

**School of Management and Marketing**

**A Composition-Based View of Organizational Ingenuity: Empirical  
Evidence from SMEs in India**

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**This thesis is presented for the Degree of  
Doctor of Philosophy  
of  
Curtin University**

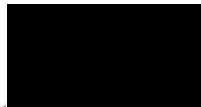
**September 2022**

## DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number HRE2018-0797

Signature: .....  .....

24<sup>th</sup> September 2022

Date: .....

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## DEDICATION

To Allah s.w.t

To *me* who always wonder if I could ever make it in this world, still am.

For my Ibu and Baba

For Mame, Mimo, Ahda and Ahdia

For Poci

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# ABBREVIATIONS

**CBV** Composition-based view

**CHAIN-D capabilities** Combinative, hardship-surviving, absorptive, intelligence, networking, dynamic

**GDP** Gross domestic product

**INR** Indian Rupees

**IP** Intellectual property

**MNE** Multinational enterprise

**MSMEs** Micro, small, and medium enterprises

**OI** Organizational ingenuity

**SME** Small-medium enterprise

**STORM conditions** Social, technological, organisational, regulatory, market

## **ABSTRACT**

This thesis explores the relatively new concept of organizational ingenuity through a composition-based view (CBV) theory lens. The key question of this study is: how do firms without resource advantage, impeded by institutional constraints, compete against resourceful and powerful firms? A qualitative approach using exploratory case studies was adopted in this research. Data were collected from 12 case studies, consisting of 24 participants (two for each case), using a semi-structured interview method. Twelve small-medium enterprises (SMEs) based in India from automotive, education, information technology, pharmaceutical, and manufacturing industries were approached to ensure the robustness of the data collected in this study. Both within-case and cross-case analyses were carried out and the interview data analysed with the assistance of NVivo software.

This thesis begins by establishing an understanding of the perceived importance of organizational ingenuity to SMEs in an emerging economy. A CBV theory lens is implemented to understand overlapping similarities of the novel solutions developed by firms, using generic resources to overcome challenges of limited resources and institutional constraints. In this thesis, a CBV provides a contemporary view of organizational ingenuity which is presented as the creative integration of compositional strategy, capabilities, and processes. Based on findings, sub-patterns related to organizational ingenuity were identified: (1) motivation to be a market leader; (2) vital to overcome challenges; (3) the act of improvising; and (4) finding an edge to gain a competitive advantage. A novel finding on frugal innovation achieved with organizational ingenuity is also discussed in this thesis.

A series of factors and conditions, identified as 'STORM conditions' (social, technological, organisational, regulatory, and market), are analysed as forces that compel firms in an emerging economy to pursue organizational ingenuity. This thesis argues that specific conditions are the antecedents inducing firms to turn to creative problem solving when under constraints. 'CHAIN-D capabilities' of combinative, hardship-surviving, absorptive, intelligence, networking, and dynamic capabilities are distinguished as a set of capabilities SMEs develop to create ingenious solutions. This study demonstrates that a creative composition of generic resources and CHAIN-D capabilities is essentially an organizational ingenuity mechanism. To fill the research gap, a conceptual framework is presented in this thesis, based on the literature review on organizational ingenuity. A refined framework of organizational ingenuity, from the perspective of a CBV theory lens, is outlined to enrich relevant theoretical understanding of organizational ingenuity.

This thesis makes theoretical contributions to existing literature and has practical implications. The first theoretical contribution highlights the advancement of existing literature on

organizational ingenuity through a CBV strategy. The use of CBV as a theoretical lens provides an insight into the unique creative composition of generic resources. The second theoretical contribution is the understanding of organizational ingenuity, specifically for SMEs in the emerging economy context of India. The investigation of organizational ingenuity in this thesis is specifically narrowed to focus on SMEs within the institutional context of India. The third contribution related to this study defines the specific conditions that compel SMEs in India to pursue organizational ingenuity. The existing literature on organizational ingenuity calls for further research defining the specific constraints which trigger firms to attain organizational ingenuity. Finally, this thesis makes theoretical contributions in providing an overview of the development of capabilities relevant to achieving organizational ingenuity.

Several practical implications important to different stakeholders, such as governments and firms, are also highlighted in this study. Firstly, the study sets out the specific constraints, including institutional constraints and limited resources, which can influence creative problem-solving processes. Secondly, the study identifies the importance of the creative problem-solving process of organizational ingenuity, highlighting the motivation for SMEs to overcome the challenging conditions of an emerging economy. The third practical implication for SMEs is the provision of a framework for establishing the concept of organizational ingenuity. The framework provides a holistic picture of SMEs in an emerging economy, in relation to relevant scenarios such as conditions, strategy, capabilities, and processes required when attaining organizational ingenuity.

# Chapter 1: Introduction

## 1.1 Chapter overview

Chapter 1 provides an overview of this thesis on the study of organizational ingenuity through a composition-based view (CBV) theory lens. This chapter introduces the main themes and concepts associated with organizational ingenuity. An introduction to organizational ingenuity is provided to contextualise this study. This chapter continues with background information on the research settings and scope. Next, the research questions and objectives are discussed. The chapter also introduces key terms and definitions included in this study. Finally, the structure of the thesis is presented to provide a roadmap for the study of organizational ingenuity.

## 1.2 Introduction of organizational ingenuity

Creativity has long captivated the attention of management scholars and business organisations. The perception of creativity has been incomprehensible and elusive due to its ambiguous nature. The ever-increasing shift towards an innovation-driven economy has created a bridge between creativity and overall business performance. The role of creativity in innovation or business performance needs more refinement in today's management literature. The ambiguous nature of creativity discourages firms, and even academic scholars, from recognising this concept. However, studies are beginning to acknowledge the value of creativity in business innovation (Kaplan and Vakili 2015; Goller and Bessant 2017; Caniëls and Rietzschel 2015; Li and Kozhikode 2008). Creativity is a process of transcending limitations that firms exercise by necessity.

An article by Lampel, Honig, and Drori (2014) introducing organizational ingenuity opens up opportunities for further exploration in this study. Lampel, Honig, and Drori (2014, 467) expressed 'organizational ingenuity' as "the ability to create innovative solutions within structural constraints using limited resources and imaginative problem solving". This thesis defines organizational ingenuity as a creative problem-solving mechanism to resolve various challenges within organisations. Organizational ingenuity is a unique phenomenon occurring as firms seek creative solutions to overcome inevitable constraints, such as challenging

institutional environment and limited available resources. Honig, Lampel, and Drori (2014) argue that organizational ingenuity is not just about creative problem solving but can only emerge in certain challenging market settings. Weaker institutional environments, such as an emerging economy, are proven to spur more creativity among business organisations (Bilgili, Kedia, and Bilgili 2016; Kostova, Roth, and Dacin 2008).

This thesis is an ambitious exploration of the novel concept of organizational ingenuity. Limited research is available on the emergence of ingenious business solutions within challenging market environments, using generic resources or with limited essential resources. Fellow researchers have uncovered additional insights into the role of creativity when firms strategically overcome constraints and challenging business environments. There presents an opportunity for further research on the dynamic of organizational ingenuity.

