, level of *trust*, *accessibility*, *support*, and *mindset*. Most interviewees highlighted the importance of the focal person/champion when collaborating with external organisations. The significance of Champion was vital in terms of collaboration with large companies. The Technical Director suggested that working with larger organisations is more beneficial “*if you have somebody who is championing the product and who really believes in it*” (SME2E1). Furthermore, the owner of SME5 highlighted that “*it really comes down to the people*” (MD5) and their personalities, as “*when you do get to the right people, they throw everything at you in terms of their skills and expertise because they see the value in what you are doing*” (MD5). The supply chain manager explained that working with the right person often creates a relationship based on sympathy and trust. “*You get to know the people that you like and trust*”, and added, “*It is nice to have some go-to guys*” (SME2E2).

MD1 confirmed the importance of trust and personality in business relationships. It is critical to recognise the impact these factors can have on interpersonal relationships, decision-making processes, and overall success:

“And it is how that person sitting in front of you comes across. And they might blow it because you might think ...oooh, I do not really like you” (MD1).

She elaborates further:

“At the end of the day, it is actually who has the expertise. So if it is only a big firm with that expertise, then we have to go with a big firm. And I have to find a way of working with them that enables me to be comfortable that this one person will actually take charge. So, it comes down to a personality again” (MD1).

Accessibility was also repeatedly mentioned, as they all “*like personal contact*” (MD1). The Managing Director declared that having this focal person and “*knowing who that person is*” (MD1) makes them feel that “*everybody are really accessible*” (MD4), even at big companies. MD1 added:

“It might be a department within a larger organisation. But I know that Steve or Peter will actually be the person I can pick up the phone and talk to, and they will know what is going on” (MD1).

Accessibility is often associated with local businesses due to their geographic proximity. The leader of SME1 highlighted, *“I like to support local business if I can”*(MD1). The Supply Chain Manager emphasised the importance of accessibility for local businesses. He declared, *“It makes sense to be working and collaborating with people whom you have easy access to, and you can easily drop in and visit”* (SME2E2). Likewise, the Technical Director mentioned that working locally is easier.

“It makes communication easier, it makes visits easier, and it just speeds up the process. As a small business, time is money; the quicker we can improve things and move things forward, the better. We will look at local expertise first, but we have global suppliers” (SME2E1).

The spatial proximity of firms is a crucial determinant of interorganisational relationships and networks, as well as collaborative and competitive interaction patterns. When firms are located nearby, they are more likely to establish robust relationships and networks with other firms in the same area. This is due to their ability to engage with one another frequently, share knowledge, and collaborate more efficiently (Eiriz, 2020).

Moreover, SME2E3 suggested that the engagement of the external company is crucial. The team encountered issues requiring prompt identification and resolution as the project progressed. In these instances, supplier engagement became a necessary step in the problem-solving process, enabling the team to reach satisfactory outcomes promptly. MD1, in turn, acknowledged that there were periods during the project when results were not up to par. However, the team overcame these challenges through effective engagement and support from the collaborators and found workable solutions. The Supply Chain Manager recognised the valuable support and interest provided by the collaborator. In addition to delivering quality services, the external company demonstrated an unwavering commitment to ensuring the partnership's success. This dedication is a testament to the collaborator's professionalism and reliability. Supply Chain Manager explained:

“They have given us good service, but they have also been supportive. They have gone beyond that regarding the interest they have shown in the business” (SME2E2).

Furthermore, a proper mindset was a vital trait associated with the external partner. MD4 suggested that “*your vibes attract your tribes*” (MD4), and SMEs need to be around people/businesses with similar mindsets to collaborate openly with them.

Selecting a partner for a small or medium-sized enterprise is a critical decision, as the partner's trustworthiness and alignment with the enterprise's strategic vision can significantly impact the partnership's success. Support and involvement from an appropriate partner can bring meaningful contributions to the collaboration. A mutually positive relationship between the enterprise and the partner is a valuable asset that can help overcome any cultural differences that may arise. Personal relationships built on trust can effectively address the challenges often resulting from cultural differences between the enterprise and its partners (Collier et al., 2011).

Comparable Size

The second factor that facilitates collaboration pertains to firms of comparable size. Small and medium-sized enterprises generally prefer to partner with similarly sized companies because it allows for faster response times, more accessible access to the company, personal contact, improved communication, and better overall outcomes. In this regard, MD1 noted that the success of a small company is often better understood by an enterprise of similar size, as it facilitates a more nuanced understanding of the ‘*start/stop*’ mechanisms integral to small business operations. This was also supported by the Technical Director, who admitted that “*we get a better understanding of the organisation through our sizes as we are working together to benefit both businesses*” (SME2E1). R&D Designer concluded:

“We probably get better results from companies that are similar in size. (...) We are more part of their life if we are the same kind of size” (SME2E3).

Small enterprises generally prefer to engage with firms of comparable size due to their similar business approaches, decision-making processes, and resource capabilities (Vanhaverbeke et al., 2012). This preference for working with same-size entities is primarily driven by the inherent need to maintain parity in organisational structure, operational capacity, and strategic priorities. Small businesses can establish a more equitable and mutually beneficial relationship conducive to achieving shared

objectives and optimising outcomes. Furthermore, working with companies of the same size may also facilitate better collaboration and communication, foster greater trust and transparency, and engender a sense of community within the small business ecosystem (Zhang & Harvie, 2010).

Previous Experience

Another critical factor that facilitates collaboration between small and medium-sized enterprises and external parties is a positive prior experience. The Managing Director of SME1 noted that previous successful work with a team from a university instilled the company with the “*confidence to put that amount of resource, and time and money into it again*” (MD1). Similarly, the chemist in charge stated that their positive prior experience informed their decision to continue working with a previous collaborator, so they have “*decided to maintain it*” (SME1E1). All of the SMEs involved in the study corroborated this sentiment. They noted that even in cases where a ‘*trusted*’ company was not offering the desired service, they would still rely on their recommendations for future collaborators based on their positive prior experiences working together.

Previous work experience creates a sense of familiarity, which plays a crucial role in enhancing collaboration within a team. When team members have previously worked together, the shared experience helps reduce uncertainties associated with forming a new team. A team that accurately understands its members' expertise can benefit from their knowledge and experience, enhancing team performance. Besides, prior collaborations enable team members to invest more time in understanding the task and their colleagues' capabilities rather than establishing new social norms already developed through past collaboration (Twyman et al., 2022).

It is widely recognised that selecting an appropriate partner is a critical factor that significantly influences the success of collaborative innovation and alliance performance (Gupta & Barua, 2018; Qi et al., 2022). Assessing potential collaborative partners is crucial to a company's operations, as it reflects past experiences, current resources, knowledge, and competency needs for business development and innovation. This evaluation process must be conducted with utmost care and precision to ensure optimal outcomes. By carefully considering these

factors, companies can make informed decisions about selecting the most suitable partners to support their growth and development objectives (Jespersen et al., 2018).

7.3.2 SMEs' Attitudes and Perceptions

In this category, small and medium-sized enterprises recognise their attributes that make it easier for them to collaborate with other entities. These attributes relate to efficiently managing expectations and requirements, as well as comprehending the business ecosystem (Table 7.13). In essence, SMEs with these attitudes are better positioned to work successfully with others.

SMEs' Attitudes and Perceptions	
Knowing Your Needs / Managing Your Expectations	
Mutual Understanding	The Business The Industries' Needs

Table 7.13 Attitudes and Perceptions of Small and Medium-Sized Enterprises.

Knowing Your Needs and Managing Your Expectations

An additional aspect that supports the promotion of external collaboration is an understanding of the requirements of small and medium-sized enterprises. MD4 has suggested many available information and assistance, making it imperative *“to have a clear understanding of one's own needs”* (MD4). She mentioned that although participating in available workshops is general, *“there is professional advice there”* (MD4). Therefore, although there is no tailored information, *“they put you on the right track... you are left with a plan about improvements, about marketing”* (MD4). Production Managers admitted that when they started working with external companies, they realised it was *“not that straightforward”* (SME1E2) as expected. They have *“expected too much too quickly”* (SME1E2). The Technical Director agreed with that and admitted:

“I think everyone's expectation is always higher, and what the reality is it always probably ends up a bit lower. I think that the key to setting expectations and one of the big things is learning. Learning from what you get... and it is always a learning curve” (SME2E1).

Therefore, *“knowing exactly what we need”* (SME1E2), simultaneously effectively managing expectations and adapting them to various situations, is critical

to working with external partners. By proactively managing expectations, businesses and organisations can build stronger relationships with their partners while ensuring that all parties involved can achieve their desired outcomes.

Mutual Understanding

Mutual understanding was also recognised as a factor facilitating external collaboration. The Technical Director emphasised the importance of understanding “*what is going on in the business, the marketplace, the industry*” (SME2E1) to comprehend their collaborators as businesses evolve. He explained:

“Even businesses that have been great to us for years... all of a sudden have got an issue... actually their business is starting to change as well” (SME2E1).

Therefore,

“I think getting close to the suppliers is always a good thing from an innovation point of view. Understand their businesses as well, so we can understand how that then impacts what we do” (SME2E1).

Interviewees have suggested that collaborating with individuals who possess both theoretical and practical knowledge, as well as experience working at various levels and within different organisations, can lead to a better understanding of how businesses of different sizes operate. This insight is invaluable when enhancing one's organisational strategy and operations. Technical Director emphasised:

“One of the things that will benefit is that more faculty coming from industry and people, perhaps PhD students like yourself, who have worked in the industry will allow universities to have a greater understanding of the industry and its needs. Universities need to understand how important time scales are for small organisations. Also, understand that if you put a lot of work and effort into something and you do not receive any useful information or data because a large partner has lost interest in the project, it can be very frustrating and harmful for small companies” (SME2E1).

A very positive finding was that SMEs recognise that to collaborate successfully with external organisations, they need to understand their own needs and manage their expectations. Most SMEs admitted that they expected ‘*too much, too quickly*’ and that the collaboration with others was not as straightforward as expected. Throughout the collaboration, they learned they needed to change and adapt their expectations to the current situation. Recognising and understanding their needs

helped them choose a more likely route to a successful outcome. A vital trait was awareness of the situation in the industry and ecosystem in which they operate. This included the collaborators, clients, suppliers, and their ecosystem, as all the changes happening within their collaborating businesses will affect the SMEs.

7.4 Factors Impeding External Collaboration

During the interviews, when questioned about the obstacles that hinder collaborative efforts with external sources, respondents identified seven factors related to the size and personality/culture of the collaborators they work with (Table 7.14).

Hindering Factors	
Collaborator Size	Collaborator Personality/Culture
Time Scale Job Rotation / Politics Bureaucracy / Communication Culture Cost of Service	Right Person/ Champion

Table 7.14 Challenges to External Collaboration.

7.4.1 Collaborator Size

For the majority, a firm's size is related to factors typically associated with large companies, including time scale, job rotation, politics, bureaucracy, communication, culture, and the *cost* of services.

The issue of time scale emerged as the most common challenge and barrier in the context of external cooperation with other companies. Specifically, this factor pertained to organisational aspects, project duration, and invoicing periods. It is worth noting that the time scale for small businesses differs significantly from that of larger organisations and institutions. Interviewees generally agreed that partnering with big companies or public organisations can be a lengthy process that may not align with the time frame of small businesses. Moreover, MD4 highlighted that collaborating with larger entities often requires more extended invoicing periods, which can pose challenges for small firms. Respondents also noted that obtaining grants and loans can be a time-consuming process that requires careful planning, and

the window of opportunity for such funding is often narrow, making it infeasible for small and medium-sized enterprises.

Job rotation, in turn, reflected personnel changes in ownership or managerial positions, which were closely linked to changing political climates. This factor significantly impacted the firm's organisational changes, the hierarchy of project validity, and the quality of services provided. For instance, MD2 suggested:

“Scottish Enterprise, for example, you can tick all the boxes because the boss likes exporting and then if the new boss comes in and says, ‘No, the future is in medical technology’, then you no longer fit there. The politics. That is luck, the right place, and the right time” (MD2).

The R&D Designer mentioned a situation where a corporation acquired a small company with which they had collaborated for years. Following the acquisition, the company faced several challenges, including increased bureaucracy, formalisation of processes, communication difficulties, cultural changes, and longer waiting periods. These changes significantly impacted the company's operations, requiring adjustments to maintain efficiency and productivity. She added, *“If I want to speak to the head of sales and marketing at X company, it takes me 42 emails, 56 different departments, and everybody says, ‘It is not me’” (SME2E3).*

Likewise, during interviews, it was noted that changes in managerial positions can impact the organisation's focus and priorities. MD2 resembles a situation where new bosses *“do not want to take the project that they have not started” (MD2)*. As a result, the level of interest in a project or product may shift, leading to possible implications for the quality of services provided. Several other interviewees concurred with implementing an enormous bureaucracy, citing cultural disparities and communication impediments as potential obstacles.

The *cost of services* has also been identified as a significant obstacle to external collaboration. MD4 has indicated that *“we prefer to use free services” (MD4)*. On several occasions, while engaging with external consultants who offered exceptional ideas, their services were deemed “not accessible” (MD4) to their organisation due to the service cost. Since previous research has shown that finance is a constraint for small businesses (Visser et al., 2019), it is not uncommon for small businesses, especially smaller ones, to balance the services they need and want based on the

financial demands of running a business. Small businesses often struggle with finances (Visser et al., 2019). Thus, financial constraints can force them to prioritise the services they need based on affordability. This is especially true for smaller businesses, which must balance their needs and wants with the resources available to them.

7.4.2 Collaborator Personality

In assessing the characteristics of a suitable collaborator, most of those interviewed highlighted the importance of finding the right individual. The person on the other side of the network is “*crucial*” (MD1, MD5), according to respondents, as “*it is very important what kind of partner you get to innovate with on the other side, not only with our companies but also with organisations who help you to innovate*” (MD5). She further elaborated:

“If you are not speaking to the right people (...), you can come up against massive gatekeepers. (...) There are people who will actively block you because there is an ego thing there (...) People who had not changed in older business modelling ways because they do not see the bigger picture” (MD5).

According to research, personality traits can play a significant role in shaping the dynamics of relationships. In other words, the chances of two people forming a connection may depend on how compatible their personalities are (Landis, 2016).

Collaborators who possess comprehensive knowledge of a firm's product, have confidence in its potential and can acknowledge its value are at an advantage. This corresponds to the social capital concept, which is built on interpersonal relationships, shared values, and informal network connections. Social connections are valuable resources that can be leveraged to achieve common objectives and promote individual and collective welfare (Bhandari & Yasunobu, 2009). The Technical Director explained:

“At the moment, with some of the OEMs, we are getting a really good interest because we got people who believe and have used the products. But I think we move on, and they get somebody who does not know anything about our product; it will not champion it as much” (SME2E1).

Notably, MD5 posited that large organisations should not be viewed as monolithic entities; instead, the people within them play a decisive role in achieving success. She added:

“We have a new Chief Executive at Scottish Enterprise. You will see that change happening. So, where it has been more tipped towards the non-helpful side unless you are a big company, they are very much becoming very proactive around SMEs and micros now. Because it used to be, you had to go through the Business Gateway service to even get to it. You had to be at a tier level. The new Chief Executive is breaking those barriers down. They are very focused on climate change and climate action. They are very focused on value-driven services. They are very interested in businesses like ours. We have specifically set up in a deprived area because we can add value to that area of deprivation and help raise its profile to become an area that's not deprived” (MD5).

The relational aspect of social capital focuses on the interactions among individuals within a network. Within this dimension, trust, commitment, and cohesiveness are essential in shaping solid social connections (Ahn & Kim, 2017; Kamewor et al., 2021). The partner's support and engagement are paramount to the collaboration's success. Thus, establishing strong ties with network partners through social interactions is vital to a firm's ability to acquire resources and capabilities for collaborative innovation. It is a crucial strategy for enhancing innovation capabilities and gaining a sustainable competitive advantage (Ouechtati et al., 2022; Al-Omoush et al., 2022).

7.5 Network Utilisation Metric

In general, the findings indicate that established small and medium-sized enterprises leverage external networks to collaborate in various forms (Aslesen & Harirchi, 2016), and with diverse stakeholders to enhance their internal innovation capabilities and efficiently execute the innovation process (Herzog, 2008; de Jong & Hulsink, 2012; Vanhaverbeke, 2017). Although the interview results indicate that networking breadth with diverse external partners is essential for innovation practices, networking depth appears to be more relevant among manufacturing SMEs in Scotland. The amount of external sources involved in innovative activities (*external search breadth*) is relatively small for SMEs compared to the extent to which firms utilise these external sources in their innovative activities (*external search depth*) (Laursen & Salter, 2006). Firms collaborated with various external partners to overcome internal shortages of resources, expertise, and knowledge. This collaboration led to the development of new products and processes, as well as increased operational and managerial knowledge, enabling companies to introduce a new product line and expand their business into new markets. On the other hand, it is

evidenced that SMEs use the same services repeatedly. Deep and close relationships with the same partners increase the trust and support that goes beyond the services offered and provide a better understanding of the company's behaviour. This statement aligns with Vanhaverbeke et al. (2012), who noted that personal relationships and trust play a crucial role in SME collaboration, enhancing collaboration effectiveness and increasing support.

After a comprehensive analysis of the data and amalgamation of earlier findings, the study has delineated three distinct approaches to fostering effective external collaboration, which will be elaborated upon herein. It is important to note that each unique project dictates the extent of external collaboration based on its specific requirements and customisation. Innovation models developed by Chesbrough underpin these approaches.

Closed Approach To External Collaboration

In the first approach, companies typically reject external collaboration and limit their innovation efforts solely to internal resources (Chesbrough, 2003; Herzog, 2008). SME3 exemplifies a company that has chosen not to engage in external collaboration as part of its innovation process. The company's approach to innovation is characterised by a combination of reactive strategies driven by customer feedback and proactive initiatives informed by market research. While customers frequently contribute innovative ideas, their direct involvement in projects is limited. Instead, leadership predominantly operates independently on the project. In exceptional instances, when SME3 engages with other entities, the collaboration is strictly confined to private sector organisations. This occurs when the company requires the involvement of external parties to validate outcomes or explore entry into a new market. Nevertheless, these collaborations are executed through service contracts, wherein the company compensates for these services on a customer-buyer basis. The company does not intend to alter this model, primarily due to the leadership's approach, unfavourable past encounters with third parties, the leader's confidence in the efficacy of the traditional model, and the substantial financial resources.

Open Approach to External Collaboration

The second approach to inter-organisational collaboration completely differed from the first, prioritising openness and full collaboration (Chesbrough et al., 2006). Among all the companies in the sample, only SME5 genuinely embodies an approach that focuses on building relationships that promote knowledge dissemination and joint activities. These relationships, in turn, serve as a valuable resource for individuals and communities alike, offering opportunities for growth and improvement (Ouechtati et al., 2022). The key driving force behind the company's external collaborations is to promote ethical practices, sustainability, and moral values. These attributes are the main components of Corporate Social Responsibility, focusing on positively impacting society and the environment (Jenkins, 2006). The author emphasises that incorporating Corporate Social Responsibility into a business strategy is closely tied to the business owner's personality (Jenkins, 2006). This, in turn, strongly affects the leadership approach that, in the case of MD5, who runs SME5, is very liberal (facilitating) and fully open to internal and external collaboration. The company is committed to positively impacting through shared knowledge and an open innovation approach (Chesbrough, 2006). It works in partnership with others to enhance the well-being of individuals and the planet. Ownership of the work is of secondary importance to the firm.

The company works closely with its customers during the early stages of the innovation process, also known as the front end of innovation. Additionally, they have some indirect involvement during the new product development (NPD) stage, allowing collaborators to voice their opinions. The relationship between customers and the firm is strong and built on trust, reciprocity and mutual respect, as was emphasised in the previous chapter. Mutual trust and reciprocity result from frequent interactions between actors in the network (Ouechtati et al., 2022). The connections between people within a networked structure define the structural dimension of social capital. The construct of these connections plays a crucial role in shaping social capital (Granovetter, 1973; Lin, 2017; Ouechtati et al., 2022). Moreover, based on project requirements, the company works with private and public organisations at this stage. The product is commercialised with other actors, primarily customers or public sector organisations.