Vulnerable firms operating in a challenging environment disregard presented limitations using creativity (Lampel, Honig, and Drori 2011; Bilgili, Kedia, and Bilgili 2016). Creative solutions are applied to problems through existing rules and limitations (Honig, Lampel, and Drori 2014). The key objective of this thesis is to understand the importance and the role of novel solutions, achieved using generic resources, while adapting to particularly challenging organisational contexts. Therefore, it is useful to inquire about how firms with limited resources, in a demanding environment, make small improvements that ultimately lead to superior outcomes. Identifying the process of developing creative tactics or strategies to solve problems provides unique insight into the concept of organizational ingenuity.

Organizational ingenuity is introduced as a unique ability for firms to overcome the challenges of limited resources and institutional constraints. The term 'organizational ingenuity' reflects a focus on creative problem-solving processes within constrained institutional environments. Furthermore, organizational ingenuity can only emerge in circumstances that necessitate firms to creatively solve issues or problems with limited resources. Siqueira and Honig (2019) views limited resources as a source of competitive advantage that motivates firms towards innovation. Honig, Lampel, and Drori (2014) stated that organizational ingenuity is a creative



attempt of firms declining to comply with limitations and it may not occur in a context where adequate resources are accessible. The ethos of firms capitalising on available resources within institutional constraints prompted the study of organizational ingenuity through a CBV theory lens. This will later be discussed in depth in the literature review.

### **1.3 Small-medium enterprises in India**

India has become one of the largest and most prominent emerging economies in the world (Basu 2004; Nair et al. 2015; Rahman, Sultana, and Velayutham 2022; Dubey, Paul, Tewari and 2022). The rapid economic growth of the country was instigated by the trade and industry reforms in 1991 (Jain and Sharma 2013; Nair et al. 2015; Nair, Ahlstrom, and Filer 2007). However, India's success in the global market is not credited to the institutional environment of the country. Stability of the institutional environment is regarded as one of the primary engines for positive economic development (Assane and Grammy 2003; Kwan and Chiu 2015; Valeriani and Peluso 2011).

According to Nguyen, Su, and Nguyen (2018), the quality of the institutional environment significantly influences the economic growth of emerging economies. Institutional support to facilitate firms' market growth and survival in an emerging economy remains arbitrary. Strong institutional support plays an important role for firms in developed economies, whereas weak institutions in emerging economies present uncertainties for firms endeavouring to remain competitive (Adomako et al. 2020). Firms in emerging economies are more likely to follow complex informal rules as a result of deficiencies in formal institutions.

An emerging market environment is defined as a business environment primed with a challenging institutional environment (Meyer and Peng 2016; Xu and Meyer 2013). The main challenges presented by an emerging market environment vary in comparison to developed economies in a number of ways, including: (1) limited transparency due to extensive information asymmetry; (2) high transaction cost; (3) less efficient market related to social traditions; (4) highly volatile institutional variables; (5) uncertainty related to economic and political variables; and (6) weak enforcement of legal variables (Xu and Meyer 2013). Evidence

from Narayanan and Fahey (2005) highlighted firms' unique abilities to adopt distinctive strategies to tackle unique institutional contexts of emerging economies. The connection between firms' abilities to create novel solutions and a demanding emerging economy environment remains unknown and warrants further research.

The distinctiveness of institutions in emerging economies provides a significant prospect for theory building in this setting (Kostova, Roth, and Dacin 2008). An emerging economy market is a particularly useful testing ground to investigate the correlation between strategies and the influence of local conditions (Xu and Meyer 2013). India, as one of the emerging economy markets, presents an opportunity as a testing ground to investigate the concept of organizational ingenuity. India's unique institutional arrangement is a significant influence on firms' decision-making processes (Manogna and Mishra 2020).

India's unique context allows this study to enhance the understanding of organizational ingenuity. Situating a study in India—one of the leading emerging economy countries—enables analysis of the ways firms with limited resources, operating in an environment with limited institutional supports, strategise, and remain competitive (Gaur, Kumar, and Singh 2014). Conducting the study in a new empirical setting such as India allows testing of organizational ingenuity within the country's institutional capacity. Scholars have recommended emerging economy markets as optimal testing grounds to investigate new theoretical insights (Wright et al. 2005; Bruton, Ahlstrom, and Puky 2009; Xu and Meyer 2013). Therefore, this thesis focuses on the empirical setting of India as an emerging economy in which to study the organizational ingenuity concept.

The small-medium enterprises (SMEs) sector is of paramount importance in its contribution to a sustainable national economy (Harvie and Lee 2002). Furthermore, SMEs are responsible for the rapid economic growth in India (Baporikar 2017; Bilal, Khan, and Akoorie 2016; Chandra, Paul, and Chavan 2020). SMEs in India play a crucial role in the economic development of the country and are recognised for their significant contribution to socio-economic development (Gaikwad and Dhokare 2020; Biswas 2015). Research investigating

how firms within emerging economies become key contributors to economic development is a legitimate agenda for strategic management scholars.

SMEs contribute to the country's gross domestic product (GDP), employment opportunities, and poverty alleviation. Das (2021) found micro, small, and medium enterprises (MSMEs) contributed around 30 per cent to India's GDP and up to 45 per cent of employment in the country. According to Tiwari and Swarup (2013) and Elayaraja and Vijai (2020), SMEs generate the highest employment growth in the country, which also plays a key role in the development of the economy. Table 1 illustrates the estimated employment distribution in the MSME sector in India according to broad activity category.

*Table 1: Estimated Employment in the MSMEs Sector (Broad Activity Categories)*

Broad Activity Category	Employment (in lakh)			Share (%)
	Rural	Urban	Total	
(1)	(2)	(3)	(4)	(5)
<b>Manufacturing</b>	186.56	173.86	360.41	32
<b>Electricity*</b>	0.06	0.02	0.07	0
<b>Trade</b>	160.64	226.54	387.18	35
<b>Other Services</b>	150.53	211.69	362.22	33
<b>All</b>	<b>497.78</b>	<b>612.10</b>	<b>1109.89</b>	<b>100</b>

*\*Non-captive electricity generation and transmission*

Source: Annual report 2020-21 Government of India (2021)

The SMEs sector is widely accepted as the engine of economic growth in India. SMEs' contribution to the country's employment growth is demonstrated in Table 1. The exceptional growth of Indian SMEs has highlighted their significance for the country's overall economic performance (Syal 2015). However, it is worth acknowledging the limitations experienced by already challenged SMEs operating in an emerging economy such as India. The superiority of SMEs in India can be attributed to their low-cost operation and lower capital requirements (Thampy 2010; Chowdhury, Azam, and Islam 2013).

The internal flexibility of SMEs that requires lower amount of capital is an agenda that is worth investigating, especially when the concept of organizational ingenuity is highlighted in the

presence of resource constraints as problems. Batra et al. (2015) and Wang and Ang (2004) indicated that SMEs in emerging economies typically have fewer resources compared to firms in developed economies. SMEs are able to synergise and reconfigure available resources to overcome constraints and effectively respond to the changing environment. Such ability is unique and is commonly agreed to be essential for SMEs to remain competitive in India's emerging economy (Chan et al. 2019; Ates and Bititci 2011; Wang et al. 2013)

SMEs in India are prone to developing an entrepreneurial spirit which is conducive to adaptability in the local context (Todd and Javalgi 2007). India's challenging economic context has been proven not to impede resource-constrained SMEs' success for innovation or superior performance. This is despite operating in less developed and unstable institutional environments (Kumar and Borbora 2018; Batra et al. 2015). This study aims to explore the underlying mechanism behind SMEs' continued success, despite their comparative disadvantage due to weak institutional environments and limited available resources.