Semi-Open Approach to External Collaboration

The third approach to external collaboration, known as semi-open, appears to be the most commonly adopted approach among the sample of companies analysed in this study. This approach is distinctive in its selective outsourcing of specific processes while keeping others internal. The selection of processes to be outsourced is primarily based on project requirements and the availability of resources. Small and medium-sized enterprises often outsource their external processes by collaborating with public-sector companies or opting for a service-based approach with private-sector organisations. Specific processes are retained within the organisation to enable them to uphold a sense of ownership over their operations. By keeping these processes in-house, the organisation can exert greater control over the quality and consistency of its operations while maintaining confidentiality and privacy, thus maintaining a competitive advantage and ensuring its long-term sustainability.

The rationales for external collaboration primarily refer to internal constraints, including a lack of time, knowledge, skills, expertise, and an appropriate network. These findings corroborate previous research conducted by Dziurski and Sopińska (2020), which has established that internal drivers for external collaboration are more crucial than external drivers in non-high-tech industries. Small and medium-sized enterprises typically initiate innovation projects by utilising customers' feedback (Lewrick et al., 2011), replying to encountered problems or scanning the market for opportunities (Young, 2013; Lin & Lin, 2016). The approach taken at the current stage of the innovation project can vary based on the specific circumstances. For instance, in the case of SME4, the idea-generation process was entirely internal, following a closed innovation model that does not involve external actors. On the other hand, SME1 and SME2 follow a semi-open approach, where the companies support their internal activities with external grants and marketing research through collaboration with public sector organisations. Moreover, although customers can be a source of new ideas, they are typically not directly involved in innovation projects. In some cases, SMEs may find it beneficial to engage suppliers with the necessary knowledge and experience, particularly in the area of raw materials. However, this approach is primarily informal and based on long-term relationships. External

collaboration is often prevalent during a project's New Product or Process Development phase. The number of collaborators involved during this stage usually exceeds that in other stages. The particular requirements of this stage necessitate the careful selection of partners. Public sector organisations are often selected based on networking opportunities, specific research topics, and funding (Van de Vrande et al., 2009; Lee, 2012; Laursen & Salter, 2014), while private sector organisations are chosen for their expertise. The last stage of the innovation project refers to commercialisation, where the SME utilises its internal capabilities to commercialise its product (SME2) effectively or collaborates with public network partners that assist in this process (SME1, SME4).

To overcome obstacles, validate results, or improve social and environmental well-being, managing directors and senior managers (*entities*) have recognised the need to collaborate with external entities. By forming *necessary* and *dependent relationships with other institutions, actors who hold causal powers aim to develop* new products, advance their technology, and improve the placement of their existing products. The firm develops a network to access resources and expertise by collaborating with various external entities, institutions, and individuals.

7.6 Conclusion

This chapter presents findings for the third research objective:

To explore how small and medium-sized businesses establish and leverage their networks to foster innovation.

The study examines how small and medium-sized enterprises utilise networks to foster innovation within their organisations. Emphasis is placed on understanding network strategy through exploring the motivations behind collaboration, assessing the scope and depth of such collaborations, and examining the facilitating and inhibiting factors. The primary focus is to investigate the extent to which small businesses opt for external collaboration.

Research findings indicate that small and medium-sized enterprises recognise their internal limitations and actively seek external collaborations to drive innovation. Internal constraints, such as resource shortages and limited networks, are the primary motivators for these collaborations (Enkel et al., 2009; Van de Vrande et

al., 2009), demonstrating the significance of internal motivators for external collaboration, particularly in non-high-tech industries (Dziurski & Sopińska, 2020). Still, identifying appropriate partners remains a significant challenge for small and medium-sized enterprises (OECD, 2018). As a result, they often rely on recommendations, geographical proximity, and strategic alignment. Intermediaries are frequently used to facilitate these connections (Katzy et al., 2013; Bigliardi & Galati, 2016).

This study highlights three approaches to external collaboration among SMEs, shaped by specific project requirements and leveraging Chesbrough's innovation models. The **closed approach** relies solely on internal resources and occasional private sector contracts, driven by leadership preference and past experiences. The **open approach** emphasises broad partnerships that promote ethical practices, sustainability, and Corporate Social Responsibility, involving extensive collaboration with private and public sectors. The **most common semi-open approach** selectively outsources specific processes while retaining core activities internally, balancing internal capabilities with external expertise and resources. Each approach reflects the unique project requirements and the strategic goals of the SMEs, highlighting diverse pathways to innovation and growth.

In addition, deep relationships with fewer external partners are particularly effective for manufacturing SMEs in Scotland. These collaborations address internal resource and expertise gaps, facilitating product and process development, business expansion, and the introduction of new product lines. Collaboration helps SMEs better understand their own needs and those of their partners, emphasising the importance of managing expectations, flexibility, and industry knowledge to achieve desired innovation outcomes, which is the most significant contribution of this research objective. Moreover, repeated engagement with trusted partners fosters strong relationships, enhancing trust and mutual understanding, which in turn improves the effectiveness of collaboration and support. This aligns with Vanhaverbeke et al. (2012), highlighting the importance of personal relationships and trust in SME innovation and growth.

7.7 Limitations and Future Research

As with all studies, this one has limitations that suggest further areas for research. The first limitation pertains to the methodological approach used in data collection and analysis. While the qualitative approach provides rich, detailed insights, the subjective nature of qualitative data might not fully capture the quantitative impact of external collaborations. Thus, incorporating quantitative methods to complement qualitative findings could provide a more comprehensive understanding of these impacts.

Moreover, the research was conducted with a small sample of established SMEs, primarily in the low-technology sector in Scotland. The narrow scope of the study may not accurately represent the experiences of start-ups that engage in external collaborations or SMEs in different geographical or industrial contexts, thereby limiting the applicability of the conclusions across different sectors. Future research should incorporate a more extensive and diverse sample of SMEs from multiple industries and regions to address this limitation. This approach would validate the findings and provide deeper insights into how different contexts impact the advantages of external collaboration.

Furthermore, the study adopts critical realism as its philosophical approach, prioritising a deep understanding of social phenomena' underlying mechanisms, structures, and causal relationships over generalisations. Expanding the research with additional case studies and comparative analysis across various sectors, such as high-technology and other industrial sectors, would provide valuable insights into how sector-specific factors influence the mechanisms and outcomes of external collaborations. This approach could lead to the identification of both universal and context-specific mechanisms.

From a methodological perspective, the study captures a snapshot in time and may not fully account for the dynamic and evolving nature of SME collaborations and innovation processes. It would be beneficial to conduct longitudinal studies to track the collaborative evolution, offering valuable insights into the development, challenges, and sustained impacts of partnerships over time.

On the other hand, the conclusions of this study do not support the notion that small and medium-sized enterprises typically engage in collaborative efforts during the commercialisation phase as a standard practice (Bertello et al., 2022). Although the research shows that small businesses can benefit from collaboration with external entities during the commercialisation stage, it suggests that the new product development (NPD) and front-end innovation (FEI) stages are the ones that stand to gain the most from such collaborative endeavours. Conducting more in-depth case studies of SMEs participating in external collaborations during different innovation stages would be advantageous. These case studies should analyse the outcomes and benefits realised at each stage. Additionally, it would be beneficial to focus on various industries to determine whether these trends are universal or specific to particular sectors.

Addressing these limitations and pursuing future research directions can achieve a more comprehensive and nuanced understanding of SME external collaborations and their impact on innovation. This will provide valuable insights for SMEs, policymakers, and support organisations aiming to enhance the effectiveness of collaborative innovation efforts. Moreover, by exploring these research avenues, a comprehensive understanding can be developed of how and why SMEs derive the most significant benefits from external collaborations during the NPD and FEI stages despite the recognised advantages at the commercialisation stage (Bertello et al., 2022).

The final chapter will synthesise the main findings of the three research objectives to answer the main aim of this study: ***How do established small and medium-sized enterprises innovate?*** It will discuss the main contributions and consider the potential for future research.

8 Conclusions

Addressing the issue of *how established small and medium-sized enterprises innovate* presents a multifaceted challenge due to the inherently intricate and dynamic nature of innovation. Due to the intricate nature of the issue, a preliminary investigation was conducted, which identified three fundamental determinants affecting the organisation's capacity to foster innovation. These include managerial determinants (Franco & Matos, 2015; Pierre & Fernandez, 2018; Mendoza-Silva, 2020), intra-organisational determinants (e.g., Pierre & Fernandez, 2018; Kurdve et al., 2020; Mendoza-Silva, 2020) and inter-organisational collaboration (e.g., Pierre & Fernandez, 2018; Kurdve et al., 2020; Mendoza-Silva, 2020; Zahoor & Al-Tabbaa, 2020). These determinants were subsequently validated through a literature review, adjusted to the research aim and further scrutinised in the empirical study.

Therefore, the first component of the study focuses on the leadership approach and its significant impact on fostering innovative behaviours, encouraging the dissemination of such behaviours, and instigating a shift in mindsets. This underscores the pivotal role of leadership in shaping how SME organisations approach innovation. Therefore, the first research objective was formulated as:

- (1) *To investigate how the leadership approach impacts the way SME organisations approach innovation.*

Chapter 5 comprehensively analysed and discussed the first research objective, thoroughly exploring every avenue in the quest for comprehension. The results obtained from this analysis significantly contribute to the existing body of knowledge. These research findings reveal that leaders in established small and medium-sized enterprises demonstrate exemplary and creative leadership, showcasing their ability to direct, integrate, and facilitate innovation. Notably, to the best of the researcher's knowledge, this study is the first to acknowledge all three forms of creative leadership outside the creative industry. While these insights offer valuable contributions, it is important to note that the study's qualitative design and contextual specificity limit the ability to generalise these findings beyond the small number of firms investigated. This depth of insight, however, enhances our understanding of leadership dynamics within this specific group of SMEs. Rather

than claiming universal applicability, the findings serve as a foundation for future research that could examine whether similar leadership patterns emerge in other SME settings or industries.

The second foundational element pertains to internal factors associated with the organisation of work tasks and the configuration of different segments within a company to facilitate ongoing processes. This served as the basis for formulating the second research objective:

(2) To explore the mechanisms small and medium-sized enterprises utilise to foster internal integration during the innovation process.

Chapter 6 of this thesis thoroughly analysed and discussed the second research objective. The findings of this analysis add to the existing literature by introducing a cross-functional integration model comprising three adaptable components: the core, the functional structure, and the cloud. This model goes beyond a simple conceptual map; it is a transformative blueprint with a detailed flowchart that redefines how organisations outline innovation objectives, seamlessly align them with business strategy, identify critical functions in the innovation process, and precisely define roles and responsibilities. By pinpointing the exact moments where diverse functions intersect, communicate, or require collaboration and strategically allocating resources at these pivotal junctures, managers can dramatically enhance the innovation process within their firms. This model contributes to the literature by establishing a standard for optimising innovation and providing a tool that may enhance organisational efficiency and competitive advantage. Still, as a product of qualitative inquiry into a limited number of Scottish manufacturing SMEs, this model should be viewed as exploratory rather than definitive. Future research may consider testing the robustness and transferability of this framework in broader or comparative studies across sectors or regions.

The third component of a firm's innovative capabilities, the inter-organisational determinant, relates to external relationships and network characteristics. This encompasses the diverse patterns and connections among members, as well as the types of relationships and knowledge acquired and applied for innovation development. The third research objective was established as follows:

(3) To explore how small and medium-sized businesses establish and leverage their networks to foster innovation.

The third research objective was deliberated and examined in Chapter 7 of this study. The findings provide insights into the networking strategies utilised by well-established small and medium-sized enterprises. They delve beyond surface-level analysis to showcase the transformative power of collaboration, demonstrating how it enables these SMEs to comprehend their evolving needs and those of their partners. This heightened awareness empowers them to adapt more swiftly and effectively to industry changes and the demands of other firms. By highlighting the strategic role of collaboration, this study redefines how SMEs can sustain market dominance and thrive in an ever-changing business landscape. However, consistent with the study's qualitative and critical realist stance, these insights are not generalisable. Instead, they offer rich context-specific understanding and serve as a basis for developing hypotheses or comparative case studies in other geographical or sectoral settings.

This chapter amalgamates all three research objectives, examining the interrelation among these factors to provide insights into the primary focus of this thesis: **How established small and medium-sized enterprises innovate?** The process of oscillating between theoretical frameworks and empirical evidence to establish these determinants aligns with the abductive nature of this study (Saunders et al., 2012). Specifically, the study examined the behavioural patterns and mechanisms inherent in a firm's regular activities and processes during the innovation process rather than solely focusing on the innovation outcome. By employing critical realism as a philosophical lens, the study offers empirically supported causal explanations of reported practices, rather than simply predicting events (Easton, 2010; Hu, 2018). The research, therefore, aimed to describe how established small firms adopt innovative practices without comparing them to one another.

In light of the study's theoretical framing, this chapter now returns to its grounding in the Resource-Based View and Social Capital Theory to reflect on how the findings extend or refine our understanding of innovation in SMEs. RBV foregrounds the importance of internal capabilities, and this study has shown how

leadership approaches and internal integration mechanisms can become key intangible resources in enabling innovation. Meanwhile, SCT emphasises the relational and networked dimensions of capability-building, which this thesis has explored through SMEs' collaborative strategies with external partners. Although the insights are not statistically generalisable, they nonetheless enrich these theories by demonstrating how resource configuration and social capital are mobilised in practice within specific SME contexts.

Section 8.1 provides a fundamental framework for the final stage of the study, explicitly outlining its aim. The chapter reaffirms the primary objectives and research goals that guided the inquiry. Subsequently, Section 8.2 summarises the research by offering a comprehensive overview of the main findings. It consolidates the principal outcomes and arguments throughout the study, emphasising how these results address the research inquiries. Following this, Section 8.3 articulates the study's contributions to theory and practice. This segment explores how the research advances theoretical understanding within its field, identifying any novel concepts, frameworks, or perspectives that have emerged. Additionally, it examines the practical implications and outlines how the findings can be applied in real-world contexts, including industry, policy-making, and other relevant domains. Furthermore, Section 8.4 elaborates on the study's limitations, examining its constraints. This part acknowledges any methodological, conceptual, or practical obstacles that may have affected the findings or their general applicability. This section further concludes with recommendations for future research. Here, particular emphasis is placed on how the depth of insight provided through this qualitative study can inform future research efforts that explore broader patterns across diverse SME contexts and contribute further to theoretical development in RBV and SCT.

8.1 Answering the Aim

Innovation is a strategic decision (Chesbrough & Appleyard, 2007), and the most important determinant of a firm's strategy is the leadership approach (Bayarçelik et al., 2014; Franco & Matos, 2015; Love & Roper, 2015; Hossin et al., 2023). The extent to which leaders engage others in decision-making, their focus on internal or external factors, and their attitude towards change significantly impact an organisation's strategic direction. Leadership establishes the tone for the strategy and

guarantees its effective execution by harmonising with the organisation's culture, principles, and operational capabilities.

All businesses understand the importance of innovation for driving organisational and economic advancement and recognise the need to align it with their overall business strategy. They also grasp the complexity of innovation, as it requires them to balance exploring new opportunities and creating fresh value (exploration) while making the most of existing assets (exploitation) to maintain revenue and avoid stagnation (Kammerlander et al., 2015). From a Resource-Based View perspective, this dual capability reflects how firms leverage and recombine internal resources to gain and sustain a competitive advantage through innovation. By embracing a flexible approach, cultivating a supportive culture, and strategically aligning resources, businesses can sustain innovation over time, ensuring both short-term success and long-term growth (Eggers et al., 2013).

Based on prior research and supported by the present study, small and medium-sized enterprises predominantly innovate through incremental changes and enhancements to their core products (Eggers et al., 2013). Product innovation is the most common form among SMEs (Hoffman et al., 1998; Gellynck et al., 2012; MacBryde & Clegg, 2013), typically driven by customer or market demands. By observing customers' behaviours, studying rivals' strategies, and analysing current and potential markets, such firms can identify new opportunities to explore (Didonet & Diaz-Villavicencio, 2020). These practices resonate with Social Capital Theory, which emphasises the role of external networks and relationships in accessing market intelligence and resources. To satisfy their customers' needs, including those that remain unspoken, businesses typically adopt reactive and proactive approaches (Eggers et al., 2013), with the latter being more closely associated with market-oriented firms. This strategic, market-driven and customer-centric approach enables these entities to create value by improving their primary product lines (Eggers et al., 2013).

Introducing modifications in one aspect of the business often necessitates adjustments in other areas. Consequently, when organisations undertake innovation, they must ensure that the product's innovation encompasses other facets of the business, particularly the production process. This comprehensive approach is

essential to aligning the entire value chain in support of and maximising the impact of product innovation (Amara et al., 2008). Process innovation within a firm aims to increase efficiency, reduce production costs, and often simplify the process, regardless of product innovation (Hervas-Oliver et al., 2014). However, introducing new materials or design modifications to a product may necessitate adopting alternate manufacturing techniques, machinery, or quality assurance protocols. Failing to modernise the production processes with product innovations can result in operational inefficiencies, increased expenses, or compromised product integrity (Santamaría et al., 2009). Moreover, improving products and processes frequently entails implementing new methodologies, organisational frameworks, procedures, and ethos to elevate operational efficiency, efficacy, and adaptability. This encompasses focusing on internal functions, personnel administration, structural organisation, and engagement with external entities (Huggins & Thompson, 2017). Consequently, firms often undergo organisational innovation simultaneously.

Furthermore, established enterprises frequently engage in business model innovation that, according to previous research, requires companies to seek out innovative methods of operation and reconstruct their value creation and value capture mechanisms (Björkdahl & Holmén, 2013; Bashir & Verma, 2017), while simultaneously delivering their existing products, produced by established technologies, to their current markets (Girotra & Netessine, 2014). Introducing new products can create opportunities for additional revenue streams or require adjustments in distribution channels. The findings of this study reveal that adopting a business model innovation strategy is a direct outcome of companies' aspirations to extend their reach within existing markets, but more importantly, to penetrate new markets. These findings, interpreted through the lens of RBV, demonstrate how firms configure and reconfigure their internal capabilities and external relationships to enhance innovation outcomes.

Regardless of the type of innovation companies pursue, it typically leads to further enhancements and subsequent innovations. This holistic approach ensures that the innovation is enduring, adaptable, and capable of creating value across the organisation. By integrating product innovation with process innovation, supply chain management, organisational structure, and business models, enterprises can

establish a unified innovation ecosystem that fosters long-term growth and competitiveness. Consequently, it can be said that innovation at SMEs initiates a chain reaction that transforms the company's approaches to innovation and its perception by individuals directly and indirectly involved in the processes.

Furthermore, in the context of small and medium-sized enterprises, the innovation process involves the engagement of multiple stakeholders, making it more complex. As a result, established SMEs deploy various strategies in their innovation endeavours. These approaches vary from initially avoiding collaborative partnerships to selective engagement in such alliances and eventually fully embracing the open innovation model. The leadership approach is pivotal in the firm's innovation strategy (Franco & Matos, 2015). How a leader steers innovation, orchestrates internal operations and manages external input significantly impacts success in this realm. This success is contingent upon assessing internal resource availability, which determines the level of external collaboration and the timing of collaboration during project phases. This is particularly evident in a semi-open model, where internal and external collaboration are correctly balanced. Here, Social Capital Theory helps explain how the quality and nature of inter-organisational relationships—especially trust, shared norms, and reciprocal exchanges—support innovation processes.

Upon evaluating the behaviours and actions of leaders within the study sample, considering creativity as an essential aspect of leadership and innovation within the study's framework, and comparing them with established leadership styles from prior research, the leadership approach was characterised as a creative leadership style (Mainemelis et al., 2015). Moreover, the dynamic interplay between the leader and followers' creative and supportive contributions further demonstrated creative leadership as directing, integrating, and facilitating (Mainemelis et al., 2015). The study further examined three manifestations of creative leadership in the context of innovation processes at established small and medium-sized enterprises. The results of the research suggest a correlation between distinct creative leadership approaches and innovation strategies (Figure 8.1). Directing creative leadership is closely associated with a closed innovation strategy, while facilitating creative leadership can drive success in both semi-open and open innovation strategies. Integrating a creative

leadership approach is vital for a semi-open innovation strategy, effectively balancing openness and control.