Organizational ingenuity in this thesis is applied as the mechanism that explains how SMEs strategically adapt to India's challenging institutional environment. SMEs, especially in an emerging economy, are known to experience hypercompetition that brings out their competitiveness to survive in the market (Kumar and Subrahmanya 2010). The theory behind how SMEs manipulate institutional limitations for survival can contribute to new scholarship in this area (Wu and Deng 2020).

This thesis aims to understand how SMEs that are already constrained with resources and operating in an emerging economy and challenging institutional environment outshine competitors with resource advantage. The study also investigates how constrained firms adapt to such challenging environments to achieve superior outcomes. India exhibits various characteristics defining emerging economies, such as lack of institutional support and a hypercompetitive business environment. In view of the above factors, the study of organizational ingenuity through a CBV theory lens is well suited to India's demanding environment.

This thesis strives to understand how creative ideas come about and how creativity-led firms pursue organizational ingenuity. This study focuses on organizational ingenuity specifically among SMEs in India, which is an area yet to be explored. To fill a current research gap, this thesis develops a theoretical framework of organizational ingenuity as a mechanism employed by SMEs when challenged by limited resources and a demanding business environment.

#### **1.4 Components of organizational ingenuity**

The market environment in India is a highly volatile environment due to a weak institutional framework in place as the formal structure. It can be costly for firms to manage and adapt to the numerous challenges and obstacles in an emerging economy (Xu and Meyer 2013; Meyer and Peng 2016). The creative problem-solving aspect of organizational ingenuity is tied to the existence of institutional constraints. Future studies to explicitly define problems, such as institutional environments and limited resources, are essential to understand the concept of organizational ingenuity. The main goal is to uncover what specific conditions or forces lead firms to a creative problem-solving process.

Studies have suggested that SMEs are typically confronted with many challenges despite their fundamental importance and contribution to the overall economic development of a country (Khandker 2014; Rahman, Yaacob, and Radzi 2016; Mazanai and Fatoki 2012). This thesis shows that organizational ingenuity emerges so firms can remain competitive within institutional constraints. The notion of an environment free of constraints is impractical, especially when both formal and informal institutions are the sources for legitimacy and structure for operation (Judge, Douglas, and Kutan 2008; Williams and Vorley 2015).

SMEs are known to survive in challenging emerging economies and are considered significant contributors to inclusive economic growth and development (Amoah et al. 2022). The need to understand the distinctiveness of institutional environment and how it influences SMEs, particularly in India, seems greater than ever. The study of organizational ingenuity is incomplete without dismantling distinct conditions of an emerging economy, such as India. The narrative of organizational ingenuity is an integral component allowing firms to manipulate

institutional constraints and leverage such challenges to their advantage (Siqueira et al. 2014; Kannan-Narasimhan 2014).

The call to identify specific conditions or challenges pushing firms to attain organizational ingenuity motivates this study. At the same time, understanding the firms' abilities to overcome these specific conditions can enhance understanding of organizational ingenuity. Organizational ingenuity is a quality that merits further research as it is not just about coming up with novel solutions but can further enhance the consideration of all ideas that may also include small improvements to solve practical issues (Ali, Ahmi, and Saidin 2018). This thesis argues that organizational ingenuity helps SMEs in India cope with the challenging institutional environment.

This thesis postulates that organizational ingenuity is pursued as firms are compelled by specific conditions, identified in this study as STORM conditions, and creatively integrate generic and available resources using CHAIN-D capabilities to overcome stated challenges. STORM conditions are the pre-defined conditions compelling firms to apply organizational ingenuity. CHAIN-D capabilities are distinct capabilities that SMEs develop when pursuing organizational ingenuity. Distinctive capabilities complement creative problem-solving processes using generic resources to overcome institutional constraints.

STORM conditions are argued in this thesis to be proxies defining the unique context of emerging economies that push firms' inclination to pursue creative problem-solving processes. STORM conditions in this study are comprised of (1) social, (2) technological, (3) organisational, (4) regulatory, and (5) market. The use of CBV as a theory lens enhances understanding of the concept of organizational ingenuity. The CBV theory lens elaborates on distinctive capabilities for SMEs to develop when engaging in creative problem-solving processes using available generic resources. CHAIN-D capabilities are proposed to include (1) combinative, (2) hardship-surviving, (3) absorptive, (4) intelligence, (5) networking, and (6) dynamic capabilities. This thesis later discusses both components related to conditions

constraining firms in emerging economies and the capabilities that Indian SMEs develop in the creative problem-solving process.

### **1.5 Definition of terms**

This section provides definitions of the key terms in this thesis. The definitions can be used as a guideline to help readers develop an understanding of the key terms employed as part of the discussion in the findings of the thesis.

**Organizational ingenuity** is defined as “the ability to create innovative solutions within structural constraints using limited resources and imaginative problem solving” (Lampel, Honig, and Drori 2014, 467).

**Composition-based view (CBV)** is defined as compositional strategy whereby “...firms with ordinary resources can establish a strong position among their competition by creatively assembling and integrating the open and generic resources they possess or purchase; that is, they are astute in distinctively identifying, leveraging, and combining ordinary resources, external and internal, to create competitive advantage” (Luo and Child 2015, 381).

**STORM conditions** are the external conditions or factors that compel firms to attain organizational ingenuity. STORM conditions comprise social, technological, organisational, regulatory, and market conditions.

**CHAIN-D capabilities** are capabilities that firms creatively integrate with generic resources to attain organizational ingenuity. CHAIN-D refers to combinative, hardship-surviving, absorptive, intelligence, networking, and dynamic capabilities.

**Emerging economy** is a term referring to the flourishing group of countries that are in transition phase to a developed stage of the economy (Meyer and Thaijongrak 2013). An emerging economy is a business context lacking in institutional support and more prone to variation in institutions which ultimately leads to institutional instability (Meyer and Peng 2016).

## **1.6 Research questions and objectives**

As mentioned previously, this study aims to unearth the power of ingenious solutions for firms with limited resources, operating in a challenging institutional environment. How do firms in India adapt and overcome a challenging institutional environment with limited resources? It is also essential for this study to identify specific factors that push firms to create novel solutions. This study further acknowledges the importance of understanding the specific capabilities needed for firms to create novel solutions when tackling the demanding environment of an emerging economy. Hence, after reviewing the relevant literature, the following central question is proposed to best understand organizational ingenuity:

- **RQ1:** How do SMEs in an emerging economy with constrained resources and challenging environments achieve organizational ingenuity?

The following sub-questions are developed as essential to be addressed along with the central question as it specifically narrows down the scope of this study. The sub-questions below are derived from critical variables from the literature. The sub-questions are as follows:

- **RSQ1:** How do STORM conditions of an emerging economy compel SMEs towards the path of organizational ingenuity?
- **RSQ2:** Is organizational ingenuity an integral component to SMEs operating in an emerging economy? Why?
- **RSQ3:** How do SMEs create cost-effective, ingenious solutions in the constrained and challenging environments of an emerging economy?
- **RSQ4:** How does the concept of organizational ingenuity lead to outcomes such as innovation and business success?

The above research questions inform the following objectives of this study:

**RO1:** To explore the role of organizational ingenuity for SMEs with limited resources in the challenging environment of an emerging economy.



**RO2:** To uncover different conditions of an emerging economy that compel SMEs to attain organizational ingenuity.

**RO3:** To understand the role of organizational ingenuity influencing SMEs to create cost-effective, novel solutions using limited resources and within the challenging environment of an emerging economy.

**RO4:** To discover distinct capabilities required for SMEs to attain organizational ingenuity when overcoming limited resources and the challenging environment of an emerging economy.

**RO5:** To develop a framework that outlines the pathway to organizational ingenuity.

### **1.7 Methodological approach overview**

This study employed a qualitative exploratory case study approach. A case study approach is well regarded for research that focuses on exploring the “how” and “why” questions (Yin 2013). The qualitative case study method implemented in this research is particularly useful when investigating the relatively new concept of organizational ingenuity (Eisenhardt and Graebner 2007). According to Merriam and Tisdell (2015), a qualitative case study approach is promoted for a study aiming to enhance existing theory and provide an in-depth understanding of a specific subject. With this in mind, this study employs a qualitative exploratory case study approach to understand the concept of organizational ingenuity.

This study was conducted within the empirical setting of India and addressed the current dearth of evidence relating to organizational ingenuity in SMEs. Twelve case studies were included in this study; each case study was an SME based in India from a specific industry. A variety of industries participated as part of the data collection process, including automotive, education, information technology (IT), pharmaceutical, and manufacturing. Two participants from each case study took part in a semi-structured interview, adopted as the data collection protocol. The use of semi-structured as the interview instrument allowed this study to interpret and summarise data according to a pre-defined set of relevant themes (Schmidt 2004).

The benefits of conducting multiple case studies—as opposed to a single case study—include comprehensive analysis of knowledge and theory development and stronger evidence for validation (Heale and Twycross 2018; Gustafsson 2017). Data analysis was conducted in two phases. The first phase focused on within-case study analysis to provide a rich description of each case study. The second phase of the analysis was conducted through cross-case analysis strategy. Each case study was well dissected and a descriptive report of data is provided in this thesis. A detailed within-case study analysis for each case study is an essential step for multiple case study design to help researchers familiarise themselves with the available data (Eisenhardt 1989). Next, this study proceeded with a cross-case analysis step for triangulation. Secondary data is utilised for transferability and reliability (Eisenhardt 1989; Eisenhardt and Graebner 2007; Eisenhardt 2013; Eisenhardt and Bourgeois III 1988). A conceptual framework was refined post-data analysis and is presented as part of the discussion chapter of this thesis.

### **1.8 Research significance**

The research significance for this study—which includes both theoretical and practical contributions—is provided in the following sections.

#### **1.8.1 Contribution to theory**

As this study's objective is to further understand the relatively new concept of organizational ingenuity, this thesis has made theoretical contributions in several areas. These are: (1) literature on organizational ingenuity; (2) CBV strategy literature; (3) business literature on emerging economies; and (4) theoretical framework of organizational ingenuity. This study contributes to providing clarity related to organizational ingenuity.

This thesis provides novel findings that illustrate how SMEs in an emerging economy leverage limited resources and challenging business environments through creative endeavours. Furthermore, this thesis makes a theoretical contribution by identifying the specific conditions under which firms attain organizational ingenuity. Different dimensions of specific conditions are established as this study attempts to provide clarity on organizational ingenuity. In this

thesis, STORM conditions are identified as forces compelling firms to attain organizational ingenuity when overcoming limited resources and institutional constraints.

Organizational ingenuity study has yet to explore the influence of the phenomenon in SMEs across various industries. Siqueira et al. (2014) investigated organizational ingenuity for firms in specific low-income communities for both individuals and organizations. Research by Walker, Schlosser, and Deephouse (2014) focused on organizational ingenuity for firms operating within the solar energy industry. This study is the first that contributes to the theory of organizational ingenuity, with the study conducted in SMEs of various industries operating in an emerging economy.

The unique setting of SMEs across various industries in an emerging economy context contributes further to the theoretical understanding of organizational ingenuity. The dynamics of SMEs in an emerging economy is distinctive in terms of institutional environment and access to available resources for SMEs (Budhwar, Varma, and Kumar 2019; Zhou et al. 2014; Batra et al. 2015). The interesting economic context of India enhanced this thesis process to understand organizational ingenuity.

The third theoretical contribution from this study is the discovery of specific capabilities contributing to SMEs' pursuit of organizational ingenuity. Compositional capabilities are integrated capabilities derived as part of a CBV strategy (Luo and Child 2015). In this thesis, theory contribution is made as organizational ingenuity quality is mapped along with a CBV strategy. With this strategy, unique capabilities are captured to be the contributing characteristics for SMEs to achieve organizational ingenuity. This thesis makes a theoretical contribution by distinguishing specific capabilities, known as CHAIN-D capabilities, which are conducive to firms' pursuit of organizational ingenuity.

### **1.8.2 Contribution to practice**

The findings of this thesis are also relevant for both companies and policymakers. The refined framework of organizational ingenuity could potentially assist firms to understand the contributing factors that push SMEs to attain organizational ingenuity. Furthermore, the

framework developed for organizational ingenuity can provide firms with clarity in terms of how organizational ingenuity is developed through a CBV strategy. The proposed framework also provides a roadmap for practitioners to understand the path towards organizational ingenuity. For this reason, firms may learn from the framework and adapt it according to their individual conditions.

This thesis can also help the Indian Government understand market-inhibiting institutional factors contributing to limitations experienced by SMEs in India. From a practical perspective, government can identify root problems in the institutional environment that inhibit the growth of Indian SMEs. The Indian Government can take the opportunity to understand problems experienced by SMEs in different industries operating in India. This thesis not only provides an overview of the challenges experience by SMEs in India but also offers insights into the experiences of each firm as they adapt within a challenging business environment in India. The understanding of organizational ingenuity helps firms identify their potential to survive in the challenging environment of an emerging economy, even with limited available resources.

### **1.9 Structure of the thesis**

**Chapter 1** provides an introduction and background information on organizational ingenuity. The chapter then provides details of research questions, research significance, theoretical and practical contribution, and, finally, the overall structure of this thesis.

**Chapter 2** presents the literature review component of the study. In this chapter, the emerging economy context and SMEs operating in emerging economies are firstly explored to provide context to this study. The literature review then delves into three major areas: organizational ingenuity and a CBV theory lens; conditions compelling firms to attain ingenious solutions; and compositional capabilities. A conceptual framework based on the literature review is then presented at the end of this chapter.

**Chapter 3** provides an overview of the research design and methodology. The research methodology is firstly discussed in terms of research paradigm, research questions, and the quality of case study research. The research design employed is qualitative and exploratory

case study. Therefore, the primary data was collected by semi-structured interviews among 12 case studies and triangulated with relevant secondary data. The data were later analysed using NVivo software.

**Chapter 4** presents 12 within-case analyses, which were conducted to explore individual insights on organizational ingenuity. Each firm's response is organised according to three themes obtained from the conceptual framework: organizational ingenuity; external forces or conditions; and capabilities. Each firm's success, such as number of patents, trademarks, and respective organisational success, is also discussed in this chapter.

**Chapter 5** details the cross-case analysis conducted across 12 case studies. In this chapter, cross-case analysis compares and contrasts the data extracted on three specific themes relevant to the study. Chapter 5 also identifies additional nuances within each theme that are valuable to further enhance the understanding of organizational ingenuity.

**Chapter 6** utilises the findings from Chapter 5 to refine the conceptual framework proposed in the literature review chapter. The findings are then further discussed in comparison with the literature review.