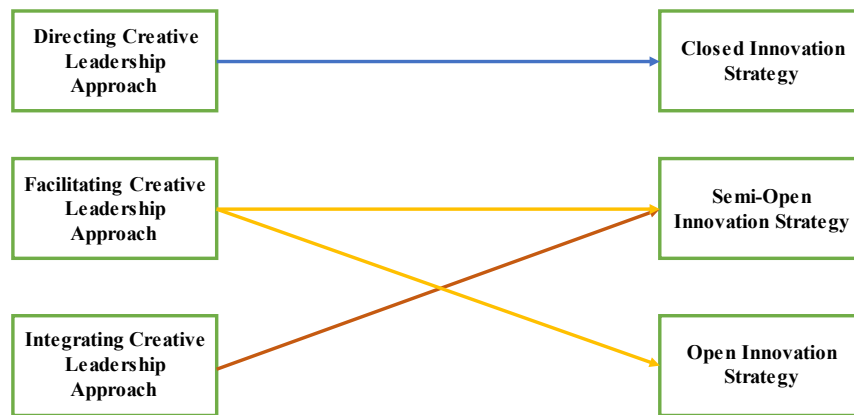


Figure 8.1 The relationship between a creative leadership approach and the firm's innovation strategy.

Furthermore, rigorously evaluating the three foundational factors that impact a company's capacity for innovation — namely, leadership approach, cross-functional integration, and inter-organisational collaboration (Mendoza-Silva, 2020) — makes it apparent how collaborative efforts manifest among diverse stakeholders during innovation processes. Specifically, it elucidates how specific creative leadership strategies facilitate the assimilation of cross-functional teams within the organisation and supplement this with external partnerships during innovation endeavours within established small and medium-sized enterprises (Figure 8.2). This will be the focus of the upcoming discussion. From the RBV standpoint, this triad of capabilities constitutes a firm's internal and relational resources. SCT further explains how social interactions and relational capital, spanning internal and external actors, can amplify innovation by facilitating knowledge flows and joint problem-solving.

These theoretical lenses—RBV and SCT—help frame the study's contribution to our understanding of innovation in SMEs not only as a process driven by internal leadership and resource configuration but also as one that is deeply embedded in social relations, trust, and cooperation. Rather than proposing universally generalisable outcomes, this thesis offers a deep, contextualised interpretation of how

leadership fosters innovation within SME settings. Future research could build on this theoretical integration by testing these patterns across different sectors and regions to explore their transferability and potential for generalisation.

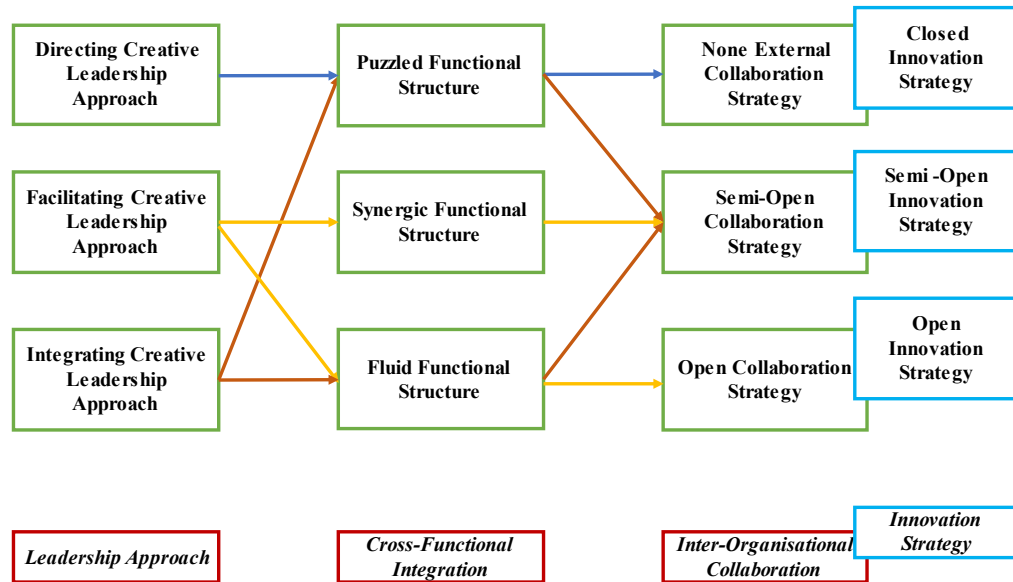


Figure 8.2 The Influence of Leadership Approach and Internal and External Resources on the Innovation Strategy of SMEs.

A Closed Innovation Strategy

According to the study, a *closed innovation strategy* (Chesbrough et al., 2006; Herzog, 2011) is associated with the *directing creative leadership* approach. This approach is a top-down hierarchical decision-making process in which the organisational leader establishes all directives, and lower-level employees are responsible for their execution. The leader values authority and assumes responsibility for overseeing the business's operations, including generating innovative ideas and solutions. A directing leader is a company-focused, passionate and experienced leader well-equipped to make informed business decisions and navigate industry challenges (Prats & Agulles, 2009). The directing creative leadership, with a strong focus on the market and customer needs, actively fosters continuous innovation and a wide array of product offerings. While the company primarily emphasises incremental innovation, it does not disregard radical innovation, often associating it with new market prospects and product advancement.

His visions and creative ideas are communicated to subordinates and materialised through collaborative efforts (Mainemelis et al., 2015; Colovic, 2022). Employees understand their roles and are not encouraged to exercise creativity (Lorinkova et al., 2013). It can be inferred that, within non-creative industries, as opposed to the creative sector (Mainemelis et al., 2015), the workforce may not necessitate highly skilled employees, but rather individuals capable of executing tasks under the guidance and direction of their superiors. The production process is characterised by a linear structure in which each employee has segregated duties and holds accountability for their designated area. Their contribution of labour to a project constitutes a vital piece of the puzzle, allowing for the successful completion of the project. Credit for creative work is attributed to the leader (Abecassis-Moedas & Gilson, 2018).

Moreover, the company does not cooperate with external parties collaboratively. Instead, the leader (entity) prefers to maintain control (causal power) and does not see the benefit of collaborating with external entities in a different model (mechanism) than the customer-buyer approach. The company innovates within its boundaries, using its resources, characteristic of a closed innovation approach (Chesbrough, 2003, 2006; Herzog, 2011). The leader (entity) focuses on maintaining (causal power) existing methods of operation (mechanism) and replicating (causal power) successful strategies (mechanism), which leads to a continuum of closed innovation model (event). This approach corresponds with the replicator's philosophy of directing creative leadership (Sternberg et al., 2003; Mainemelis et al., 2015).

From a Resource-Based View perspective, this strategy illustrates how firms rely exclusively on their internal capabilities, assets, and knowledge to drive innovation, treating their resource pool as the primary source of competitive advantage. The firm's emphasis on internal exploitation over exploration highlights how RBV-informed strategies favour control, stability, and risk minimisation in resource deployment.

Meanwhile, the absence of collaboration with external actors limits the accumulation of social capital, underscoring a minimal engagement with the

mechanisms described by Social Capital Theory, such as network-based learning, trust-building, or shared norms that enable innovation.

Open Innovation Strategy

The subsequent approach to innovation, as identified within established small and medium-sized enterprises, pertains to an *open innovation strategy*. Following the findings of this study, this approach is consistent with *facilitating creative leadership*, which seeks to foster employee creativity by encouraging the generation of innovative ideas, providing essential resources through an expansive network, and allowing employees greater autonomy in decision-making (Mainemelis et al., 2015), while balancing oversight (Mumford et al., 2002, 2003). This approach fosters an innovative culture that is driven from the bottom up. Additionally, a leader encourages collaboration across various sectors, fostering an open innovation atmosphere. Leveraging current knowledge and technology, the leader meets market demands while aiming to revolutionise other companies' approaches to innovation, pushing beyond conventional boundaries.

Furthermore, the leader empowers employees to succeed by offering guidance and support, but not intervening in day-to-day operations (Tang, 2019). Leaders' attitudes and behaviours significantly influence the dynamic between leaders and employees (Yoshida et al., 2014; Guo et al., 2017; Lee et al., 2020). Furthermore, the internal functional framework is characterised by a fluid approach, which encourages employees to participate in diverse tasks within the workshop. This promotes a versatile work environment. Internal integration is a top priority, focusing on creating seamless functionality and fostering open collaboration among team members. This approach cultivates positive relationships that drive productivity and growth while enhancing mutual awareness and trust (Mainemelis et al., 2015). The role of the project leader rotates from project to project. Employee efforts and contributions are acknowledged and valued, fostering a stimulating and rewarding environment. This approach enhances employee autonomy, increasing engagement and productivity, both crucial for the company's success and innovation (Mainemelis et al., 2015).

The leader recognises the value of sharing knowledge and collaborating with experts from diverse fields. By utilising employees' skills and establishing external

partnerships, the company can overcome resource constraints and tap into new opportunities (e.g., Spithoven et al., 2013; Hossain, 2015; Vanhaverbeke & Steen, 2016; Vanhaverbeke, 2017; Ibarra et al., 2020). Collaborating and sharing knowledge fosters creativity and drives continuous innovation. Leaders and employees consider themselves integral parts of a more extensive network. They actively seek diverse perspectives inside and outside the organisation to develop commercially viable and innovative solutions (Chesbrough, 2003). This approach places equal importance on internal and external sources of knowledge (Chesbrough, 2006). Additionally, the company's commitment to societal well-being and environmental stewardship underscores its conviction in Corporate Social Responsibility as the cornerstone of sustainable and ethical innovation practices (Jenkins, 2006). Thus, they aim to tackle societal and environmental challenges by utilising an open innovation method (causal powers and mechanisms) to find solutions and return them to the community (event) (Amoah-Mensah, 2016). These skilled employees can then utilise their expertise to benefit society, establish new networks, and foster open innovation and corporate social responsibility initiatives. By integrating open innovation practices and corporate social responsibility, the organisation underscores the importance of corporate social innovation and advocates for value creation through sustainable processes (Roszkowska-Menkes, 2018).

In general, through his causal powers, the leader (entity) orchestrates the collaboration of internal and external entities to accomplish the objectives of an innovative project. In an open innovation context, actors collaborate throughout every stage of the innovation process, from idea generation to commercialisation. Typically, the leader plays a key role in bringing together various internal and external entities to achieve the goals of an innovative project by leveraging their ability to cause change. In open innovation, participants collaborate at every stage of the innovation process, from generating ideas to bringing products to market. While data may show differences in the extent of the leader's involvement throughout the innovation process, the leader's focus is usually on the commercialisation phase. Actors in a network are connected and create relations that affect one another (necessary relations) or may affect one another (contingent relations). These relations create the mechanism (integration, collaboration, cooperation) that causes the

empirically observed or measured event (Easton, 2010), such as rapport with progress, prototypes, new products, or processes.

Viewed through the lens of Social Capital Theory, this approach highlights how social capital—through networks, trust, and mutual recognition—serves as a mechanism for innovation. Relationships with stakeholders and collaborators provide access to new knowledge and shared problem-solving, reinforcing innovation as a socially embedded activity.

In Resource-Based View terms, the firm's openness enables it to augment its internal capabilities with external assets, reflecting a dynamic capability to reconfigure its resource base in response to changing market and technological conditions. This external orientation transforms innovation into a collaborative capability rather than a solely internal function.

A Semi-Open Innovation Strategy

The third strategy commonly adopted by established small and medium-sized enterprises is a *semi-open innovation strategy*. This strategy serves as an intermediary between closed and open innovation strategies, and, according to the above research, is linked to the integrating creative leadership approach and the facilitating creative leadership approach mentioned earlier.

Although each company has a different leadership approach and cross-functional integration structure, they still share commonalities within specific parameters and opt for the same innovation strategy, despite varying in the extent to which they apply it. Both leadership approaches involve actively promoting and nurturing an organisation's culture of innovation by encouraging employees to think outside the box and work together to improve the innovation process. In these models, co-leadership is often employed, with one expert overseeing the technical aspects of the innovation process while another manages the business and organisational elements (Mainemelis et al., 2015). Additionally, they both have a somewhat selective strategy when engaging with outside parties. The company emphasises making incremental improvements and collaborates closely with suppliers to achieve optimal results. Furthermore, the company acknowledges that radical innovations stem from changes in the business model, involving reorganising the company, adopting new

technologies, exploring alternative sales strategies, and expanding into new markets. The company combines its internal resources with external expertise to ensure that projects are feasible and run efficiently. Collaboration primarily occurs during specific project phases when new knowledge or expertise is required, rather than being consistently open throughout the project.

In a *facilitating* approach, employees are the primary source of innovative ideas. The leader promotes employee creativity by nurturing new concepts, ensuring access to essential resources, granting employees greater autonomy in decision-making and gaining valuable experience (Tang, 2019). Leaders' attitudes and actions have a significant influence on positive employee interactions (Yoshida et al., 2014; Guo et al., 2017; Lee et al., 2020). More importantly, leader support substantially impacts employees' creative inputs, fostering team creativity and bottom-up innovation (Mainemelis et al., 2015). Moreover, integrating cross-functional teams is synergic and encourages employees to fulfil their official duties while actively seeking involvement from other departments to address challenges. This approach depends on self-motivation and open collaboration with other functions. Employees are actively engaged in innovative projects and are kept informed about their progress. Co-leadership is frequently used to merge ideas with a division of labour between the technical and business aspects of the innovation process while remaining actively engaged in both areas.

On the contrary, within the framework of *integrating creative leadership* approach, the leader assumes a pivotal role in generating innovative ideas and articulating a creative vision. These elements are subsequently amalgamated with the diverse contributions of other professionals and team members (Mainemelis et al., 2015, 2019) to cultivate a collaborative approach to innovation through interaction and active participation (Abecassis-Moedas & Gilson, 2018; Collett et al., 2019; Mainemelis et al., 2019). All project stakeholders have specific roles and collaborate toward a common goal, recognising the value of diverse expertise and creative input of every actor. Despite the strong emphasis on collaboration, the leader's identity as the primary creator remains evident in both the project and the final product (Harvey et al., 2019; Litchfield & Gilson, 2019). Collaboration among professionals and the incorporation of diverse concepts can initiate co-leadership within an organisation

(Abecassis-Moedas & Gilson, 2018), as indicated by this study. At certain stages of the project, the leader assumed a co-leader role, providing essential resources to support the other co-leader in managing the project's business aspects. This approach thus offers a more balanced distribution of creative and supportive contributions between the leader and employees (Mainemelis et al., 2015; Randel & Jaussi, 2019) and facilitates collective creativity (Abecassis-Moedas & Gilson, 2018).

Furthermore, the study found that integrating creative leadership results in two distinct patterns of internal stakeholder alignment. One pattern involves a puzzle-like system where employees understand their roles and the project, and communication primarily flows through the project leader. The project directly impacts their work, requiring them to respond to changes and report to the project leader for the complete assembly. The second pattern, fluid, emphasises dynamic functionality and flexible job titles, fostering a flexible work environment. Typically seen in small businesses, this approach maximises productivity and efficiency through an agile workflow in the project's business aspect.

Additionally, in the integrating context, leadership is customer-centric but involves significant differences in approaches. The first approach is reactive, where the leader prioritises addressing customer needs as they arise and resolves issues when they occur. This trend is associated with leadership that facilitates puzzled cross-functional integration. The second approach is proactive and tends to lean towards a market-oriented strategy, aiming to anticipate and fulfil customer needs and desires even before they become apparent. This trend, in turn, is linked to integrating leadership that facilitates integration in its fluid form.

External collaboration within a semi-open firm is associated with the origination of innovative concepts within the company, subsequently realised through collaborative efforts between the company and various external entities to varying degrees. A semi-open strategy is predicated on selectively engaging with external parties. Collaboration is mainly contingent on specific project phases, necessitating the acquisition of new knowledge or expertise through interactions. Consequently, it can be inferred that companies do not consistently adhere to a fully open approach throughout the project lifecycle but rather during specific stages. This category of

collective creativity is commonly referred to as occasional collective creativity in scholarly discourse. It relates to scenarios in which leaders operate autonomously until the involvement of external contributors becomes imperative (Abecassis-Moedas & Gilson, 2018). The internal innovation capabilities of a firm are complemented and reinforced by external innovation capabilities, which can be facilitated through consultants or collaboration with academic institutions (Kurdve et al., 2020). The degree of openness and intensity of interactions may vary among firms and are mainly determined by the level of trust established between the parties involved.

In a semi-open context, leaders (*entities*) must balance and carefully manage internal and external resources (*entities*), ensuring that their use aligns with the organisation's strategic objectives. The generation of innovative ideas (*mechanism*) occurs internally, and their realisation (*mechanism*) typically involves the collaborative and supportive efforts of other actors (*entities*), including external ones. Leaders cultivate a culture of collaboration and knowledge sharing (*mechanism*) and actively encourage (*causal power*) actors to work together (*structure*). Leaders' vision for innovation is communicating clearly and guiding (*causal powers*) collaborative activities to ensure they support the organisation's broader goals.

Internal resources (*entities*) are supplemented by external partners (*entities*) who offer complementary skills and resources (*causal powers*) or access to markets not available in-house. External partners are primarily identified through established networks. Leaders and co-leaders actively nurture relationships with diverse stakeholders, facilitating knowledge exchange between teams, determining the level of involvement of external partners in the innovation process and identifying the stage of the process at which cooperation with these partners is necessary (*causal powers and liabilities*) while safeguarding critical innovations that internally contribute to the organisation's competitive advantage. Actors within a network are interconnected, establishing relationships that either exert necessary influence on each other (necessary relations) or have the potential to do so (contingent relations). As detailed by Easton (2010), these connections form the mechanisms that lead to the observed or measured outcomes, such as prototypes or new relations in a network. The collaboration framework emphasises flexibility, as the firm has

historically needed to adjust the level of openness in the innovation process based on specific project requirements, market conditions, or the availability of external partners.

This semi-open model effectively captures the essence of the Resource-Based View, which emphasises the strategic orchestration of resources. Firms carefully choose the optimal moments to combine their internal resources with complementary external assets, thereby enhancing their innovation outputs and gaining a competitive edge.

At the same time, Social Capital Theory is reflected in the trust-based dynamics of selective partnerships. This framework illustrates how a firm's embeddedness within social networks and the value of relational capital enables it to access, filter, and integrate external knowledge precisely when it is most beneficial. This synergy not only drives innovation but also highlights the vital role of strategic relationships in the modern business landscape.

8.2 Contributions

This chapter reflects on the main findings, theoretical contributions, practical implications, and directions for future research. As a qualitative study, this research does not aim for broad generalisability. Instead, it offers a nuanced and in-depth understanding of innovation dynamics within a specific group of established small and medium-sized enterprises (SMEs).

The chapter highlights how the research enhances our conceptual understanding of leadership, cross-functional integration, and external collaboration in the context of innovation. It also outlines directions for future research into the applicability of these findings in other organisational settings.

Each of the three research objectives, addressed in Chapters 5, 6, and 7, offered valuable insights into how innovation is enacted within the studied SMEs. These contributions, while not generalisable, provide rich, context-dependent knowledge that informs both academic discourse and practice. The study links leadership approaches (Objective 1), internal diffusion of innovation (Objective 2), and external collaboration strategies (Objective 3) to address the core research question:

How do established small and medium-sized enterprises innovate?

This study offers a situated understanding of how SMEs navigate innovation challenges, advancing our view of innovation as a leadership-driven, socially embedded, and structurally mediated process.

The following section will reflect on the theoretical insights and practical implications presented in the study, followed by an examination of its limitations and directions for future research.

8.2.1 Theoretical Contributions

This research contributes to the understanding of innovation in SMEs, particularly in low-tech manufacturing sectors, by shifting attention away from start-ups and large corporations (OECD, 2010, 2018). Through a comprehensive analysis of leadership methodologies, cross-functional integration, and inter-organisational collaboration (Pierre & Fernandez, 2018; Mendoza-Silva, 2020), this investigation offers an exploration of the internal and external mechanisms that support innovation in established, resource-constrained firms (OECD, 2018a).

In particular, the study advances our understanding of creative leadership in non-creative industries. It examines how different styles of creative leadership—directing, integrating, and facilitating—impact the successful integration of internal and external resources, emphasising the central role of leadership in shaping effective innovation strategies (Figure 8.2). To the best of the researchers' knowledge, this study represents the first attempt to integrate all three creative leadership styles within the context of small manufacturing firms operating in non-creative industries. Rather than concentrating on temporary creative outputs, this research investigates the role of leadership in cultivating enduring organisational frameworks. It emphasises the crucial role of cross-functional teams in turning leadership visions into tangible innovations. Additionally, while the existing literature on creative leadership frequently focuses on internal organisational dynamics, this research provides a novel perspective by highlighting inter-organisational collaboration as a critical asset for value creation (Zahoor & Al-Tabbaa, 2020).