**Chapter 7** presents the conclusion of this study. This chapter summarises the theoretical and methodological contributions of the study. Furthermore, practical implications of this study are further discussed for managerial reference. This chapter concludes with a discussion of opportunities for future research related to organizational ingenuity.

## **Chapter 2: Literature review**

### **2.1 Chapter overview**

This chapter provides context to the study of organizational ingenuity through a CBV lens. Firstly, both research setting and scope are discussed. Next, this chapter introduces the relatively new concept of organizational ingenuity. A CBV strategy is introduced as the theory lens utilised to understand organizational ingenuity. This chapter also introduces critical factors compelling firms towards organizational ingenuity. The chapter then introduces the capabilities integrated within firms to attain organizational ingenuity. Furthermore, critical definitions to be used in this study are included in this chapter. Finally, this chapter introduces the conceptual framework derived from the literature review to understand organizational ingenuity.

#### **2.1.2 Emerging economy context**

Today's emerging economy context has been a key subject of attention for many academics (Peng 2012; Young et al. 2014; Meyer and Peng 2016). With established markets flooded with competition, market potential has gradually moved to emerging markets (Meyer and Peng 2016; Sun et al. 2012). Emerging economy markets pose both tremendous opportunities and unique challenges to firms. A key dilemma facing emerging economy firms today is how to survive with limited resources and a challenging environment, paired with institutional constraints (Yiu, Bruton, and Lu 2005; Gaur, Kumar, and Singh 2014; Meyer et al. 2009). Studies by Liu et al. (2021), García-Cabrera and Durán-Herrera (2016), and Meyer (2018) explained that institutions in emerging economies are very different in terms of specific variables and mechanisms when compared with developed economies. These differences influence the nature of relationships between firms and institutions. However, little is known about how firms in emerging economies become global competitors despite operating in challenging institutional business environments.

The resilience of firms in emerging economies has challenged the conventional view of innovation in the global economy landscape. The rise of emerging economies can be demonstrated through the inflow of foreign direct investment (FDI) targeted towards developed economies from emerging economies (Kothari, Kotabe, and Murphy 2013; Aulakh 2007; Bartlett and Ghoshal 2000; Cuervo-Cazurra and Genc 2008; Ramamurti and Singh 2009). Today's highly challenging business environment demands firms to engage in creative problem solving and innovation to sustain competitive advantage and long-term sustainability. Further investigation into firms' success within a challenging business environment and market-inhibiting institutional context will diversify and improve the robustness of research in international business and strategic management disciplines. An emerging economy market provides an exceptional context to explore the intricacies of firms' survival in this situation.

Emerging economies have been a strong source of growth for the global economy for the past half a century. The unfolding of the emerging economy as a leading world economy is not a complete surprise and, in fact, predicted by well-known economists such as Angus Maddison (2003). The emerging economy accounted for almost two-thirds of the world's GDP growth and has steadily held the position of global economic leader for the past 20 years (The World Bank Group 2020b). While the accomplishment of the emerging economy is noted in this study, it is crucial to recognise that the climate in the emerging economy market is drastically different and it is challenging for firms to remain competitive. Emerging economies are usually characterised as highly uncertain, with limited market-supporting environments and volatile business environments (Banalieva, Eddleston, and Zellweger 2015; Duran et al. 2019; Elango and Dhandapani 2020).

Sustaining economic growth is one of the top challenges for firms in emerging economies (Mourdoukoutas 2018). In recent years, the emerging economy has positioned itself as the bearer of innovation in the global economy landscape. In fact, the late 2000s economic crisis caused economic slowdown among developed countries and empowered emerging economy firms to drive the global economy in the coming years (O'Sullivan 2016; Bussière, Delle Chiaie, and Peltonen 2014; Hanson 2012). The global innovation landscape has been completely transformed due to the evolving potential of firms from emerging economies (Lopez-Vega and Lakemond 2022; Munjal et al. 2022).

Traditionally, emerging economy firms have gravitated to play a secondary role in the global innovation landscape (Li and Kozhikode 2009; Hanson 2012). The interconnected global economy and open market policy motivates emerging economy firms to serve as cost-effective manufacturing bases for developed economy firms (Gaspar et al. 2016). Outsourcing to emerging markets is considered as a source of core competency for firms from developed countries to gain competitive advantage. Most emerging economy firms become part of developed economy countries' tactical plans to save production costs by capitalising on such opportunities (Mazhar and Rehman 2020; Javalgi, Dixit, and Scherer 2009). According to Javalgi, Dixit, and Scherer (2009) and Stack and Downing (2005), companies such as Delta Airlines, Hewlett-Packard, Dell, and General Electric—to name a few—contracted firms in emerging markets such as the Philippines and India for cost-saving purposes. However, outsourcing to emerging markets is no longer the case for firms as emerging economy firms establish strong competitive positioning in the global economy (Kothari, Kotabe, and Murphy 2013).



The creativity of firms in emerging economies accommodates the developed economy's quest for affordable manufacturing bases, providing them with competitive advantage. This study recognises the ingenuity of firms in emerging economies as they persevere through constraints. The consistent performance and success of firms in emerging economies offers a unique insight for further investigation.

According to London and Hart (2004), firms capitalising on strengths and manipulating existing business resources appear to outperform firms that focus on weaknesses. However, emerging economy firms learn to overcome the challenging conditions presented in the emerging economy market and have demonstrated great success in the global economy landscape (Cuervo-Cazurra and Genc 2008; Peng 2012). Little is known about how firms in emerging economies continue to promote innovation within the global economy (Kothari, Kotabe, and Murphy 2013). It has become increasingly apparent that firms from emerging economies possess novel skills for survival as well as excelling in the competitive global economy. The success that the emerging economy market has brought into the global innovation landscape and the global economy has invalidated the conventional view that emerging market is insignificant. Cuervo-Cazurra and Genc (2011) and Ramamurti (2012) considered market-based and institutional conditions to be the factors contributing to the uniqueness of firms in emerging economies.

This thesis focuses on the emerging economy market in India, specifically SMEs. They can provide unique perspectives to understand firms' ability to overcome a challenging emerging economy context. This study aims to decipher the role of constraints and elucidate how firms overcome constraints and institutional challenges presented in an emerging economy. India, as an emerging economy, provides the opportune research setting to understand firms' survival in a volatile business environment.

### **2.1.3 Small-medium enterprises (SMEs)**

SMEs have been selected as the setting to study organizational ingenuity. There is no single accepted definition of an SME and SME definitions are different across international institutions and countries. A survey noted at least 60 definitions of SMEs in 75 economies (Yuhua 2013). Various criteria such as number of employees, sales or revenue, assets, and sector-specific definitions are adopted when defining firms in the SME category, making it difficult for comparison (Yuhua 2013). Zahoor et al. (2020) indicated the number of employees, revenues, or both to be the parameters defining firms under the SME category. The number of employees is considered to be the most common criteria to define SMEs but this varies across different nations (Child, Karmowska, and Shenkar 2022). For example, the European Union categorises SMEs as firms with an upper limit of 250 employees and an annual turnover of not more than 50 million Euros (Ayyagari, Beck, and Demirguc-Kunt 2007; Ayyagari and Beck 2003; Berisha and Pula 2015; Loecher 2000; European Commission 2016). The Australian Bureau of Statistics (ABS) defines SMEs as firms with up to 200 employees (Yesseleva-Pionka 2012). France and the United States categorise firms with less than 500 employees as SMEs and in China SMEs can have up to 2,000 employees (Child, Karmowska, and Shenkar 2022). The lack of a formal definition of SMEs has led to international institutions and governments adopting different definitions (Yesseleva-Pionka 2012). This study adopts the common approach of number of employees as the parameter to define SMEs. Given that there is no universal definition, this study identifies firms of fewer than 500 employees as the criteria to be considered as SMEs (Tang et al. 2021).