Drawing on the Resource-Based View and Social Capital Theory, the study provides a rich interpretation of how innovation capabilities emerge from the interplay of leadership, internal integration, and external collaboration. It illustrates how different leadership styles activate mechanisms such as trust, autonomy, and knowledge exchange, influencing the mobilisation of internal and external resources for innovation. This extends the SCT perspective by showing how internal social ties and inter-organisational relationships support innovation processes. At the same time, the RBV framework helps explain how firms leverage or constrain their internal capabilities in response to their strategic orientation.

Moreover, this study adopts a critical realist perspective, which is particularly suited to examining complex organisational settings. Rather than prescribing best practices or claiming generalisable results, it seeks to identify causal mechanisms and relationships between entities (leaders, teams, partners) and strategies (e.g. decision-making styles, integration practices) that lead to variations in innovation practices (Easton, 2010; Lawani, 2020), explained in section 8.1 of this chapter.

This analytical lens reveals how leadership, cross-functional integration, and external collaboration act as generative mechanisms. These mechanisms produce different innovation outcomes depending on how they are configured in specific contexts. The contribution, therefore, is not a universal model, but a context-rich theoretical narrative that offers explanatory depth grounded in real organisational experiences (Figure 8.2).

While the findings are specific to the studied sample, the conceptual framework can guide future research examining how similar mechanisms operate in other industries or cultural environments. It also adds depth to the application of creative leadership theory in non-creative sectors by demonstrating how sustainable organisational practices—not just short-term creative outputs—can emerge. The research invites further exploration of how the causal mechanisms identified here operate in other SMEs, industries, and cultural settings.

8.2.2 Practical Implications

Although this study does not seek generalisation, its findings offer practical insights for leaders and policymakers in similar SME contexts. The value of the

findings lies not in their universality, but in their ability to reveal patterns, practices, and leadership behaviours that may inform future research and reflective practice.

Practical Implications for Practitioners

Participants described innovation as an ongoing and iterative learning process influenced by both internal and external dynamics, requiring leaders to strike a balance between planning and adaptability.

Additionally, the importance of shared understanding among stakeholders emerged as a recurring theme. Although diversity of perspectives is essential for innovation, the findings suggest that without purposeful integration of these views into aligned action, innovation efforts may become fragmented or ineffective. From the perspective of Social Capital Theory, trust, shared language, and mutual engagement between actors—both internal and external—support the relational groundwork for collective innovation (Nahapiet & Ghoshal, 1998).

Practical Implications for Managers

One practical takeaway from the study is the mapping process identified, which can help SME managers clarify roles, responsibilities, and communication flows during the innovation process. While not a one-size-fits-all solution, this mapping practice may offer a point of reference for managers in similarly structured organisations seeking to build coherence and clarity in their innovation processes.

From an RBV lens, this mapping process helps identify and deploy valuable, rare, and inimitable resources—often embedded in routines, relationships, or organisational knowledge—toward innovation objectives. From an SCT perspective, the success of the mapping process also depended on informal networks, trust-based collaboration, and the ability to leverage both strong and weak ties inside and outside the organisation.

This insight suggests that managers may benefit from viewing innovation not as a linear technical process, but as a relational, socially embedded one that requires alignment between human resources, knowledge flows, and emergent opportunities. Future research could explore how similar mapping approaches are adapted across industries or cultures, helping to test their transferability.

Practical Implications for Policymakers

For policymakers, the findings suggest that innovation support schemes should consider the leadership styles and relational dynamics that shape SME innovation. However, these insights are context-specific and should inform, rather than dictate, broader innovation policy or interventions.

Support mechanisms, such as funding schemes or advisory services, may be more effective if they acknowledge the varied ways in which SMEs approach innovation. For example, firms led by facilitating leaders may be more open to partnerships or collaborative programs, whereas others may prefer incremental internal development. Understanding these dynamics could improve the targeting of support services and reduce the risk of policy mismatch.

Moreover, SCT helps explain how local networks and informal relationships contribute to the success of SME innovation. Policymakers may therefore want to strengthen regional innovation ecosystems by encouraging knowledge sharing, community engagement, and relational trust among firms, universities, and intermediary organisations.

Rather than proposing a prescriptive model for policy application, this research suggests that policy frameworks should be flexible and context-aware, enabling SMEs to engage with innovation in ways that reflect their specific internal dynamics and strategic orientations.

8.3 Final Reflections

This thesis adopted a qualitative, exploratory approach to examine how innovation is enacted in established small and medium-sized enterprises. The study was not designed to make generalisable claims but to offer rich, context-specific insights into the mechanisms, leadership practices, and integration strategies that shape innovation in a particular set of small businesses. The findings reflect the experiences of firms operating in low-tech manufacturing sectors and are grounded in the realities of their unique environments, resource constraints, and strategic orientations.

The research explored innovative practices across three core dimensions: managerial, intra-organisational, and inter-organisational. The managerial dimension focused on leadership approaches and how they enable innovative behaviour and the diffusion of innovation within firms. The intra-organisational dimension examined how internal stakeholders collaborate, share knowledge, and coordinate tasks across functions. The inter-organisational dimension investigated how firms build external networks and collaborations to support knowledge transfer and access complementary resources.

These insights were interpreted through the lenses of two theoretical frameworks: the Resource-Based View (RBV) and Social Capital Theory (SCT). The RBV helped to understand how firms mobilise and deploy internal resources and capabilities to pursue innovation, particularly under constraints. It highlighted how strategic decisions around resource configuration—such as building innovation capabilities—can shape innovation trajectories. Meanwhile, SCT illuminated the role of social networks, trust, and relationships in facilitating innovation. It showed how internal cohesion and external relational capital can act as enablers of knowledge exchange, collaboration, and openness.

Findings confirmed that within the participating SMEs, innovation was diverse and multifaceted, ranging from incremental to more radical developments (Chang et al., 2011), and included changes to products, processes, and business models (Herzog, 2008; Vanhaverbeke & Steen, 2016; Vanhaverbeke, 2017). Their innovation strategies are shaped by their resource constraints (Hervas-Oliver et al., 2014) and industry context, and highly influenced by the firms' ability to remain flexible and agile in response to external pressures and market demands. However, rather than identifying a single dominant factor, the study revealed that leadership approaches were central to shaping the direction and execution of innovation (Bayarçelik et al., 2014; Franco & Matos, 2015; Love & Roper, 2015; Hossin et al., 2023).

Leaders set the strategic tone, guided resource allocation, and determined how open or closed the organisation would be to external engagement. In this way, leadership functioned as a mediating mechanism between internal capabilities and external opportunities, echoing both the RBV and SCT perspectives. From an RBV

standpoint, leadership influenced how internal resources were leveraged; from an SCT view, leadership framed the formation and use of relational capital both inside and outside the organisation.

This study also employed a Critical Realist lens to uncover the mechanisms underpinning innovation practices. It acknowledged that innovation emerges from the interactions of various organisational sub-entities—such as departments, teams, and individuals—and that these relationships are shaped by both causal powers (the capacity of one entity to affect another) and liabilities (the capacity to be affected) (Easton, 2010). These interactions are not random (Bhaskar, 2008; O'Mahoney & Vincent, 2016) but are mediated through leadership decisions and relational structures. For example, a decision by a leader to engage in team-based innovation (a mechanism) can create an environment that fosters collaborative learning and strengthens innovation culture (events). Alternatively, more individualised leadership approaches may inhibit such diffusion.

The layered ontology of Critical Realism—distinguishing between the real, the actual, and the empirical—further supported the analysis of how underlying structures (e.g., leadership culture) shape observable outcomes (e.g., product development or knowledge sharing). In doing so, it highlighted the importance of understanding not just what happens in firms, but why and how it happens.

Although this research does not claim statistical generalisability, the depth of insight it offers may contribute to theory-building and serve as a foundation for future research. In particular, scholars may use this study as a springboard to explore how RBV and SCT intersect in other SME contexts, industries, or geographic regions. Future work might also examine how leadership styles interact with social and structural capital to shape innovation pathways in different organisational or policy environments.

Similarly, practitioners and policymakers may find the findings informative rather than prescriptive. Rather than providing a universally applicable model, this research encourages reflection on how firms can align internal resources with external opportunities and how leadership practices might foster or constrain

innovation. These context-sensitive insights may help others in similar environments identify enablers of innovation and adapt them thoughtfully to their settings.

In summary, this study contributes to our understanding of innovation in SMEs by shedding light on how leadership, integration, and collaboration intersect in practice. It invites continued exploration of how resources and relationships—as conceptualised in RBV and SCT—shape innovation processes in complex and evolving organisational realities.

8.4 Limitations and Future Research

Beyond the several advantages and contributions of this thesis, this study is subject to specific limitations that must be acknowledged. One of the primary limitations relates to its philosophical stance. While the critical realist ontological and epistemological assumptions adopted in this research may be debated in comparison to alternative paradigms, they nonetheless provide a solid foundation for the study's central aim: to produce empirically supported causal explanations of innovation within particular organisational contexts. Admittedly, critical realism focuses on identifying mechanisms at a single point in time, limiting its ability to account for the evolution of firms, shifts in leadership approaches, and long-term process changes. Nevertheless, the critical realist framework is a robust approach for uncovering complexity, as its stratified reality model encourages the linking of information from multiple levels of organisational experience—offering a deeper, layered understanding of the phenomena under investigation.

Despite its constraints, the philosophical stance of this study remains appropriate and effective for the research question posed. As Edwards et al. (2012) argue, philosophical assumptions are integral to the research process and cannot be separated from it. Therefore, any limitations arising from these assumptions are unavoidable but do not diminish the study's contribution. Instead, they provide the basis for a reflective, theory-informed examination of the research subject.

The second limitation concerns the contextual scope of the research. Specifically, the study focuses on established SMEs operating in the low-tech manufacturing sector in Scotland. While this enables a rich and focused exploration of innovation practices in these firms, it also limits the transferability of findings to other sectors,

locations, or firm types. However, this thesis does not claim statistical generalisability. Instead, its value lies in the depth of insight it provides into how innovation is enacted within a specific organisational and industrial setting. As such, the findings offer conceptual rather than predictive contributions. Prior research also underscores the importance of contextualising key constructs—such as leadership (Randel & Jaussi, 2019), cross-functional integration (Frankel & Mollenkopf, 2015), and inter-organisational collaboration (Zahoor & Al-Tabbaa, 2020)—as their causal power is deeply contingent on specific organisational and industrial environments (Leca & Naccache, 2006). This study responds to such calls by embedding its analysis within the realities of its research setting. As Barney (1991) reminds us, strategic resources and capabilities are inseparable from context, particularly in innovation research.

A third limitation concerns sample size and representativeness. The pilot phase included three companies and one industry expert, while the main empirical phase engaged with five companies. These participants were selected based on their direct involvement in innovation activities, allowing for the collection of rich and detailed data. Nonetheless, this sample size may be viewed as limited in terms of breadth. However, within the critical realist tradition—and consistent with the goals of qualitative inquiry—the focus was not on producing generalisable conclusions but rather on identifying causal mechanisms and uncovering explanatory depth. This emphasis aligns with arguments made by Gray (2014), who stresses the importance of contextually rich data over large sample sizes in exploratory studies. The insights generated from these interviews were sufficient to address the research objectives and to uncover patterns and mechanisms within this particular setting.

In light of these limitations, this thesis offers several avenues for future research. First, while the present study offers a detailed view of innovation in SMEs within the Scottish low-tech manufacturing sector, further research could explore how the mechanisms identified here operate in other sectors, such as high-tech or service-oriented SMEs, or other geographic contexts. This would enable comparative work and help identify the boundary conditions of the findings presented in this thesis.

Second, while this study focused on qualitative data, future research may benefit from adopting a mixed-method approach, incorporating both qualitative depth and quantitative breadth. Such an approach could further test or refine the mechanisms proposed here, particularly concerning the relationship between leadership approaches and innovation outcomes. For example, studies could examine whether specific leadership styles correlate with the production of radical versus incremental innovation across a broader sample of SMEs.

Third, while this research illuminated the enablers of innovation—particularly leadership, cross-functional integration, and external collaboration—it did not focus explicitly on innovation outcomes. Future studies could investigate whether distinct leadership approaches and integration mechanisms yield different forms or levels of innovation, and how these outcomes impact firm performance over time.

Additionally, there is a valuable opportunity to examine internal communication and formality in more depth. This research suggests that informal communication often plays a crucial role in facilitating innovation, particularly in resource-constrained environments. However, the degree of formalisation—in internal processes or external partnerships—may influence how successfully innovation is managed and sustained. This is especially pertinent as SMEs mature or scale up their operations.

Ultimately, this thesis contributes to the theory by integrating the Resource-Based View (RBV) and Social Capital Theory (SCT) to provide an interpretation of the findings. These frameworks proved instrumental in explaining how firms mobilise internal resources and external relationships to drive innovation. However, further empirical research could investigate how these theoretical perspectives operate across different types of firms. For example, the RBV lens could be extended to examine how SMEs in other industries reconfigure internal capabilities under environmental constraints. Similarly, SCT could be used to explore how relational capital and trust evolve in long-term external collaborations or digital innovation ecosystems. These future studies would help assess the transferability of the conceptual insights offered here and test the applicability of these theories in broader innovation contexts.

In conclusion, while the findings of this thesis are not generalisable in a statistical sense, they offer meaningful conceptual and theoretical contributions by unpacking the complex, situated nature of innovation in established SMEs. Future research can build on these insights to further refine our understanding of how leadership, integration, and collaboration interact in shaping innovation across diverse business settings.

9 List of References

- Aas, T. H., & Breunig, K. J. (2017). Conceptualising innovation capabilities: A contingency perspective. In *Journal of Entrepreneurship, Management and Innovation* (Vol. 13, Issue 1, pp. 7–24). Business Insights: Global. <https://doi.org/10.7341/20171311>
- Abecassis-Moedas, C., & Gilson, L. L. (2018). Drivers and levels of creative leadership: an examination of choreographers as directive and integrative leaders. *Innovation: Management, Policy and Practice*, 20(2), 122–138.
- Acar, O. A., Tarakci, M., & van Knippenberg, D. (2019). Creativity and Innovation Under Constraints: A Cross-Disciplinary Integrative Review. *Journal of Management*, 45(1), 96–121.
- Ackroyd, S., & Karlsson, J. C. (2014). Critical Realism, Research Techniques, and Research Designs. In and S. V. Paul K. Edwards, Joe O'Mahoney (Ed.), *Studying Organizations Using Critical Realism: A Practical Guide*. Oxford Scholarship.
- Agostini, L., & Nosella, A. (2019). Inter-organizational relationships involving SMEs: A bibliographic investigation into the state of the art. *Long Range Planning*, 52(1), 1–31.
- Ahmad, N. H., Halim, H. A., & Zainal, S. R. M. (2010). Is entrepreneurial competency the silver bullet for SME success in a developing nation? *International Business Management*, 4(2), 67–75.
- Ahmed, R., Rafique, A., & Philbin, S. P. (2021). Cross-functional integration between organizational structure and the new product development process. *Organization Development Journal*, 39(4), 63–78.
- Ahn, S. Y., & Kim, S. H. (2017). What makes firms innovative? The role of social capital in corporate innovation. *Sustainability (Switzerland)*, 9(9), 1–13.
- Al-Omoush, K. S., Ribeiro-Navarrete, S., Lassala, C., & Skare, M. (2022). Networking and knowledge creation: Social capital and collaborative innovation in responding to the COVID-19 crisis. *Journal of Innovation and Knowledge*, 7(2), 100181.
- Alshenqeeti, H. (2014). Interviewing as a Data Collection Method: A Critical Review. *English Linguistics Research*, 3(1), 39–45. <http://www.sciedu.ca/journal/index.php/elr/article/view/4081>
- Amara, N., Landry, R., Becheikh, N., & Ouimet, M. (2008). Learning and novelty of innovation in established manufacturing SMEs. *Technovation*, 28(7), 450–463.
- Archer, M., Decoteau, C., Gorski, P., Little, D., Porpora, D., Rutzou, T., Smith, C., Steinmetz, G., & Vandenberghe, F. (2016). (2016). *What is critical realism?* Perspectives: A Newsletter of the ASA Theory Section, Fall 2017. <http://www.asatheory.org/current-newsletter-online/what-is-critical-realism>
- Aslesen, H. W., & Harirchi, G. (2016). The effect of local and global linkages on the innovativeness in ICT SMEs: does location-specific context matter? *Entrepreneurship & Regional Development*, 27(9–10), 644–669.

- Bai, W., Feng, Y., Yue, Y., & Feng, L. (2017). Organizational Structure, Cross-functional Integration and Performance of New Product Development Team. *Procedia Engineering*, 174, 621–629.
<https://doi.org/10.1016/j.proeng.2017.01.198>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management* 17, 17(1), 99–120.
- Basadur, M. (2004). Leading others to think innovatively together: Creative leadership. *Leadership Quarterly*, 15(1), 103–121.
- Batterink, M. H., Wubben, E. F. M., Klerkx, L., & Omta, S. W. F. (2010). Orchestrating innovation networks: The case of innovation brokers in the agri-food sector. In *Entrepreneurship and Regional Development* (Vol. 22, Issue 1).
- Bayarçelik, E. B., Taşel, F., & Apak, S. (2014). A Research on Determining Innovation Factors for SMEs. *Procedia - Social and Behavioral Sciences*, 150, 202–211.
- Belasen, A., & Rufer, R. (2014). Innovation Communication and Inter- Functional Collaboration: A View from the Competing Values Framework for Corporate Communication. In N. Pfeffermann, T. Minshall, & L. Mortara (Eds.), *Strategy and Communication for Innovation* (pp. 227–240).
- Bell, E., Bryman, A., & Harley, B. (2018). *Business research methods* (5th ed.). Oxford University Press.
- Benhayoun, L., Le Dain, M. A., Dominguez-Péry, C., & Lyons, A. C. (2020). SMEs embedded in collaborative innovation networks: How to measure their absorptive capacity? *Technological Forecasting and Social Change*, 159(September 2019), 120196.
- Bertello, A., Ferraris, A., De Bernardi, P., & Bertoldi, B. (2022). Challenges to open innovation in traditional SMEs: an analysis of pre-competitive projects in university-industry-government collaboration. *International Entrepreneurship and Management Journal*, 18(1), 89–104.
- Besser, T. L., & Miller, N. (2011). The structural, social, and strategic factors associated with successful business networks. *Entrepreneurship and Regional Development*, 23(3–4), 113–133.
- Bhamra, R., Dani, S., & Bhamra, T. (2011). Competence understanding and use in SMEs: A UK manufacturing perspective. *International Journal of Production Research*, 49(10), 2729–2743.
- Bhandari, H., & Yasunobu, K. (2009). What is social capital? A comprehensive review of the concept. *Asian Journal of Social Science*, 37(3), 480–510.
- Bhaskar, R. (2008). A realist theory of science with a new introduction. In *Routledge*. Taylor & Francis Group.
- Bhuiyan, N. (2011). A framework for successful new product development. *Journal of Industrial Engineering and Management*, 4(4), 746–770.
- Bigliardi, B., & Galati, F. (2016). Which factors hinder the adoption of open innovation in SMEs? *Technology Analysis and Strategic Management*, 28(8),

- Blackburn, R. A., Hart, M., & Wainwright, T. (2013). Small business performance: business, strategy and owner–manager characteristics. *Journal of Small Business and Enterprise Development*, 20(1), 8–27.
- Bocconcelli, R., Cioppi, M., Fortezza, F., Francioni, B., Pagano, A., Savelli, E., & Splendiani, S. (2018a). SMEs and Marketing: A Systematic Literature Review. *International Journal of Management Reviews*, 20(2), 227–254.
- Bocconcelli, R., Cioppi, M., Fortezza, F., Francioni, B., Pagano, A., Savelli, E., & Splendiani, S. (2018b). SMEs and Marketing: A Systematic Literature Review. *International Journal of Management Reviews*, 20(2), 227–254.
- Borgatti, S. P., & Halgin, D. S. (2011). On Network Theory. *Organization Science*, 1–14.
- Bortoluzzi, S. C., Valmorbida, S. M. I., Ensslin, S. R., & Ensslin, L. (2016). Advantages of Joining a Network of Small and Medium Enterprises (SMES): National (Brazil) versus International Literature Review. *Revista Pretexto*, 17(3), 27–39.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Brettel, M., Heinemann, F., Engelen, A., & Neubauer, S. (2011). Cross-functional integration of R&D, marketing, and manufacturing in radical and incremental product innovations and its effects on project effectiveness and efficiency. *Journal of Product Innovation Management*, 28(2), 251–269.
- Breznik, L., & Hisrich, R. D. (2014). Dynamic capabilities vs. innovation capability: are they related? *Journal of Small Business and Enterprise Development*, 21(3), 368–384.
- Brown, A. (2014). Critical realism in social research: Approach with caution. *Work, Employment and Society*, 28(1), 112–123.
- Brunetto, Y., & Farr-Wharton, R. (2007). The moderating role of trust in SME owner/managers' decision-making about collaboration. *Journal of Small Business Management*, 45(3), 362–387.
- Brunswick, S., & Vanhaverbeke, W. (2015). Open Innovation in Small and Medium-Sized Enterprises (SMEs): External Knowledge Sourcing Strategies and Internal Organizational Facilitators. *Journal of Small Business Management*, 53(4), 1241–1263.
- Bryman, A., & Bell, E. (2011). *Business research methods*. Oxford University Press.
- Burns, P. (2016). *Entrepreneurship and small business : start-up, growth and maturity* (4th ed.). Bloomsbury Publishing.
- Cacciolatti, L. A., & Fearn, A. (2013). Marketing intelligence in SMEs: implications for the industry and policy makers. *Marketing Intelligence & Planning*, 31(1), 4–26.
- Cacciolatti, L., & Lee, S. H. (2015). *Entrepreneurial Marketing for SMEs*. Palgrave Macmillan UK.

- Calabrò, A., Vecchiarini, M., Gast, J., Campopiano, G., De Massis, A., & Kraus, S. (2019). Innovation in Family Firms: A Systematic Literature Review and Guidance for Future Research. *International Journal of Management Reviews*, 21(3), 317–355.
- Calantone, R., & Rubera, G. (2012). When should RD&E and marketing collaborate? The moderating role of exploration/exploitation and environmental uncertainty. *Journal of Product Innovation Management*, 29(1), 144–157.
- Camps, S., & Marquès, P. (2011). *Social capital and innovation : exploring intra-organizational differences*.
- Candi, M., Roberts, D. L., Marion, T., & Barczak, G. (2018). Social Strategy to Gain Knowledge for Innovation. *British Journal of Management*, 29(4), 731–749.
- Cappellini, G., Maggiorini, D., & Ripamonti, L. A. (2017). Supporting Team Work in Game Design. *Computers in Entertainment*, 15(1), 1–19.
- Carucci, R., & Velasquez, L. (2022). When Leaders Struggle with Collaboration. *Harvard Business Review*.
- Chang, Y.-Y., Hughes, M., & Hotho, S. (2011). Internal and external antecedents of SMEs' innovation ambidexterity outcomes. *Management Decision*, 49(10), 1658–1676.
- Cheikhrouhou, N., Piot, G., & Pouly, M. (2010). A multi-criteria model for the evaluation of business benefits in horizontal collaborative networks. *Journal of Intelligent Manufacturing*, 21(3), 301–309.
- Chesbrough, H. (2003). *The Era of Open Innovation*.
- Chesbrough, H. (2007). Business model innovation: It's not just about technology anymore. *Strategy and Leadership*, 35(6), 12–17.
- Chesbrough, H. (2010). Business model innovation: Opportunities and barriers. *Long Range Planning*, 43(2–3), 354–363.
- Chesbrough, H., Vanhaverbeke, W., & West, J. (2006a). Open Innovation: A New Paradigm for Understanding Industrial Innovation. *Open Innovation: Researching a New Paradigm*, 1–12.
- Chesbrough, H., Vanhaverbeke, W., & West, J. (2006b). *Open Innovation: Researching a New Paradigm*. Oxford University Press.
- Chesbrough, H. W. (2003a). *Open innovation : the new imperative for creating and profiting from technology*. Harvard Business School Press.
- Chesbrough, H. W. (2003b). Open Innovation. The new imperative for creating and profiting from technology. *Harvard Business School Press*, 234.
- Chesbrough, H. W., Vanhaverbeke, W., & West, J. (2006a). *Open innovation : researching a new paradigm*. Oxford University Press.
- Chesbrough, H. W., Vanhaverbeke, W., & West, J. (2006b). Xerox PARC. The Achievements and Limits of Closed Innovation. In *Open Innovation: Researching a New Paradigm* (Issue January).
<https://openinnovation.astrazeneca.com/>

- Churchill, N. C., & Lewis, V. L. (1983). The five stages of small business growth. *Harvard Business Review*, 61(3), 30–50.
- CIPD. (2014). Hands-On Or Hands-Off : Effective Leadership And Management In SMEs. *Chartered Institute of Personnel and Development, May 2014*, 1–44.
- Clercq, D. De, Thongpapanl, N., & Dimov, D. (2013). Getting more from cross-functional fairness and product innovativeness: Contingency effects of internal resource and conflict management. *Journal of Product Innovation Management*, 30(1), 56–69.
- Cohen, W., & Levinthal, D. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation Article. *Administrative Science Quarterly*.
- Colbert, B. A. (2004). The complex resource-based view: Implications for theory and practice in strategic human resource management. *Academy of Management Review*, 29(3), 341–358.
- Colclough, S. N., Moen, Ø., Hovd, N. S., & Chan, A. (2019). SME innovation orientation: Evidence from Norwegian exporting SMEs. *International Small Business Journal: Researching Entrepreneurship*, 37(8), 780–803.
- Collett, C., Graham, J., & Lindsay, J. (2019). *Innovative leaders and leading innovation. May*.
- Cooper, R. G. (2008). Perspective: The stage-gates® idea-to-launch process - Update, what's new, and NexGen systems. *Journal of Product Innovation Management*, 25(3), 213–232.
- Cooper, R. G., & Kleinschmidt, E. J. (1994). Determinants of timeliness in product development. *Journal of Product Innovation Management*, 11(5), 381–396.
- Creswell, J., & Creswell, D. (2018). *Research design : Qualitative, quantitative, and mixed methods approaches* (Salmon Helen (ed.); Fifth ed.). Sage Publications.
- Creswell, J. W. (2009). Research Design: Qualitative, Quantitative and Mixed Approaches (3rd Edition). In *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*.
- Criscuolo, P., Nicolaou, N., & Salter, A. (2012). The elixir (or burden) of youth? Exploring differences in innovation between start-ups and established firms. *Research Policy*, 41(2), 319–333.
- Dahlander, L., & Gann, D. M. (2010). How open is innovation? *Research Policy*, 39(6), 699–709.
- de Jong, J. P. j., & Hulsink, W. (2012). Patterns of innovating networking in small firms. *European Journal of Innovation Management*, 15(3), 280–297.
- De Jong, J. P. J., & Marsili, O. (2006). The fruit flies of innovations: A taxonomy of innovative small firms. *Research Policy*, 35(2), 213–229.
- de Oliveira, J., Escrivão, E., Nagano, M. S., Ferraudo, A. S., & Rosim, D. (2015). What do small business owner-managers do? A managerial work perspective. *Journal of Global Entrepreneurship Research*, 5(1).
- Delgado-Verde, M., Martín-De Castro, G., & Amores-Salvadó, J. (2016). Intellectual

- capital and radical innovation: Exploring the quadratic effects in technology-based manufacturing firms. *Technovation*, 54, 35–47.
- Delmar, F., & Wiklund, J. (2008). The effect of small business managers' growth motivation on firm growth: A longitudinal study. *Entrepreneurship: Theory and Practice*, 32(3), 437–457.
- Demirkan, I. (2018). The impact of firm resources on innovation. *European Journal of Innovation Management*, 21(4), 672–694.
- Denti, L., & Hemlin, S. (2012). Leadership and innovation in organizations: A systematic review of factors that mediate or moderate the relationship. *International Journal of Innovation Management*, 16(3), 1–20.
- Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *Leadership Quarterly*, 25(1), 36–62.
- Dossou-Yovo, A., & Keen, C. (2021). SMEs and the innovation management process: A multi-level process conceptual framework. *Technology Innovation Management Review*, 11(1), 22–33.
- Dufour, J., & Son, P.-E. (2015). Open innovation in SMEs : towards formalization of openness. *Journal of Innovation Management*, 3(3), 90–117.
- Dziurski, P., & Sopińska, A. (2020). Does industry matter? Drivers and barriers for open innovation in high-tech and non-high-tech industries—Evidence from Poland. *International Journal of Management and Economics*, 56(4), 307–323.
- Easterby-Smith, M., Jaspersen, L., Thorpe, R., & Valizade, D. (2021). *Management and Business Research* (7th ed.). SAGE Publications Ltd.
- Easterby-Smith, M., Thorpe, R., & Jackson, P. (2012). *Management research* (4th ed.). London : SAGE.
- Easterby-Smith, M., Thorpe, R., & Jackson, P. (Paul R. . (2008). *Management research: theory and research*. Sage Publications.
- Easton, G. (2010). Critical realism in case study research. *Industrial Marketing Management*, 39(1), 118–128.
- Edwards, P. K. (2014). *Studying organizations using critical realism: a practical guide* (O'Mahoney, Joe, S. Vincent, & OUP (eds.)). Oxford : Oxford University Press.
- Edwards, P., O'Mahoney, J., & Vincent, S. (2014). Studying Organizations Using Critical Realism: A Practical Guide. In *Oxford*.
- Edwards, T. (2017). SME INNOVATION : A CASE STUDY. *American Society for Engineering Management*.
- Edwards, T., Delbridge, R., & Munday, M. (2005). Understanding innovation in small and medium-sized enterprises: A process manifest. *Technovation*, 25(10), 1119–1127.
- Eggers, F., Kraus, S., Hughes, M., Laraway, S., & Snyckerski, S. (2013). Implications of customer and entrepreneurial orientations for SME growth. *Management*

- Decision*, 51(3), 524–546.
- Eiriz, V. (2020). Spatial proximity and SME strategy in local networks. *Journal of Business and Industrial Marketing*, 35(2), 338–348.
- Elliot, E. A., & Nakata, C. (2013). Cross-cultural creativity: Conceptualization and propositions for global new product development. *Journal of Product Innovation Management*, 30(SUPPL 1), 110–125.
- Eng, T. Y., & Ozdemir, S. (2014). International R&D partnerships and intrafirm R&D-marketing-production integration of manufacturing firms in emerging economies. *Industrial Marketing Management*, 43(1), 32–44.
- Enkel, E., Gassmann, O., & Chesbrough, H. (2009). Open R&D and open innovation: Exploring the phenomenon. *R and D Management*, 39(4), 311–316.
- European Investment Bank. (2022). Small and medium enterprises. Overview. In *European Investment Bank Group*.
- Fain, N., & Wagner, B. (2014). R&D-marketing integration in innovation – does culture matter? *European Business Review*, 26(2), 169–187.
- Fernández-Olmos, M., & Ramírez-Alesón, M. (2017). How internal and external factors influence the dynamics of SME technology collaboration networks over time. *Technovation*, 64–65(July 2016), 16–27.
- Ferreira, A. C., Pimenta, M. L., & Wlazlak, P. (2019). Antecedents of cross-functional integration level and their organizational impact. *Journal of Business and Industrial Marketing*, 34(8), 1706–1723.
- Ferrell, W., Ellis, K., Kaminsky, P., & Rainwater, C. (2020). Horizontal collaboration: opportunities for improved logistics planning. *International Journal of Production Research*, 58(14), 4267–4284.
- Forkmann, S., Henneberg, S. C., & Mitrega, M. (2018). Capabilities in business relationships and networks: Research recommendations and directions. *Industrial Marketing Management*, 74(August), 4–26.
- Forsman, H. (2011). Innovation capacity and innovation development in small enterprises. A comparison between the manufacturing and service sectors. *Research Policy*, 40(5), 739–750.
- Fox, S. (2012). Getting real about innovations: Formulating innovation descriptions that can reduce ontological uncertainty. *International Journal of Managing Projects in Business*, 5(1), 86–104.
- Franco, M., & Matos, P. G. (2015). Leadership styles in SMEs: a mixed-method approach. *International Entrepreneurship and Management Journal*, 11(2), 425–451.
- Frankel, R., & Mollenkopf, D. A. (2015). Cross-functional integration revisited: Exploring the conceptual elephant. *Journal of Business Logistics*, 36(1), 18–24.
- Garcia, R., Araújo, V., Gomes dos Santos, E., Mascarini, S., & Ribeiro Costa, A. (2017). Is cognitive proximity a driver of geographical distance of university-industry collaboration? A comprehensive analysis. *Regional Studies Association - RSA Annual Conference 2017 "The Great Regional Awakening:*

New Directions,” 1–20.

- Gausdal, A. H. (2015). Methods for Developing Innovative SME Networks. *J Knowl Econ*, 6, 978–1000.
- Gemser, G., & Leenders, M. A. A. M. (2011). Managing Cross-Functional Cooperation for New Product Development Success. *Long Range Planning*, 44, 26–41.
- Gibbs, G. (2012). Thematic Coding and Categorizing. *Analyzing Qualitative Data*, 38–55.
- Golmoradi, R., & Ardabili, F. S. (2016). The Effects of Social Capital and Leadership Styles on Organizational Learning. *Procedia - Social and Behavioral Sciences*, 230(May), 372–378.
- Gonzalez-Zapatero, C., Gonzalez-Benito, J., & Lannelongue, G. (2016). Antecedents of functional integration during new product development: The purchasing–marketing link. *Industrial Marketing Management*, 52, 47–59.
- Granovetter, M. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78(6), 1360–1380.
- Gray, D. E. (2014). *Doing research in the real world* (Third ed.). Sage Publications.
- Greenacre, P., Gross, R., & Speirs, J. (2012). *Innovation Theory: A review of the literature*. [http://www.imperial.ac.uk/media/imperial-college/research-centres-and-groups/icept/Innovation-review---ICEPT-working-paper-version-\(16.05.12\).pdf](http://www.imperial.ac.uk/media/imperial-college/research-centres-and-groups/icept/Innovation-review---ICEPT-working-paper-version-(16.05.12).pdf)
- Greener, S. (2008). *Business Research Methods*. Dr. Sue Greener & Ventus Publishing ApS.
- Greer, C. R., & Lei, D. (2012). Collaborative Innovation with Customers: A Review of the Literature and Suggestions for Future Research. *International Journal of Management Reviews*, 14(1), 63–84.
- Greiner, L. (1998). Evolution and Revolution As Organizations Grow. *Harvard Business Review*, 37–46. <https://hbr.org/1998/05/evolution-and-revolution-as-organizations-grow>
- Griffin, A., & Hauser, J. R. (1996). Integrating R & D and marketing: A review and analysis of the literature. *Journal of Product Innovation Management*, 13(3), 191–215.
- Gronum, S., Verreynne, M.-L., & Kastle, T. (2012). The Role of Networks in Small and Medium-Sized Enterprise Innovation and Firm Performance. *Journal of Small Business Management*, 50(2), 257–282.
- Gupta, A. K., Raj, S. P., & Wilemon, D. (1985). The R&D-marketing interface in high-technology firms. *The Journal of Product Innovation Management*, 2(1), 12–24.
- Gupta, H., & Barua, M. K. (2018). A novel hybrid multi-criteria method for supplier selection among SMEs on the basis of innovation ability. *International Journal of Logistics Research and Applications*, 21(3), 201–223.

- Gupta, V., MacMillan, I. C., & Surie, G. (2004). Entrepreneurial leadership: Developing and measuring a cross-cultural construct. *Journal of Business Venturing*, 19(2), 241–260.
- Haddad, M. I., Williams, I. A., Hammoud, M. S., & Dwyer, R. J. (2020). Strategies for implementing innovation in small and medium-sized enterprises. *World Journal of Entrepreneurship, Management and Sustainable Development*, 16(1), 12–29.
- Hadjimanolis, A. (2000). A resource-based view of innovativeness in small firms. *Technology Analysis and Strategic Management*, 12(2), 263–281.
- Hagedoorn, J., & Cloodt, M. (2003). Measuring innovative performance: Is there an advantage in using multiple indicators? *Research Policy*, 32(8), 1365–1379.
- Harland, P., & Nienaber, A. (2014). Solving the Matchmaking Dilemma Between Companies and External Idea Contributors. *Technology Analysis & Strategic Management*, 26(6), 639–653.
- Hausberg, J. P., & Leeflang, P. S. H. (2018). ABSORBING INTEGRATION: EMPIRICAL EVIDENCE on the MEDIATING ROLE of ABSORPTIVE CAPACITY between FUNCTIONAL-/CROSS-FUNCTIONAL INTEGRATION and INNOVATION PERFORMANCE. *International Journal of Innovation Management*, November.
- Hausman, W. H., Montgomery, D. B., & Roth, A. V. (2002). Why should marketing and manufacturing work together? Some exploratory empirical results. *Journal of Operations Management*, 20(3), 241–257.
- Hayton, J. (2015). Leadership and Management Skills in SMEs : Measuring Associations with Management Practices and Performance Non-technical report. *Department for Business Innovation & Skills*, 211, 40.
<https://www.gov.uk/government/publications/leadership-and-management-skills-in-small-and-medium-sized-businesses>
- Hempelmann, F., & Engelen, A. (2015). Integration of finance with marketing and R&D in new product development: The role of project stage. *Journal of Product Innovation Management*, 32(4), 636–654.
- Herbane, B. (2019). Rethinking organizational resilience and strategic renewal in SMEs. *Entrepreneurship and Regional Development*, 31(5–6), 476–495.
- Hervas-Oliver, J. L., Sempere-Ripoll, F., & Boronat-Moll, C. (2014). Process innovation strategy in SMEs, organizational innovation and performance: A misleading debate? *Small Business Economics*, 43(4), 873–886.
- Herzog, P. (2008). Open and Closed Innovation. *Springer*.
- Herzog, P. (2011). Open and Closed Innovation. *Gabler*, 2nd revise.
- Hoang, H., & Antoncic, B. (2003). Network-based research in entrepreneurship A critical review. *Journal OfBusiness Venturing*, 18, 165–187.
- Hoffman, K., Parejo, M., Bessant, J., & Perren, L. (1998). Small firms, R&D, technology and innovation in the UK: a literature review. *Technovation*, 18(1), 39–55.

- Holá, J. (2012). Internal communication in the small and medium sized enterprises. *E a M: Economie a Management*, 15(3), 32–45.
- Holzmann, V., & Golan, J. (2016). Leadership to Creativity and Management of Innovation? The Case of the “Innovation Club” in a Production Company. *American Journal of Industrial and Business Management*, 6(1).
- Homburg, C., Alavi, S., Rajab, T., & Wieseke, J. (2017). The contingent roles of R&D–sales versus R&D–marketing cooperation in new-product development of business-to-business firm. *International Journal of Research in Marketing Journal*, 34, 212–230.
- Homburg, C., & Jensen, O. (2007). The thought worlds of marketing and sales: Which differences make a difference? *Journal of Marketing*, 71(3), 124–142.
- Hossain, M. (2015). A review of literature on open innovation in small and medium-sized enterprises. *Journal of Global Entrepreneurship Research*, 5(1), 6.
- Hossin, M., Azam, S., & Hossain, S. (2023). Leadership In SMEs : A Review Of Different Leadership Styles And Their Relevance To Management. *Asian Journal of Management Entrepreneurship and Social Science*, 03(01), 70–92.
- Howard, T. L., Ulferts, G. W., & Hannon, J. (2019). Leadership Styles of Small Business Owners: Linking Theory to Application. *Journal of Leadership, Accountability and Ethics*, 16(2), 47–55.
- Huggins, R., & Thompson, P. (2015). Entrepreneurship, innovation and regional growth: a network theory. *Small Business Economics*, 45(1), 103–128.
- Huggins, R., & Thompson, P. (2017). Industry and Innovation Entrepreneurial networks and open innovation: the role of strategic and embedded ties Entrepreneurial networks and open innovation: the role of strategic and embedded ties. *Industry and Innovation*, 24(4), 403–435.
- Hughes, D. J., Lee, A., Tian, A. W., Newman, A., & Legood, A. (2018). Leadership, creativity, and innovation: A critical review and practical recommendations. *Leadership Quarterly*, 29(5), 549–569.
- Hynes, R., & Mickahail, B. K. (2019). Effective and Creative Leadership in Diverse Workforces. In *Effective and Creative Leadership in Diverse Workforces*. Springer International Publishing.
- Hysi, V. P. (2013). Romanian Economic and Business Review. *Romanian Economic and Business Review*, 9(2), 137–150.
- Ibarra, D., Bigdeli, A. Z., Igartua, J. I., & Ganzarain, J. (2020). Business model innovation in established SMEs: A configurational approach. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(3).
- Illés, B. C., Dunay, A., & Tatár, E. (2012). Lifecycle analysis at small and medium enterprises - theory and practice. *SMEs' Management in the 21st Century*, December 2016, 26–40.
- Iturrioz, C., Aragón, C., & Narvaiza, L. (2015). How to foster shared innovation within SMEs' networks: Social capital and the role of intermediaries. *European Management Journal*, 33(2), 104–115.