#### ***SMEs in the emerging economy of India***

SMEs in India are key contributors to Indian economic growth (Shaik 2017). Indian SMEs have been largely recognised as the backbone in the existing and future economic outlook of the country (Mani 2011). India's SMEs are fundamentally important as they generate huge employment opportunities and alleviate poverty, which ultimately supports positive economic growth in the country (Singh, Garg, and Deshmukh 2010; Shelly, Sharma, and Bawa 2020; Katyal and Xaviour 2015; Budhiraja

2019). In fact, SMEs are recognised for their role in bolstering innovation in India (Charbonneau and Menon 2013). Table 2 provides an overview of the distribution of MSMEs according to the nature of activity compiled from MSMEs Annual Report (Government of India 2021).

*Table 2: Overview of the Distribution of MSMEs According to the Nature of Activity*

Activity Category	Estimated number of enterprises (in Lakh)			Share (%)
	Rural	Urban	Total	
<b>Manufacturing</b>	114.14	82.50	196.65	31
<b>Electricity</b>	0.03	0.01	0.03	0
<b>Trade</b>	108.71	121.64	230.35	36
<b>Other Services</b>	102	108.85	206.85	33
<b>All</b>	324.88	309.00	633.88	100

*Note: 1 Lakh is equal to one hundred thousand*

Source: Government of India (2021); The World Bank Group (2020a)

While SMEs are recognised as the economic powerhouse of India, there should also be recognition of factors hindering SMEs in the country. The unique business environments and challenges of the Indian market can impede the potential of SMEs operating in India. According to Abbas and Liu (2021) and Javalgi and Todd (2011), the plethora of challenges and difficult institutional setup in an emerging economy such as India are some of the biggest challenges confronting SMEs and SMEs' growth for innovation. In such a demanding environment, local SMEs are finding it increasingly difficult to sustain competitive positioning or even survive in the market (Singh, Garg, and Deshmukh 2010; Islam and Hossain 2018; Islam et al. 2021). It is implied that

different organisational factors and institutional influences are crucial narratives for SMEs' strategic planning (Batra et al. 2018; Raghavan, Wani, and Abraham 2018).

There are numerous scholars who recognise significantly different institutional contexts in emerging economy markets, influencing both strategy and performance of firms operating in such markets (Peng, Wang, and Jiang 2008; Hoskisson et al. 2000; Wright et al. 2005; North 1991; Gaur, Kumar, and Singh 2014). The lack of market-supporting institutions and the weakening business platforms of emerging economies are more prominent for SMEs compared to multinational enterprises (MNEs) to overcome and survive (Peng, Wang, and Jiang 2008). The capacity of SMEs to continuously improve performance and maintain long-term sustainability is stretched to the limit in the demanding environment of an emerging economy (Singh, Garg, and Deshmukh 2009).

The economic activity in both developed and emerging economies relies on SMEs as the drivers (Borgia and Newman 2012; Fritsch 2013). The worldwide SME sector is well regarded as the main influencer of positive employment, contribution to national growth, and stimulator for new entrepreneurship and business opportunities (Suresh and Mohideen 2012; OECD 2017; Manzoor et al. 2019; Chola 2016; Ramukumba 2014).

Multiple literatures concur on the vital role of SMEs in enabling positive economic growth, encouraging employment opportunities, and generating wealth (Bai, Yuan, and Pan 2016; Lange, Ottens, and Taylor 2000; Wright et al. 2015). For example, the remarkable transformation of China's economy is due to privatisation and the growing number of SMEs (Yusuf, Nabeshima, and Perkins 2005). The strength of SMEs in the economy is proven to drive success for most developed economies in the world. In the

past few decades, India has emerged from the Licence-Raj model to finally adopt market liberalisation in the 1990s (Stanley, Gallagher, and Ghosh 2018). With successful market transformation, India has been transformed from an inward-oriented to an outward-oriented economy.

SMEs are especially important as they are the main contributors to a country's GDP as shown in Figure 1. As illustrated in Figure 1, the export of goods and services accounted for up to 20 per cent of the GDP in 2018 as reproduced from The World Bank Group (2020a) database. GDP growth in India has shown a rising trend parallel with the data illustrated by world as comparison which is clearly illustrated in Figure 1. A steadily increasing trend, illustrated in Figure 1, has shown India to be in line as an outward-oriented economy. India's economic growth post-economic reform is largely driven by access to low-cost labour capital, IT, and removal of government restrictions (Chari and Banalieva 2015).

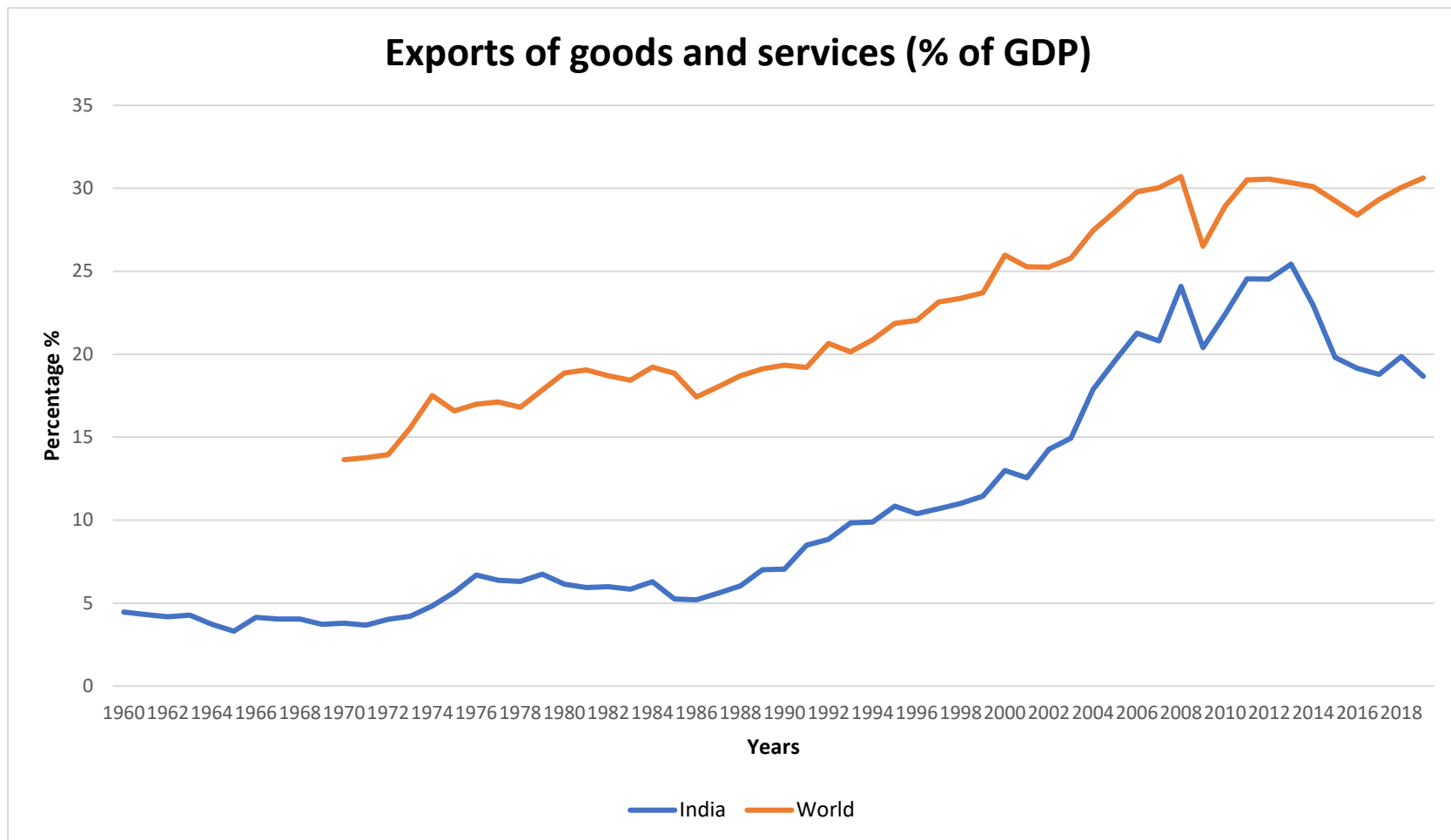
The essence of innovation produced by emerging economy firms varies considerably from that of developed countries. For example, the emergence of companies such as the Tata Group and Infosys from India has completely transformed the conventional view of an unattractive and weak market in the emerging economy (Bonaglia, Goldstein, and Mathews 2007; Buckley et al. 2010). Firms in emerging economies continue to grow rapidly and create innovative and novel solutions despite limitations such as institutional and resource constraints (Altringer 2013; Ray and Ray 2010). SMEs in emerging economies are lacking in financial capacity, resources, and an optimal environment for success. However, there is limited research on how SMEs in emerging economies manage to outcompete successful rivals with an optimal environment and access to abundant resources.