- Jenkins, H. (2006). Small business champions for corporate social responsibility. *Journal of Business Ethics*, 67(3), 241–256.
- Jeske, D., & Calvard, T. S. (2021). A review of the literature on cross-functional integration (2010–2020): trends and recommendations. *International Journal of Organizational Analysis*, 29(2), 401–414.
- Jespersen, K., Rigamonti, D., Jensen, M. B., & Bysted, R. (2018). Analysis of SMEs partner proximity preferences for process innovation. *Small Business Economics*, 51(4), 879–904.
- Jiang, X., Liu, H., Fey, C., & Jiang, F. (2018). Entrepreneurial orientation, network resource acquisition, and firm performance: A network approach. *Journal of Business Research*, 87(February), 46–57.
- Johnson, P., & Duberley, J. (2000). Introduction – The Importance of Epistemology in Management Research. In *Understanding Management Research : An Introduction to Epistemology* (pp. 7–15). London: Thousand Oaks: Sage Publications.
- Johnsson, M. (2017). Innovation Enablers for Innovation Teams - A Review. *Journal of Innovation Management*, 5(3), 75–121.
- Jones, N. (2009). SME's life cycle: Steps to failure or success? *Assumption University Journal*, 2(2), 3–13.
- Kahn, K. B. (2018). Understanding innovation. *Business Horizons*, 61(3), 453–460.
- Kamewor, T. F., Mohammed, J., & Teye, E. (2021). Effect of Social Capital on SMEs Performance : Does Innovation Matter ? *International Journal of Technology and Management Research* 6, 6, 21–37.
- Kammerlander, N., Burger, D., Fust, A., & Fueglistaller, U. (2015). Exploration and exploitation in established small and medium-sized enterprises: The effect of CEOs' regulatory focus. *Journal of Business Venturing*, 30(4), 582–602.
- Katzy, B., Turgut, E., Holzmann, T., & Sailer, K. (2013). Innovation intermediaries: A process view on open innovation coordination. *Technology Analysis and Strategic Management*, 25(3), 295–309.
- Kim, M., Song, J., & Triche, J. (2015). Toward an integrated framework for innovation in service: A resource-based view and dynamic capabilities approach. *Information Systems Frontiers*, 17(3), 533–546.
- Knoben, J., & Oerlemans, L. A. G. (2006). Proximity and inter-organizational collaboration: A literature review. *International Journal of Management Reviews*, 8(2), 71–89.
- Kong, T., Li, G., Feng, T., & Sun, L. (2015). Effects of marketing-manufacturing integration across stages of new product development on performance. *International Journal of Production Research*, 53(8), 2269–2284.
- Koo, H., & Park, C. (2018). Foundation of leadership in Asia : Leader characteristics and leadership styles review and research agenda. *Asia Pacific Journal of Management*, 35, 697–718.
- Kostopoulos, K., Spanos, Y., & Gregory, P. (2003). *The Resource – Based View of*

- Krackhardt, D. (2003). The Strength of Strong Ties : The Importance of Philos in Organizations. *Networks in the Knowledge Economy*, January.
- Kremer, H., Villamor, I., & Aguinis, H. (2019). Innovation leadership: Best-practice recommendations for promoting employee creativity, voice, and knowledge sharing. *Business Horizons*, 62(1), 65–74.
- Krishnan, R. T., & Jha, S. K. (2011). Innovation Strategies in Emerging Markets: What Can We Learn from Indian Market Leaders. *ASCI Journal of Management*, 41(1), 21–45.
- Kumar, K., Boesso, G., Favotto, F., & Menini, A. (2012). Strategic orientation, innovation patterns and performances of SMEs and large companies. *Journal of Small Business and Enterprise Development Measuring Business*, 19(2), 14–27.
- Kurdve, M., Bird, A., & Laage-Hellman, J. (2020). Establishing SME–university collaboration through innovation support programmes. *Journal of Manufacturing Technology Management*, 31(8), 1583–1604.
- Kylliäinen, J. (2018). *Innovation Strategy – What is it and how to develop one?* Viima. <https://www.viima.com/blog/innovation-strategy>
- Laforet, S. (2013). Organizational innovation outcomes in SMEs: Effects of age, size, and sector. *Journal of World Business*, 48(4), 490–502.
- Laforet, S., & Tann, J. (2006). Innovative characteristics of small manufacturing firms. *Journal of Small Business and Enterprise Development*, 13(3), 363–380.
- Landis, B. (2016). Personality and social networks in organizations: A review and future directions. *Journal of Organizational Behavior*, 37(1), 107–121.
- Laursen, K., & Salter, A. (2006). Open for innovation: The role of openness in explaining innovation performance among U.K. manufacturing firms. *Strategic Management Journal*, 27(2), 131–150.
- Lawson, B., & Samson, D. (2001). Developing Innovation Capability in Organisations: a Dynamic Capabilities Approach. *International Journal of Innovation Management*, 05(03), 377–400.
- Ledwith, A. (2014). Project management tools and techniques in high-tech SMEs in Ireland. *High Technology Small Firms Conference*, May.
- Lee, S., Park, G., Yoon, B., & Park, J. (2010). Open innovation in SMEs—An intermediated network model. *Research Policy*, 39(2), 290–300.
- Levitas, E., & Ndofor, H. (2006). What to Do With the Resource-Based View. *JOURNAL OF MANAGEMENT INQUIRY*, 15(2), 135–144 DOI:
- Levitt, T. (2002). Creativity is not Enough. *Harvard Business Review*, August, 137–146.
- Lewrick, M., Omar, M., & Williams, R. L. (2011). Market orientation and innovators' success: An exploration of the influence of customer and competitor orientation. *Journal of Technology Management and Innovation*, 6(3), 48–62.
- Li, P.-C., & Chen, Y.-C. (2012). How does social orientation influence R&D-

- marketing collaboration? *Asia Pacific Journal of Management*, 29, 151–168.
- Li, P.-C., & Chen, Y.-C. (2016). Exploring interaction-based antecedents of marketing-R&D collaboration: evidence from the Taiwan's semiconductor industry. *Innovation Management, Policy & Practice* ISSN:
- Lichtenthaler, U., & Lichtenthaler, E. (2009). A Capability-Based Framework for Open Innovation: Complementing Absorptive Capacity. *Journal OfManagement Studies*, 46(8), 1315–1338.
- Lin, F. J., & Lin, Y. H. (2016). The effect of network relationship on the performance of SMEs. *Journal of Business Research*, 69(5), 1780–1784.
- Lin, N. (2017). Building a Network Theory of Social Capital. *Social Capital*, 3–28.
- Lindgardt, Z., Reeves, M., Stalk, G., & Deimler, M. S. (2009). *Business Model Innovation When the Game Gets Tough, Change the Game*.
- Löfqvist, L. (2011). Managing resource scarcity in small enterprises' design processes. *ICED 11 - 18th International Conference on Engineering Design - Impacting Society Through Engineering Design*, 3(August), 164–175.
- Love, J. H., & Roper, S. (2015). SME innovation, exporting and growth: A review of existing evidence. *International Small Business Journal: Researching Entrepreneurship*, 33(1), 28–48.
- Lu, L. Y. Y., & Yang, C. (2004). The R&D and marketing cooperation across new product development stages: An empirical study of Taiwan's IT industry. *Industrial Marketing Management*, 33(7), 593–605.
- Madanchian, M., & Taherdoost, H. (2020). Role of Leadership in Small and Medium Enterprises (SMEs). *International Journal of Economics and Management System*, 2(January 2017), 240–243.
- Madhani, P. (2008). Resource Based View (RBV) of Competitive Advantage: Importance, Issues, and Implications. *Grou*, 23529(2), 1–45.
- Magodi, A. Y., Daniyan, I. A., & Mpofu, K. (2020). A cross-sectional pilot study on quality management system in the small and medium enterprise (Sme) in south africa. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 59, 1452–1463.
- Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *AISHE-J: The All Ireland Journal of Teaching and Learning in Higher Education*, 9(3).
- Mainemelis, C., Kark, R., & Epitropaki, O. (2015). Creative Leadership: A Multi-Context Conceptualization. *Academy of Management Annals*, 9(1), 393–482.
- Maltz, E., & Kohli, a. K. (2000). Reducing Marketing's Conflict with Other Functions: The Differential Effects of Integrating Mechanisms. *Journal of the Academy of Marketing Science*, 28(4), 479–492.
- Mann, S. (2016). The Research Interview. In *The Research Interview*.
- Marangos, S. (2011). Open innovation in the UK Biopharmaceutical Industry: A multi-layered Investigation. In *Proc. Int. Joint Conf. Biometrics*.

- Marlow, S., Taylor, S., & Thompson, A. (2010). Informality and formality in medium-sized companies: Contestation and synchronization. *British Journal of Management*, 21(4), 954–966.
- Massaro, M., Moro, A., Aschauer, E., & Fink, M. (2019). Trust, control and knowledge transfer in small business networks. *Review of Managerial Science*, 13(2), 267–301.
- Masurel, E., & Van Montfort, K. (2006). Life cycle characteristics of small professional service firms. *Journal of Small Business Management*, 44(3), 461–473.
- Mazzarol, T. (2014). Research review: A review of the latest research in the field of small business and entrepreneurship: Financial management in SMEs. *Small Enterprise Research*, 21(1), 2–13.
- Mendoza-Silva, A. (2020). Innovation capability: a systematic literature review. *European Journal of Innovation Management*, 24(3), 707–734.
- Menon, A., Jaworski, B. J., & Kohli, A. K. (1997). Product Quality: Impact of Interdepartmental Interactions. *Journal of the Academy of Marketing Science*, 25(3), 187–200.
- Mihai, L., Burlea Schiopoiu, A., & Mihai, M. (2017). Comparison of the leadership styles practiced by Romanian and Dutch SME owners. *International Journal of Organizational Leadership*, 6(1), 4–16.
- Miles, M. and Huberman, A. (1994). *Qualitative Data Analysis* (2nd ed.). Thousand Oaks, Sage.
- Mingers, J. (2006). Philosophical Foundations : Critical Realism. In *Realising System Thinking: knowledge and Action in Management Science* (pp. 11–31). Springer International Publishing.
- Moller, K., Partanen, J., Rajala, A., Westerlund, M., Rajala, R., & Svahn, S. (2005). Role of partnership and networks in SME innovation and growth. *The 21st Annual IMP Conference: Dealing with Dualities*.
- Muhos, M. (2014). Early stages of technology-intensive companies in Thailand and Finland Pekka Kess and Anyanitha Distanont Kongkiti Phusavat and Sitthinath Sanpanich. *International Journal of Economics and Business Research*, 7(2).
- Muller, P., Devnani, S., Julius, J., Gagliardi, D., & Marzocchi, C. (2016). Annual Report on European SMEs. *European Commission*, 110.
- Mumford, M. D., Zaccaro, S. J., Harding, F. D., Jacobs, T. O., & Fleishman, E. A. (2000). Leadership skills for a changing world. *The Leadership Quarterly*, 11(1), 11–35.
- Mumford, M., Medeiros, K., Steele, L., Watts, L., & Gibson, C. (2015). Leadership , creativity and innovation : An overview. In M. D. Mumford (Ed.), *Leadership, Creativity, and Innovation* (Issue March 2016). Sage.
- Mumford, M., Scott, G., Gaddis, B., & Strange, J. (2002). Leading creative people: Orchestrating expertise and relationships. *Leadership Quarterly*, 13(6), 705–750.

- Mumford, T., Campion, M. A., & Morgeson, F. P. (2007). The leadership skills strataplex: Leadership skill requirements across organizational levels. *Leadership Quarterly*, 18(2), 154–166.
- Nahapiet, J., & Ghoshal, S. (1998). Social Capital, Intellectual Capital, and the Organizational Advantage. *The Academy of Management Review*, 23(2), 242–266.
- Narula, R. (2004). R&D collaboration by SMEs: New opportunities and limitations in the face of globalisation. *Technovation*, 24(2), 153–161.
- Naudé, P., Zaefarian, G., Najafi Tavani, Z., Neghabi, S., & Zaefarian, R. (2014). The influence of network effects on SME performance. *Industrial Marketing Management*, 43, 630–641.
- Ng, H. S., & Kee, D. M. H. (2018). The core competence of successful owner-managed SMEs. *Management Decision*, 56(1), 252–272.
- Nguyen, N. P., Ngo, L. V., Bucic, T., & Phong, N. D. (2018). Cross-functional knowledge sharing, coordination and firm performance: The role of cross-functional competition. *Industrial Marketing Management*, 71(December 2017), 123–134.
- Nielsen, K., & Chisholm, A. M. (2009). Social capital and the resource-based view of the firm. *International Studies of Management and Organization*, 39(2), 7–32.
- Nieto, M. J., & Santamaría, L. (2007). The importance of diverse collaborative networks for the novelty of product innovation. *Technovation*, 27(6–7), 367–377.
- Nunes, P. M., Gonçalves, M., & Serrasqueiro, Z. (2013). The influence of age on SMEs' growth determinants: Empirical evidence. *Small Business Economics*, 40(2), 249–272.
- O'Mahoney, J., & Vincent, S. (2016). Critical Realism and Qualitative Research: An introductory Overview. In C. Cassell, Grandy (Ed.), *SAGE Handbook of Qualitative Research Methods*.
- O'Sullivan. (2008). Definition of Innovation. *Sage Publication*.
- OECD. (1997). SMALL BUSINESSES, JOB CREATION AND GROWTH: FACTS, OBSTACLES AND BEST PRACTICES. In *Organisation for Economic Co-operation and Development*.
<https://www.oecd.org/cfe/smes/2090740.pdf>
- OECD. (2018a). Promoting innovation in established SMEs. *SME Ministerial Conference, February*.
- OECD. (2018b). Strengthening SMEs and entrepreneurship for productivity and inclusive growth. *SME Ministerial Conference, KEY ISSUES PAPER, February*, 1–24.
- OECD. (2019). SME and Entrepreneurship Outlook 2019 Policy Highlights. *OECD Publishing*, 1–17.
- OECD. (2021). OECD SME and Entrepreneurship Outlook 2021. In *OECD SME*

and Entrepreneurship Outlook 2021.

- Oke, A., Burke, G., & Myers, A. (2007). Innovation types and performance in growing UK SMEs. *International Journal of Operations & Production Management*, 27(7), 735–753.
- Oke, A., Munshi, N., & Walumbwa, F. O. (2009). The Influence of Leadership on Innovation Processes and Activities. *Organizational Dynamics*, 38(1), 64–72.
- Oke, A., Prajogo, D. I., & Jayaram, J. (2013). Strengthening the Innovation Chain: The Role of Internal Innovation Climate and Strategic Relationships with Supply Chain Partners. *Journal of Supply Chain Management*, 49(4), 43–58.
- Olson, E. M., Walker Jr, O. C., Ruekert, R. W., & Bonner Professor, J. M. (2001). *Patterns of cooperation during new product development among marketing, operations and R&D: Implications for project performance*.
- Ong, B. K. (2012). Grounded Theory Method (GTM) and the Abductive Research Strategy (ARS): A critical analysis of their differences. *International Journal of Social Research Methodology*, 15(5), 417–432.
- Oparaocha, G. O. (2015). SMEs and international entrepreneurship: An institutional network perspective. *International Business Review*, 24(5), 861–873.
- Ouechtati, S., Masmoudi, K. K., & Slim, C. (2022). The impact of social capital on open innovation: The tunisian smes case. *International Journal of Innovation Management*, 26(1).
- Pagell, M. (2004). Understanding the factors that enable and inhibit the integration of operations, purchasing and logistics. *Journal of Operations Management*, 22(5), 459–487.
- Parry, M. E., & Song, X. M. (1993). Determinants of R&D-marketing integration in high-tech Japanese firms. *The Journal of Product Innovation Management*, 10(1), 4–22. [https://doi.org/10.1016/0737-6782\(93\)90050-Z](https://doi.org/10.1016/0737-6782(93)90050-Z)
- Pellathy, D. A., Mollenkopf, D. A., Stank, T. P., & Autry, C. W. (2019). Cross-Functional Integration: Concept Clarification and Scale Development. *Journal of Business Logistics*, 40(2), 81–104.
- Pellegrino, A. A. C. (2017). *Open Innovation in SMEs : a Process Model for Successful Implementation*.
- Penrose, E. . (1959). *The Theory of the Growth of the Firm*.
- Pereira, A., & Sequeira, J. (2008). Do R and D and marketing departments perceive innovation fundamentals through the same lenses? *IEMC-Europe 2008 - 2008 IEEE International Engineering Management Conference, Europe: Managing Engineering, Technology and Innovation for Growth*, 1–21. <https://doi.org/10.1109/IEMCE.2008.4617993>
- Pérez-Luño, A., Bojica, A. M., & Golapakrishnan, S. (2019). When more is less: The role of cross-functional integration, knowledge complexity and product innovation in firm performance. *International Journal of Operations and Production Management*, 39(1), 94–115.
- Pierre, A., & Fernandez, A.-S. (2018). Going Deeper into SMEs' Innovation

- Capacity: An Empirical Exploration of Innovation Capacity Factors. In *Journal of Innovation Economics* (Vol. 25, Issue 1).
- Pimenta, M. L., Silva, A. L. da, & Tate, W. L. (2016). Characteristics of cross-functional integration processes: Evidence from Brazilian organizations. *The International Journal of Logistics Management*, 27(2), 570–594.
- Pisano, G. (2016). You Need an Innovative Strategy. *Harvard Business Review*, June 2015, 44–54.
- Prabavathi, R., & Nagasubramani, P. C. (2018). Effective oral and written communication. *Journal of Applied and Advanced Research*, 3, S29–S32.
- Prats, J., & Agulles, R. (2009). Beyond Business Instinct. *IESE Insight*, 2009(1), 50–57.
- Priem, R., & Butler, J. (2001). Is the Resource-Based "View" a Useful Perspective for Strategic Management Research? *The Academy of Management*, 26(1), 22–40.
- Priya Dhamija Gupta, Guha, S., & Krishnaswami, S. S. (2013). Firm growth and its determinants. *Journal of Innovation and Entrepreneurship*, 2(15).
- Puccio, G. J., Marie Mance, A., & Acar, S. (2018). Creative leadership among executives and managers. In Michael Mumford & S. Hemlin (Eds.), *Handbook of Research on Leadership and Creativity* (p. 512). Edward Elgar Publishing LTD.
- Puech, L., & Durand, T. (2017). Classification of time spent in the intrapreneurial process. *Creativity and Innovation Management*, 26(2), 142–151.
- Pylypenko, H. M., Pylypenko, Y. I., Dubiei, Y. V., Solianyk, L. G., Pazynich, Y. M., Buketov, V., Smoliński, A., & Magdziarczyk, M. (2023). Social capital as a factor of innovative development. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(3).
- Qi, Y., Zhang, X., Hu, Z., Xiang, B., Zhang, R., & Fang, S. (2022). Choosing the right collaboration partner for innovation: a framework based on topic analysis and link prediction. In *Scientometrics* (Vol. 127, Issue 9). Springer International Publishing.
- Radicic, D. (2014). *The Effectiveness of R & D and Innovation Policy in Promoting Innovation in European SMEs : an Empirical Investigation of Additionality Effects* Dragana Radicic (Issue March).
- Radulescu, C., & Vessey, I. (2015). Methodology in Critical Realist Research: The Mediating Role of Domain Specific Theory. *AMCIS 2009 Proceedings*, 1–11.
- Randel, A. E., & Jaussi, K. S. (2019). Giving Rise to Creative Leadership: Contextual Enablers and Redundancies. *Group and Organization Management*, 44(2), 288–319.
- Rao, P., Kumar, S., Chavan, M., & Lim, W. M. (2023). A systematic literature review on SME financing: Trends and future directions. *Journal of Small Business Management*, 61(3), 1247–1277.
- Rao, S., & Perry, C. (2007). Action research for enterprise research. In D. Hine & D.