The Indian Government, specifically the Ministry of Micro, Small and Medium Enterprises, acknowledges the glaring issues related to the business environment that is impeding the growth of SMEs (Government of India 2021). Market transformation in India caused the government to actively revise and evolve various legal and regulatory concerns which incited an open, competitive, and entrepreneurial business environment (Peng, Wang, and Jiang 2008). Indian SMEs are the drivers for a versatile market in India's business environment (Singh, Garg, and Deshmukh 2009) and are proven to be central for economic growth (Ahlstrom 2010; Nair et al. 2015). Nevertheless, India remains a challenging business environment for Indian SMEs. Necessary attributes for Indian SMEs to remain competitive in such an environment include the ability to create cutting-edge solutions and the creativity to navigate through a challenging business environment.

A discernible effort in the government's role in encouraging innovation among Indian firms prompts interest for research. The inevitably challenging environment of the emerging economy presents both pros and cons for SME business practices. The emerging economy environment can both stimulate and deteriorate business growth. While the emerging economy environment can discourage businesses from surviving, the structure of the emerging economy does present unique opportunities for firms, including SMEs.

SMEs in India are chosen as the focus of this study for the following reasons: (1) the correlation between the demanding business environment of the emerging economy and challenges facing SMEs is a unique perspective that is valuable to scholars today; (2) Indian SMEs' significant contribution to GDP and national exports; and (3) the major contribution of SMEs to the Indian economy.

Figure 1: Export of goods and services between India vs the rest of the world (% of GDP)



Source: The World Bank Group (2020a)

## **2.2 Ingenuity in emerging economies**

In the past decades, there has been a shift in the key players responsible for global innovation success. There has been a significant focus on the great potential of emerging economy firms in the global innovation landscape, even though these firms compete without distinctive advantage. Successful firms in emerging economies are recognised as a major economic force (Bruton, Ahlstrom, and Obloj 2008; Bruton et al. 2013). Conventionally, multinational companies from developed economies are accepted as the key players in global innovation. However, SMEs in emerging economies are in a unique position as they claim success even in the context of a challenging environment.

Studies such as Khandker (2014) and Das (2015) highlight how the complex set of institutional constraints can impede innovation and growth, whilst a study by Tracey and Phillips (2011) focuses on the institutional context as both barriers and opportunities to firms in emerging markets. The idea of challenging institutional environments as an opportunity for firms has not been explored. According to Dutta and Snehrat (2020), Ng and Kee (2012), and Gherhes et al. (2016), firms in emerging economies can create innovation even without access to abundant resources and with limited institutional supports. Korhonen (2018) describes ingenuity as outcomes of scarcities and constraints especially through technology limitations. Similar to Korhonen (2018), Siqueira and Honig (2019) views limited resources to be the leading cause of ingenuity. This study argues that ingenuity is prompted as firms overcome the challenging context of an emerging economy and lack of resource advantage. In fact, this study puts forward creativity in routine problem solving as necessary for firms to conquer the challenges of an emerging economy.



The journal special issue of Lampel, Honig, and Drori (2014) argued that creative problem solving is useful when solutions are of value and “fit for purpose”. In other words, novelty in creative solutions is far more useful in the face of constraints. The need for creativity is especially important for firms to remain competitive in the market while operating in a volatile and uncertain environment (Agbor 2008). Lampel, Honig, and Drori (2014) emphasise that creativity is hard to achieve, not only in research and development but at each level of a firm. This study aims to first understand the profound power of creative problem solving for firms in an emerging economy.

The big question is how is it possible for emerging economy firms to compete with multinational enterprises in the global economy, especially when these emerging economy firms start with limited resources and face complex and discouraging institutional constraints? There is a lack of understanding of how firms of emerging market can effectively compete and innovate to outcompete their rivals with resource advantage, market knowledge, and power in the market. The main aim of this study is to understand how firms in emerging markets exploit institutional uncertainty and limited resources with creative problem-solving processes. As firms are expected to do more with less, it becomes more important for scholars to understand the motivation of novelty in the problem-solving process. This study puts forward organizational ingenuity as the mechanism for creative problem solving within institutional constraints, as introduced in Lampel, Honig, and Drori (2014).

### **2.2.1 Organizational ingenuity: an overview**

The aim of this section is to review the literature of organizational ingenuity, specifically to understand how and why SMEs pursue and achieve organizational ingenuity in the challenging context of an emerging economy. Emerging economy countries such as China, India, Brazil, Russia, and South Korea have been essential manufacturing

centres on which developed economy multinationals have leaned for affordable value chain business operations (Li and Kozhikode 2009; Ernst 2006). However, emerging economy firms have now begun to catch up with the success of multinational enterprises from developed economies and are exceeding their reputation for cost leadership strategies. Firms in emerging economies leverage existing resources and transform them into superior value outputs that can secure firms' positions in the global market.

This thesis establishes that the emerging economy market environment presents a volatile and challenging business platform for firms to succeed. At the same time, it is also recognised that firms in an emerging economy, particularly SMEs, claim success within the same challenging business platform. Studies such as Szostak and Gay (2019), Zutshi et al. (2021), SriKalimah et al. (2020), and Valaei, Rezaei, and Ismail (2017) highlight that SMEs' resilience is enhanced by their creativity. This study aims to explore the gap in theory on SMEs' ability to remain competitive and successful within challenging business environments.