- Carson (Eds.), *Innovative methodologies in enterprise research* (pp. 124–136). Edward Elgar Publishing.
- Residegan, K. (2016). *Critical success factors for selecting ideas in front-end of SME*. 63.
- Riggs, W., & von Hippel, E. (1994). Incentives to innovate and the sources of innovation: The case of scientific instruments. *Research Policy*, 23, 459–469.
- Robertson-smith, G., & Markwick, C. (2009). *Employee Engagement A Review of Current Thinking*.
- Rosemann, M. (2012). The Three Drivers of Innovation - What is the Related BPM/EA Readiness? *IRM UK News*, 7.
- Rothkegel, S., Erakovic, L., & Shepherd, D. (2006). Strategic Alliances between SMEs and Large Firms: An Exploration of the Dynamic Process. *Management Revu*, 17(1), 50–71.
- Rubera, G., Ordanini, A., & Calantone, R. (2012). Whether to integrate R and D and marketing: The effect of firm competence. *Journal of Product Innovation Management*, 29(5), 766–783.
- Rubin, H. J., & Rubin, I. S. (2011). *Qualitative Interviewing: The Art of Hearing Data* (3rd ed.). SAGE Publications, Inc.
- Ryan, A., Tähtinen, J., Vanharanta, M., & Mainela, T. (2012). Putting critical realism to work in the study of business relationship processes. *Industrial Marketing Management*.
- Saebi, T., & Foss, N. J. (2015). Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions. *European Management Journal*, 33(3), 201–213.
- Sağ, S., Sezen, B., & Güzel, M. (2016). Factors That Motivate or Prevent Adoption of Open Innovation by SMEs in Developing Countries and Policy Suggestions. *Procedia - Social and Behavioral Sciences*, 235(October), 756–763. <https://doi.org/10.1016/j.sbspro.2016.11.077>
- Saguy, I. S., & Sirotinskaya, V. (2016). Open Innovation Opportunities Focusing on Food SMEs. In *Innovation Strategies in the Food Industry: Tools for Implementation*. Elsevier Inc.
- Saldana, J. (2012). *The Coding Manual for Qualitative Researchers*. SAGE Publications.
- Saldaña, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). Los Angeles : SAGE.
- Salomo, S., Weise, J., & Gemünden, H. G. (2007). NPD Planning Activities and Innovation Performance: The Mediating Role of Process Management and the Moderating Effect of Product Innovativeness. *Journal of Product Innovation Management*, 24(4), 285–302.
- Samson, D., Gloet, M., & Singh, P. (2017). Systematic innovation capability: evidence from case studies and a large survey. *International Journal of Innovation Management*, 21(7).

- Santamaría, L., Nieto, M. J., & Barge-Gil, A. (2009). Beyond formal R&D: Taking advantage of other sources of innovation in low- and medium-technology industries. *Research Policy*, 38(3), 507–517.
- Saunders, M., Lewis, P., & Thornhill, A. (2008). Research Methods for Business Students. In *Research methods for business students*. <https://doi.org/10.1007/s13398-014-0173-7.2>
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research Methods for Business Students* (Eighth Edi). Harlow, England : Pearson.
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2012). *Research methods for business students* (Sixth ed.). Pearson.
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). Understanding research philosophy and approaches to theory development. In *Research Methods for Business Students* (Issue January, pp. 128–171). Researchgate.Net.
- Sayer, A. (1992). Realism and Social Science. *Routledge*.
- Schneider, S., & Spieth, P. (2013). Business Model Innovation: Towards an Integrated Future Research Agenda. *International Journal of Innovation Management*, 17(01), 1340001. <https://doi.org/10.1142/S136391961340001X>
- Scott, M., & Bruce, R. (1987). Five stages of growth in small business. *Long Range Planning*, 20(3), 45–52.
- Sekaran, U., & Bougie, R. (2016). *Research Methods For Business: A Skill Building Approach* (Seventh ed). John Wiley & Sons, Ltd.
- Sethi, R., & Sethi, A. (2009). Can quality-oriented firms develop innovative new products? *Journal of Product Innovation Management*, 26(2), 206–221.
- Sethi, R., Smith, D. C., & Park, C. W. (2001). Cross-functional product development teams, creativity, and the innovativeness of new consumer products. *Journal of Marketing Research*, 38(1), 73–85.
- Seuring, S., & Gold, S. (2012). Conducting content-analysis based literature reviews in supply chain management. *Supply Chain Management*, 17(5), 544–555.
- Shane, S. (2000). *Prior knowledge and the discovery of entrepreneurial opportunities*.
- Shi, X., & Wu, Y. (2016). *The effect of internal and external factors on innovative behaviour of Chinese manufacturing firms*. http://ac.els-cdn.com/S1043951X16300955/1-s2.0-S1043951X16300955-main.pdf?_tid=841cf3ba-7cfa-11e7-b08d-00000aab0f26&acdnat=1502280285_81de328041f3d43eec98318c1747c192
- Singh, L. (2019). *Knowledge Based Approach to Support Innovation Processes in Small and Medium Sized Manufacturing Enterprises*. February.
- Smith, M., Busi, M., Ball, P., & Van Der Meer, R. (2008). Factors influencing an organisation's ability to manage innovation: A structured literature review and conceptual model. *International Journal of Innovation Management*, 12(4), 655–676.

- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104(March), 333–339.
- Song, L. Z., & Song, M. (2010). The Role of Information Technologies in Enhancing R&D–Marketing Integration: An Empirical Investigation. *Journal of Product Innovation Management*, 27(3), 382–401.
- Song, M., & Montoya-Weiss, M. M. (2001). The Effect of Perceived Technological Uncertainty on Japanese New Product Development Author (s): Michael Song and Mitzi M . Montoya-Weiss Source : The Academy of Management Journal , Feb ., 2001 , Vol . 44 , No . 1 (Feb ., 2001), Published by : Acade. *The Academy of Management Journal*, 44(1), 61–80.
- Spithoven, A., & Teirlinck, P. (2015). Internal capabilities, network resources and appropriation mechanisms as determinants of R&D outsourcing. *Research Policy*, 44(3), 711–725. <https://doi.org/10.1016/j.respol.2014.10.013>
- Spithoven, A., Vanhaverbeke, W., & Roijakkers, N. (2013a). Open innovation practices in SMEs and large enterprises. *Small Business Economics*, 41(3), 537–562.
- Spithoven, A., Vanhaverbeke, W., & Roijakkers, N. (2013b). Open innovation practices in SMEs and large enterprises. *Small Business Economics*, 41(3), 537–562.
- Sternberg, R. J. (2007). A systems model of leadership: WICS. *American Psychologist*, 62(1), 34–42.
- Strathclyde. (2013). *Code of Practice on Investigations Involving Human Beings*.
- Stutchbury, K. (2022). Critical realism: an explanatory framework for small-scale qualitative studies or an ‘unhelpful edifice’? *International Journal of Research and Method in Education*, 45(2), 113–128.
- Su, Z., Chen, J., & Wang, D. (2019). Organisational structure and managerial innovation: the mediating effect of cross-functional integration. *Technology Analysis and Strategic Management*, 31(3), 253–265.
- Swanson, E., Kim, S., Lee, S. M., Yang, J. J., & Lee, Y. K. (2020). The effect of leader competencies on knowledge sharing and job performance: Social capital theory. *Journal of Hospitality and Tourism Management*, 42(November 2019), 88–96.
- Swink, M., & Schoenherr, T. (2015). The effects of cross-functional integration on profitability, process efficiency, and asset productivity. *Journal of Business Logistics*, 36(1), 69–87.
- Talaja, A., Miočević, D., Alfirević, N., & Pavičić, J. (2017). Market Orientation, Competitive Advantage and Business Performance: Exploring the Indirect Effects. *Drustvena Istrazivanja*, 26(4).
- Tam, S., & Gray, D. E. (2016). The practice of employee learning in SME workplaces: A micro view from the life-cycle perspective. *Journal of Small Business and Enterprise Development*, 23(3), 671–690.
- Tang, K. N. (2019). Leadership and Change Management. In *Leadership and*

Change Management. Springer.

- Teddlie, C., & Tashakkori, A. (2009). *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences*. SAGE Publications.
- Teece, D., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509–533.
- Teirlinck, P., & Spithoven, A. (2013). Research collaboration and R&D outsourcing: Different R&D personnel requirements in SMEs. *Technovation*, 33(4–5), 142–153.
- Tendai, C. (2017). Networks and Performance of Small and Medium Enterprises (SMEs) in Different Stages of the Life Cycle: A Case Study of a Small Business in the Netherlands. *Journal of Communication*, 4(2), 89–94.
- Terziovski, M. (2010). The Effect of Firm Compensation Structures on the Mobility and Entrepreneurship of Extreme Performers. *Strategic Management Journal*, 31, 892–902.
- The Scottish Government. (2022). *Businesses in Scotland 2022 Methodology*. 1–22.
- Tian, L., Han, L., & Zhang, S. (2015). Business Life Cycle and Capital Structure: Evidence from Chinese Manufacturing Firms. *China and World Economy*, 23(2), 22–39.
- Ton, A. D., & Hammerl, L. (2021). Knowledge management in the environment of cross-functional team coepetition: A systematic literature review. *Knowledge and Performance Management*, 5(1), 14–28.
- Trott, P. (2008). *Innovation management and new product development*. Financial Times/Prentice Hall.
https://books.google.co.uk/books/about/Innovation_Management_and_New_Product_Development.html?id=9hv4GqUq1E0C&redir_esc=y
- Trotter, P. J., & Vaughan, J. (2012). Innovation in UK companies. An evaluation of the implementation of best practice in front end innovation processes and methodologies Innovation in UK companies. An evaluation of the implementation of best practice in front end innovation processes. *International Journal of Innovation Science*, 4(4), 191–204.
- Troy, L. C., Hirunyawipada, T., & Paswan, A. (2008). Cross-functional integration and new product success: an empirical investigation of the findings. *Journal of Marketing*, 72, 132–146.
- Turkulainen, V., & Ketokivi, M. (2012). Cross-functional integration and performance: What are the real benefits? *International Journal of Operations and Production Management*, 32(4), 447–467.
- Twyman, M., Newman, D. A., DeChurch, L., & Contractor, N. (2022). Teammate Invitation Networks: The Roles of Recommender Systems and Prior Collaboration in Team Assembly Marlon. *Soc Networks*, 68, 84–96.
- Van de Vrande, V., de Jong, J. P. J., Vanhaverbeke, W., & de Rochemont, M. (2009). Open innovation in SMEs: Trends, motives and management

- challenges. *Technovation*, 29(6–7), 423–437.
- Van Es, R., & Van Der Wal, H. (2012). INNOVATION IN SMEs: A RACE WITH NO FINISH LINE. *International Journal of Innovation Management*, 16(5).
- Vandenberg, P., Chantapacdepong, P., & Yoshino, N. (2016). SMEs in Developing Asia: New Approaches to Overcoming Market Failures. In *ASIAN DEVELOPMENT BANK INSTITUTE*.
- Vanhaverbeke, W. (2017). *Managing open innovation in SMEs*. Cambridge University Press.
<http://www.cambridge.org/gb/academic/subjects/management/entrepreneurship-and-innovation/managing-open-innovation-smes?format=HB&isbn=9781107073029#rmORw2iyXMzrs4bf.97>
- Vanhaverbeke, W., & Steen, M. (2016). Successful Open Innovation Involving SMEs : Network Structure and Network Coordination. *The XXVII ISPIM Innovation Conference – Blending Tomorrow’s Innovation*, June, 1–7.
- Vanhaverbeke, W., Vermeersch, I., & De Zutter, S. (2012). Open innovation in SMEs: How can small companies and start-ups benefit from open innovation strategies? *Information Management*, March, 1–99.
- Varis, M., & Littunen, H. (2010). Types of innovation, sources of information and performance in entrepreneurial SMEs. *European Journal of Innovation Management*, 13(2), 128–154.
- Vătămănescu, E. M., Cegarra-Navarro, J. G., Andrei, A. G., Dincă, V. M., & Alexandru, V. A. (2020). SMEs strategic networks and innovative performance: a relational design and methodology for knowledge sharing. *Journal of Knowledge Management*, 24(6), 1369–1392.
- Vincent, J., & O’Mahoney, S. (2014). Critical Realism as an Empirical Project. In and S. V. Paul K. Edwards, Joe O’Mahoney (Ed.), *Studying Organizations Using Critical Realism: A Practical Guide*. Oxford Scholarship.
- Vincent, S., & O’Mahoney, J. (2016). Critical Realism and Qualitative Research: An introductory Overview. In C. Cassell, Grandy (Ed.), *SAGE Handbook of Qualitative Research Methods*. SAGE.
- Visser, T., Chodokufa, K., Amadi-Echendu, A., & Phillips, M. (2019). SMALL business constraints: The influence of time. *Academy of Entrepreneurship Journal*, 25(4), 1–16.
- Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, 9(1), 31–51.
- Watson, J. (2007). Modeling the relationship between networking and firm performance. *Journal of Business Venturing*, 22(6), 852–874.
- Weber, B., & Heidenreich, S. (2018). When and with whom to cooperate? Investigating effects of cooperation stage and type on innovation capabilities and success. *Long Range Planning*, 51(2), 334–350.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171–180.

- West, J., & Bogers, M. (2014). Leveraging External Sources of Innovation : A Review of Research on Open Innovation *. *Journal of Product Innovation Management (Includes)*, 31(4), 814–831.
- West, J., & Gallagher, S. (2006). Open Innovation: The Paradox of Firm Investment in Open Source Software. *R&D Management*, 36(3), 319–331.
- Wignaraja, G. (2002). *Competitiveness Strategy in Developing Countries* (1st Editio). Routledge.
- Williams, M., & Moser, T. (2019). The Art of Coding and Thematic Exploration in Qualitative Research. *International Management Review*, 15(1), 45–55.
- Wilson, J. (2014). *Essentials of business research : a guide to doing your research project* (2nd ed.). Los Angeles : SAGE.
- Wiltshire, G., & Ronkainen, N. (2021). A realist approach to thematic analysis: making sense of qualitative data through experiential, inferential and dispositional themes. *Journal of Critical Realism*, 20(2), 159–180.
- Wolff, J., & Pett, T. (2006). Small-Firm Performance - Modeling the Role of Product and Process Improvements. *Journal of Small Business Management*, 44(6), 268–284.
- Wong, C. (2005). A Critical Realist Approach to Organizational Innovation Research. *The 4th International Critical Management Studies Conference*, 1–18.
- Wynarczyk, P., Piperopoulos, P., & Mcadam, M. (2013). Open innovation in small and medium-sized enterprises: An overview. *International Small Business Journal*, 31(3), 240–255.
- Xerri, M., Brunetto, Y., & Shacklock, K. (2009). The innovative behaviour of employees within SMEs: A social capital perspective. *Australian and New Zealand Management Conference (ANZAM)*, January.
- Yang, S. Y., & Tsai, K. H. (2019). Lifting the veil on the link between absorptive capacity and innovation: The roles of cross-functional integration and customer orientation. *Industrial Marketing Management*, 82(March 2018), 117–130.
- Yao, Q., Xu, M., Song, H., Jiang, W., & Zhang, Y. (2014). R&D-Marketing Integration and Performance—Evidence Provided by Agricultural Science and Technology Enterprises. *Journal of Service Science and Management*, 7, 18–29.
- Ye, P., Liu, L., & Tan, J. (2021). Creative leadership, innovation climate and innovation behaviour: the moderating role of knowledge sharing in management. *European Journal of Innovation Management*.
- Young, Lord. (2013). *Growing your business: a report on growing micro businesses*. May, 1–54.
- Yukl, G. (2012). *Leadership in Organizations Global Edition* (8th ed.). PEARSON.
- Zahoor, N., & Al-Tabbaa, O. (2020). Inter-organizational collaboration and SMEs' innovation: A systematic review and future research directions. *Scandinavian Journal of Management*, 36(2), 101109.

- Zawislak, P. A., Alves, A. C., Tello-Gamarra, J., Barbieux, D., & Reichert, F. M. (2012). Innovation capability: From technology development to transaction capability. *Journal of Technology Management and Innovation*, 7(2), 14–25.
- Zeng, S. X., Xie, X. M., & Tam, C. M. (2010). Relationship between cooperation networks and innovation performance of SMEs. *Technovation*, 30(3), 181–194.
- Zhang, Y., & Harvie, C. (2010). *Size still matters when firms choose business collaborators*. 1–11.
- Zhao, T., Yang, M., Cao, Z., & Wang, X. (2022). Understanding the Joint Impacts of Cognitive, Social, and Geographic Proximities on the Performance of Innovation Collaboration Between Knowledge-Intensive Business Services and the Manufacturing Industry: Empirical Evidence From China. *Frontiers in Psychology*, 13(April).

Appendix 1: Participant Information Sheet

Participant Information Sheet for Adoption of Open Innovation Interview

Name of department: Marketing

Title of the study: Open Innovation across functional boundaries

Introduction

My name is Gabriela Dlugolecka, and I am a PhD student at Strathclyde Business School. My academic supervisors are Beverly Wagner and John Liggat, both of whom are experienced collaborators with small and medium-sized enterprises (SMEs) and multi-nationals. It is a cross-disciplinary PhD between the Departments of Marketing and Pure & Applied Chemistry. I am a Polymer Scientist by background, with eight years of experience in industry. Previously, I worked as an Innovation Engineer, where I led large-scale projects of process change, from start-up ideas to product launch, at a consumer domestic appliance manufacturer in Poland. Latterly, in an R&D lab based in Scotland, I worked on achieving better quality products, with faster and cost-efficient production processes.

What is the purpose of this investigation?

The purpose of this research is to find out how Small and Medium-sized Enterprises operating in the plastics industry and based in Scotland, adopt and implement Open Innovation practices. In order to better understand the actual process of innovation, the researcher needs to investigate the following objectives:

- 1) To investigate and understand the strategy and mechanisms of SMEs when adopting OI.
- 2) To recognise who the key actors are in the OI process and what their motives are.
- 3) To explore the processes and relationship between R&D and the marketing department in the plastic sector in relation to open innovation strategies.

Do you have to take part?

Your decision to take part in this study is entirely voluntary, and you may withdraw at any time without giving a reason or penalty.

What will you do in the project?

To investigate this problem, you will be required to participate in a face-to-face interview. All interviews will last between 30 and 90 minutes. You will be asked for permission for the interviews to be recorded. This will help with the conversation flow and also will reduce the risk of misinterpreting you, as transcribed data will be stored and available for you at any time for checking. Furthermore, if the question is not clear and/or understandable, you can ask for clarification. From the other perspective, if your answer is too broad, you need to be ready to answer follow-up questions.

The interviews will be scheduled in a time period and place that suits both of us.

The participant may be contacted for subsequent interviews.

There is no payment provided for this interview.

Why have you been invited to take part?

Participants chosen for this study are individuals with knowledge and experience about the innovation process who are involved in the innovation process or are in charge of innovation within their firm. Participants should also be over the age of 18 years old.

What are the potential risks to you in taking part?

There is no personal safety risk to you in taking part in this interview. Also, as mentioned before, you may withdraw at any time without giving a reason. Additionally, participant profiles and all gained data will be anonymous and confidential to protect your dignity, rights, safety and well-being.

What happens to the information in the project?

This study is a part of a PhD thesis, and the results of this research will be used to complete it. Your participation in this project is voluntary and will be confidential. All data will be stored securely in password-protected files/devices for 5 years. After this period, all data will be destroyed. The only things we will keep will be identifying codes, as some participants may return for follow-up research.

You can withdraw your data from the project up to the point of anonymisation. After this point, there is no possibility to withdraw your data.

The University of Strathclyde is registered with the Information Commissioner's Office, which implements the Data Protection Act 1998. All personal data on participants will be processed in accordance with the provisions of the Data Protection Act 1998.

Thank you for reading this information – please ask any questions if you are unsure about what is written here.

What happens next?

If you are happy to take part in this study, you will be required to complete and sign a consent form confirming this.