This thesis concedes that SMEs develop organizational ingenuity to bridge the gap between creativity and the structural constraints of an emerging economy. Organizational ingenuity is defined as "the ability to create innovative solutions within structural constraints using limited resources and imaginative problem solving" (Lampel, Honig, and Drori 2014, 467). Today's firms are bounded with existing rules and boundaries including institutional constraints, resource limitations, and unfavourable economic conditions. Siquiera and Honig (2017) highlights organizational ingenuity to be the supporting mechanism that help entrepreneurs develop novel solutions when experiencing limited resources and weak institutional environment. To overcome these challenging conditions, firms are forced to develop

unique skills and tactics for survival that constitute organizational ingenuity. Organizational ingenuity comprises two stages when overcoming a challenging business environment which are (1) the recognition of the unique value of available limited resources and (2) creative problem-solving process.

The focus on overcoming institutional constraints through creative problem solving remains largely unexplored. The missing perspective here is SMEs' approach to creative problem solving, alongside routine problem solving, when faced with challenges of institutional constraints and limited resources. This study establishes that SMEs in an emerging economy face particularly challenging institutional setups, impeding SMEs' path to innovation (Pachouri and Sharma 2016; Patil 2017; Lindsay, Rod, and Ashill 2017; Ong'olo and Awino 2013). In contrast, studies such as Batra et al. (2015), Dominguez and Mayrhofer (2018), Ng and Kee (2012), and Ramukumba (2014) establish that SMEs overcome both the challenges and critical barriers to operating in an emerging economy. Therefore, the main objective of this research is to explore how SMEs in the challenging environment of an emerging economy with constrained resources achieve organizational ingenuity.

Organizational ingenuity occurring in this context is triggered by the pressure of these firms refusing to abide by constraints and being motivated by frugality and the need to search for a superior solution (Lampel, Honig, and Drori 2014). This thesis argues that organizational ingenuity is a firm's driven response as it navigates through inevitable challenges. Siquiera et al. (2017) suggests organizational ingenuity helps develop autonomy that ultimately forces entrepreneurs to rethink of existing limitations and develop innovative alternate solutions. Lampel, Honig, and Drori (2014) introduce organizational ingenuity as a focus on individual actors, such as top managers and the overall organisation, when facing both process and product constraints. However, this

study's research scope is proposing to focus on the exploration of organizational ingenuity at a firm-level among SMEs operating in an emerging economy.

This study's value lies in addressing the gap in understanding SME's ability to overcome the challenging environment of an emerging economy with limited resources. This study aims to offer a multifaceted view of organizational ingenuity as a possible response to problems or constraints. This study aims for a synergistic approach to find how SMEs in an emerging economy navigate in an institutionally constrained environment and transform resource scarcity into multiple streams of organizational ingenuity.

It is important to note that organizational ingenuity is a relatively new concept and, so far, only a handful of scholars have explored the concept. Table 3 presents definitions of organizational ingenuity from different academic scholars. Based on the literature review of organizational ingenuity, there are overlapping qualities and similarities in terms of the definition of organizational ingenuity as presented in Table 3.

As previously stated, this thesis anchors organizational ingenuity as defined in Lampel, Honig, and Drori (2014), but further enhances the definition through a specific theory lens discussed later in this chapter. Walker, Schlosser, and Deephouse (2014) define organizational ingenuity as innovative activity as firms navigate institutional constraints. Kannan-Narasimhan (2014) note creative solutions are a method for individuals to acquire resources despite the uncertain conditions facing the organisation. Noticeable differences between the definitions of organizational ingenuity between Kannan-Narasimhan (2014) and Walker, Schlosser, and Deephouse (2014) lie in the focus of actions implemented and utilisation of resources.

Rosso (2014), Banerjee (2014), Senf, Koch, and Rothmann (2014), and Paris, Lang, and Massé (2015) define organizational ingenuity primarily as the development of creative solutions to navigate through institutional constraints.

*Table 3: Various Definitions of Organizational Ingenuity*

Author/s (Year)	Chosen term	Definition
Lampel, Honig, and Drori (2014, 467)	'Organizational Ingenuity'	<i>"the ability to create innovative solutions within structural constraints using limited resources and imaginative problem solving."</i>
Walker, Schlosser, and Deephouse (2014, 613)	'Organizational Ingenuity'	<i>"...encompasses innovative activity within institutional constraints"</i>
Kannan-Narasimhan (2014, 484)	'Organizational Ingenuity'	<i>"...creative solutions that individuals use to gain resources despite the structural constraints of their organization"</i>
Rosso (2014, 553)	'Creativity'	<i>"...the production of ideas or solutions that are novel and useful..o be considered creative in an organizational setting, they must be both new and potentially valuable to the organization. Creativity is a key precursor to innovation, which is the successful implementation of creative ideas."</i>
Banerjee (2014, 16)	'Ingenuity'	<i>"...ingenuity is reactive creativity in problem solving. It is reactive to the constraints that do not allow the pursuit of linear problem-solving methods. Ingenious solutions are also specific to a problem"</i>

		<i>and to that extent their impact cannot be compared across cases.”</i>
Senf, Koch, and Rothmann (2014, 183)	‘Organizational Ingenuity’	<i>“...conception of ‘creative adaption or reformulation of institutional constraints...”</i>
Paris, Lang, and Massé (2015, 2)	‘Organizational Ingenuity’	<i>“...implies that organizations find solutions to cope with constraints.”</i>

### **2.2.2 Organizational ingenuity through a CBV theory lens**

Advanced economies exercise a higher standard and stable business environment allowing firms to perform at an optimal level compared to firms in the volatile environment of an emerging economy (Patrick 2021; Oriairo, Torres de Oliveira, and Ellis 2020; Liu et al. 2021; Hoskisson et al. 2013). As already established, organizational ingenuity is a firm’s ability to overcome constraints of the business environment in an emerging economy. In order to endure these challenging conditions, firms must be able to develop organizational ingenuity.

While a growing number of studies emphasise the importance of unique and strategic resources for businesses’ survival in today’s emerging economy marketplace (Gaur, Kumar, and Singh 2014; Gaur, Ma, and Ding 2018; Pedersen and Stucchi 2014), there is growing interest in discovering the key factors of success from utilising ordinary resources (Fréry, Lecocq, and Warnier 2015; Warnier, Weppe, and Lecocq 2013). Long gone are the days when firms could only be successful with access to superior, unique resources and a supportive market environment.

Firms have the proven ability to create novel solutions by utilising generic resources to be adaptable in dynamic market conditions. This thesis aims to understand organizational ingenuity through a CBV theory lens. In this thesis, a CBV theory lens recognises the leveraging of generic resources in creative problem-solving processes.

While the study of organizational ingenuity is quite limited, it has been established that the concept has only been researched at a micro-level (Honig, Lampel, and Drori 2014; Lampel, Honig, and Drori 2014; Kannan-Narasimhan 2014; Senf, Koch, and Rothmann 2014). A few scholars have seemingly identified organizational ingenuity at a firm level (Walker, Schlosser, and Deephouse 2014; Paris, Lang, and Massé 2015). However, no real attention has been given to exploring organizational ingenuity through a CBV theory lens at a firm level. The intricacies of organizational ingenuity at a firm level have so far remained intact, waiting to be explored. Fascinatingly, firms without resource advantages and strategic assets today have the potential to successfully compete and win against well-resourced companies, even within a challenging business environment (Luo and Child 2015; Peng et al. 2018).

SMEs in emerging economies have proven their unique ability to overcome challenges, such as limited resources and institutional