If you do not want to be involved in this research, thank you very much for your time.

If you are interested in getting feedback from this study, the report will be provided to you.

Researcher contact details:

Gabriela Dlugolecka
PhD student
gabriela.dlugolecka@strath.ac.uk
Strathclyde Business School
University of Strathclyde
199 Cathedral Street
Glasgow, G4 0QU

Chief Investigator details:

Dr Beverly Wagner
Reader in Marketing
beverly.wagner@strath.ac.uk
Strathclyde Business School
University of Strathclyde
199 Cathedral Street
Glasgow, G4 0QU
+44(0)141 548 3246

This investigation was granted ethical approval by the University of Strathclyde Ethics Committee.

If you have any questions/concerns, during or after the investigation, or wish to contact an independent person to whom any questions may be directed or further information may be sought from, please contact:

Secretary to the University Ethics Committee
Research & Knowledge Exchange Services
University of Strathclyde
Graham Hills Building
50 George Street
Glasgow
G1 1QE

Telephone: 0141 548 3707
Email: ethics@strath.ac.uk

Appendix 2: Interview Protocol

Orientation Phase

'Thank you for agreeing to participate in this study; the main aim of this research is to investigate the opportunities to grow for a small and medium-sized enterprises; I would like to analyse the growth through exploring the innovation and open innovation activities and the engagement of different functions in those practices in the context of your firm; the emphasis is place on the initial stage of innovation process;

'Do you mind audio recording our interview?'

Substantive Phase

Section 1: Warm-up question

This section aims to understand the interviewee's background and experience.

Q1: Could you please briefly tell me about the company background? (i.e. what are you producing? How did everything start?, etc.) (**Question ONLY for the owner**).

Q2: Could you please tell me about yourself, your background, experience and the current role in the company?

Section 2: Understanding Innovation & its initiatives.

This section aims to understand innovation from both the individual and departmental point of view; as well as the main motives that push the firm to think of innovation; and the main initiatives or approaches that the firm is undertaking to encourage employees to take part in innovation projects. Also, it will help to explore the engagement of different functions in the innovation process.

Q1: Could you please describe the last major change within your company?

Would you consider this change to be an innovation?

Q2: What does the term innovation mean to you?

Q3: What is the trigger for your company to innovate?

Q4: How is innovation encouraged and managed at the firm (from the top management)?

Here, the innovation process model is shown.

Q5: Now, more deeply. Could you explain to me, please, how the actual innovation process looks at your company (based on your experience)? What I mean by that is, how your firm generates innovative ideas, what kind of evaluation process do you have for those ideas, and what the new product development stage and commercialisation stage look like? How you've done your market analysis?, etc.

Q6: With regards to internal collaboration, how do the employees engage in the innovation process? What is the role of every function/department in the innovation process?

Q7: What does this collaboration look like, how it is managed and encouraged within the company?

Q8: What kind of barriers and challenges do you face when innovating (in which moment, how do you solve the problem?)?

Section 3: Understanding Open Innovation & its initiatives

This section aims to explore the awareness of the firm in terms of external collaboration, open innovation and the general understanding of the concept; as well as the main motives/triggers that push the firm to think of open innovation and the main initiatives or approaches that the firm is undertaking to adopt these practices.

Q1: Within the company, what are the main motives to engage in external collaboration?

Q2: What type of external organisations does your firm collaborate with and why?

Q3: Who at your firm participates in external collaboration, and what are their roles?

Q4: We have been talking about external collaboration. I would like to know your understanding of the concept of open innovation?

Q5: How does your firm engage in open innovation activities? (Is the firm looking for solutions or wants to provide them?)

Q6: Do you consider innovation as a strategy?

Q7: What kind of barriers and challenges do you face when adopting OI?

Section 4: Innovation/Open Innovation facilitating factors and expected outcomes.

This section aims to identify the expected outcomes of innovation and open innovation from the firm side.

Q1: Based on your experience, do you think that innovation is beneficial for the company? In what context?

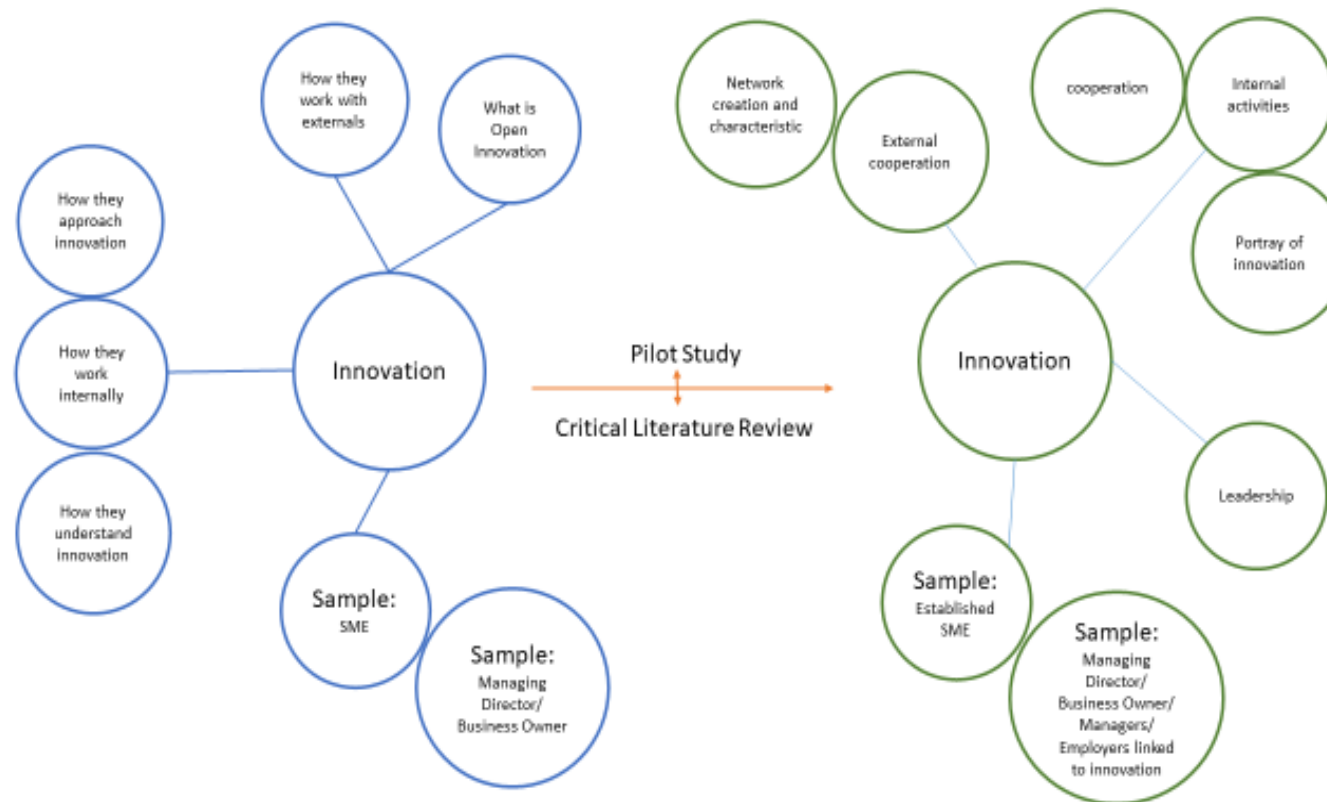
Q2: Same about OI. Based on your experience, do you think that engaging with external partners in open innovation activities is beneficial for the company? Why yes or no?

Q3: What do you generally expect from innovation and from engaging in open innovation activities in terms of outcomes? Are the expected outcomes the same as the actual ones?

Closure Phase

‘Thank you very much for your time and for agreeing to meet today. Do you have any questions or would you like to add anything? The interview will be transcribed, and you will be anonymised in the final script. Would you like to see a copy of the transcript? Would you like to see a summary of the research findings?’

Appendix 3: Interim Review -Mind Map



Appendix 4: List of Collaborators

Public sector organisations	BG, SE, SMAS, WES, Interface, Innovate UK, Universities (KTP, Chemistry Clinic), ARFC, CEED, SFRC	Consultancy	<i>"We also had some business consultants from the Scottish Enterprise (SE), and we did what was called proof of market exercise" (SME2E1).</i> <i>"We've had a lot of support with the Strathclyde advisory and how we do it" (MD5).</i> <i>"I was at Business Gateway (BG) first, and then I got referred on to SE. I have a Business Gateway adviser who has been very proactive" (MD4).</i>
		Networking	<i>"If you have a specific project, give it to Interface, they'll go and reach out to all universities and see who has expertise or areas of fields of knowledge or study in this area. One of the ones recently we did was aerodynamics" (SME2E1).</i> <i>"I cannot advocate enough how much support we've had from Strathclyde. We've been able to work right across different faculties in and around Strathclyde. We have been approached by the head of Carbon at Edinburgh University because of the work we do, because it's so crossed industry" (MD5).</i> <i>"The other thing and the other people you should speak to is the SMARTs team at Scottish Enterprise" (MD5).</i> <i>"I work a lot with WES (Women's Enterprise Scotland). I am heavily involved in a lot of the local women's business networking community and that sort of thing, so not necessarily from a production side of things, but from a business side of things" (MD4).</i>
		Finance support	<i>"We used to use Scottish Enterprise if we needed external help, we would tend to contact them...to source grants that would help us with that because we're quite a small company" (MD2).</i> <i>"The project was part founded by the Technology Strategy Board which is now Innovate UK. So this was kind of a founded...but it also had a lot of academic engagement" (SME2E1).</i> <i>"I had nibble around the ages before with academic institutions just under a very small first steps grant, it's about 5 thousand pounds that allow you access to a department. I had had Literature review done, I had a very small project with a final year student at Glasgow University engineering department" (MD1).</i>

		Research <i>“First through the Chemistry Clinic (at Strathclyde University) we had a project which is been in part to support the new coating system, looking at new ways of analysing the raw materials coming for that which I think is quite innovative as well. The final year student got to work on that, did very well, and we have some very interesting results out of it” (SME1E1).</i> <i>“So with the KTP (Knowledge Transfer Partnership) that was a first commitment by the business to invest in a change in an actual product itself. And it was to develop an alternative coating” (MD1).</i> <i>“Our work with SFRS (Scottish Fire and Rescue Service) has just underpinned all that for us. When we looking at funding cause and we do things, if the IP needs to lie with the SFRC we don't care. If IP needs to lie with us, we don't care. We just care that it happens and that it seats with the right person”(MD5).</i> <i>“We use the universities for research” (SME2E3).</i> <i>“We are partnered with people who are very shaped in their approach, and so are, like our first big industry partner in that was the AFRC (Advanced Forming Research Centre)” (MD5).</i> <i>“So we worked with Strathclyde, we’ve done some stuff with Glasgow, we’ve done a lot of stuff in the recent and pass with Napier. And we also done some stuff, initially once we have went through the kind a original market research with Napier, we then actually engage with the West of Scotland University and they came in with some concepts and ideas and stuff like that. So we do work with them, we always have” (SME2E1).</i>
	General knowledge (for companies – in form of seminars, workshops)	<i>CEED offered a course called Growth 500...it was all about how small companies innovate, or the barriers to innovation, how things can help. Some were dull about legal stuff how small companies operate but other things were interesting, how small companies engaging in social media and what they can do for a small companies”(SME1E1).</i> <i>“We have been working with SMAS when we're first getting started. Scottish Manufacturing came in and learned all our processes and held a series of workshops with our production manager in how we can make the processes more efficient. It was learning a lot about where are we wasting time” (MD4).</i>

Private sector organisations	Suppliers	Specialised knowledge	<i>“We are industry-reliant so we would go to our supplier for industry knowledge” (SME2E3).</i>
	Customers	Innovative ideas	<i>“We also developed a sandwich panel. Everybody can do a sandwich panel, but we were able to manufacture a rounded sandwich panel. In theory, in physics, you cannot do that. However, we did. We did it for a Danish company that wanted a wind turbine” (MD3).</i>
	Other firms	Service, knowledge	<i>“We are working with two external consultants. One has mechanical, electrical and robotic experience. They integrators. But we also work with a company that deals with dangerous and explosive atmospheres. So, ATEX ratings and how to calculate solvent evaporation periods and things like that” (MD1).</i>

Appendix 5: Member Checking Coding Exercise

This form is a coding exercise to check the coding of the qualitative study.

Innovation is a complicated concept that demands substantial resources (Guo et al., 2017). This study aims to explore and examine the innovative practices of established small and medium-sized enterprises (SMEs). Consequently, for SMEs, which are often constrained by limited resources, the key to fostering innovation lies in boosting their innovation capacity. Researchers assert that managerial expertise, internal organisational factors, and external relationships all play pivotal roles in a firm's innovation capabilities. Therefore, this study investigates leadership approaches, cross-functional integration, and inter-organisational collaboration as determinants of SMEs' innovative capabilities (Pierre & Fernandez, 2018; Mendoza-Silva, 2020).

This exercise is divided into three parts as follows:

PART 1 Leadership Approach

1.1 Please arrange the appropriate leader traits and characteristics under the corresponding leader competencies.

<i>Leader Competencies</i>	<i>Definition</i>	<i>Traits / Characteristics</i>
<i>1. Personal</i>	These competencies are closely linked to a leader's decision-making abilities and resemble personality traits.	External resource management Determination Delegation
<i>2. Interpersonal</i>	Interpersonal competencies are highlighted in their interactions, communications, and collaborations with others.	Customer orientation Expertise Self-awareness Exploring opportunities
<i>3. Business</i>	The knowledge and skills required in business to recognise and exploit opportunities to make the company more competitive and effective.	Encouragement Internal resource management Creativity Valuing people Market orientation Supportiveness

ANSWER:

1. Personal:

2. Interpersonal:

3. Business:

1.2 Please match the suitable leader competencies to the quotes below according to the definition provided in the above table.

Please write 1 to 3 in the provided space.

“Be better than everybody else in the factory and learn all aspects of the job. And that’s what I did, learn everything (...) through experience”

ANSWER:

“If somebody comes up with the idea, I want them to be able to lead that project then but involve departments because we are used to working together. So, if you have an idea that you think will work, I will support you, talk, and allocate the resources that you need”

ANSWER:

“I looked back at the product (...) Solved all the issues with the production process. (...) and I am back to an old product but with a different manufacturing method. I will call that innovation, taking an idea and rehashing it and being innovative with a production process “

ANSWER:

“It was getting back to that mindset of if we innovate and if we look forward, we need to not only enter new markets but protect existing markets. If we cannot sell this in America, the risk might be that Europe might ban it as well. (...) So what could stop us from existing?”

ANSWER:

“We do target marketing, so we send them to the areas (our product) where we think they can be used, and we also do a scatter graph (plot) marketing, where we put an advert in a railways magazine, a health and safety magazine, saying that we are solving problems”

ANSWER:

“She has brought in a lot of different resources to help us achieve”

ANSWER:

“Although Dave and I have the most experience in that area, we are willing to let our team feel they can have that experience, too. Therefore, whoever has an innovative idea is the first to lead the project, and the rest of us back them up”

ANSWER:

PART 2: Cross-Functional Integration.

2.1 Please arrange the appropriate behaviours and actions under the corresponding cross-functional integration type.

<i>Cross-Functional Integration</i>	<i>Definition</i>	<i>Behaviours/Actions</i>
<i>1. Communication</i>	Information flow mechanisms include the exchange, transmission, and processing of information.	Joint Involvement Communication Coordination
<i>2. Collaboration</i>	Achieving common goals through joint efforts.	Interaction
<i>3. Coordination</i>	It involves integrating activities across various functional areas. It necessitates the sequencing and timing of such activities.	Knowledge Sharing

ANSWER:

1. Communication:

2. Collaboration:

3. Coordination:

2.2 Please match the suitable type of integration factors to the quotes below according to the definition provided in the above table.

Please write 1 to 3 in the provided space.

“At the moment, I am really the pivot where everything goes around. So, production staff will come if we have a problem (...), I will pick up on it, and I will raise it with others (...) to see the best way of resolving it. Then (...) I will take it back to the production to look and see if they are happy with the solution I am proposing”

ANSWER:

“It is quite good that I look after the research and development and supply chain function, but I am also very aware of other areas as I sit at the sales and marketing meetings, as do some of the guys in the room. We understand what is happening across the business. We have a holistic approach to looking at the business and understanding what goes on in the business”

ANSWER:

“One of the things we tend to do quickly when we have an issue is bring everyone down, and we literally thrash it out on the whiteboard, cover some ideas, and then basically go away and do that. The challenge is ensuring you are sitting down to discuss the main things”(SME2E1).

ANSWER:

PART 3: Inter-Organisational Collaboration.

A. Driving Forces for External Collaboration

3.1 Please arrange the appropriate factors under the corresponding driving forces.

<i>Driving Forces</i>	<i>Definition</i>	<i>Factors</i>
<i>1. Internal Constraints</i>	The lack of necessary resources is hindering the advancement of the innovation process.	Proof of Market Demand Environment Time Financial Capital
<i>2. Validation</i>	SMEs form relationships with external organisations to demonstrate demand, understand the market, or support their product claims.	Society Skills, Expertise, and Knowledge Appropriate Networks
<i>3. Corporate Social Responsibility (CSR)</i>	Refers to the methods through which companies aim to positively impact the society and communities in which they are active.	Support of Claims

ANSWER:

1. Internal Constraints:

2. Validation:

3. Corporate Social Responsibility (CSR):

3.2 Please match the suitable type of driving force to the quotes below according to the definition provided in the above table.

Please write 1 to 3 in the provided space.

“It is really that simple for us. Does it benefit a person? Does not need to be us. Does it benefit people? Does it benefit the environment? That is why we collaborate”

ANSWER:

“We then moved to how we get what we want if we do not have the knowledge ourselves. Who can help us? That leads to a long search for whether we should just hire somebody or try to look into it ourselves. Which person will give us the skills? Is one person enough? How much can we afford to pay?”

ANSWER:

“Once we have done in-house testing, we submit our products for external analytical and practical tests to ensure that what and how we expect is happening is actually happening”

ANSWER:

B. Facilitators of External Collaboration

3.3 Please arrange the appropriate factors under the corresponding facilitators of external collaboration.

<i>Facilitators of External Collaboration</i>	<i>Definition</i>	<i>Factors</i>
<i>1. Partners' Attitudes and Perceptions</i>	This group of attributes is designed to facilitate small businesses' interactions with their partners.	Comparable size Appropriate partner Previous Experience Knowing Your Needs / Managing Your Expectations
<i>2. SMEs' Attitudes and Perceptions</i>	In this category, small and medium-sized enterprises recognise their attributes that make it easier for them to collaborate with other entities.	Mutual understanding

ANSWER:

1. Partners' Attitudes and Perceptions:

2. SMEs' Attitudes and Perceptions:

3.4 Please match the suitable type of facilitators to the quotes below according to the definition provided in the above table.

Please write 1 to 2 in the provided space.

“We probably get better results from companies that are similar in size. (...) We are more part of their life if we are the same kind of size”

ANSWER:

“I think everyone's expectation is always higher, and what the reality is it always probably ends up a bit lower. I think that the key to setting expectations and one of the big things is learning. Learning from what you get... and it is always a learning curve”

ANSWER:

C. Factors Impeding External Collaboration

3.5 Please arrange the appropriate factors under the corresponding barriers of external collaboration.

<i>Barriers to External Collaboration</i>	<i>Definition</i>	<i>Factors</i>
<i>1. Collaborator Size</i>	Refers to the customs, behaviours, and operational methods that a company's size influences.	Time Scale Job Rotation / Politics Right Person/ Champion Bureaucracy / Communication
<i>2. Collaborator Personality/Culture</i>	The suitable traits of an ideal collaborator.	Culture Cost of Service

ANSWER:

1. Collaborator Size:

2. Collaborator Personality/Culture:

3.6 Please match the suitable type of external collaboration barriers to the quotes below according to the definition provided in the above table.

Please write 1 to 2 in the provided space.

“Scottish Enterprise, for example, you can tick all the boxes because the boss likes exporting and then if the new boss comes in and says, ‘No, the future is in medical technology’, then you no longer fit there. The politics. That is luck, the right place, and the right time”

ANSWER:

“At the moment, with some of the OEMs, we are getting a really good interest because we got people who believe and have used the products. But I think we move on, and they get somebody who does not know anything about our product; it will not champion it as much”

ANSWER: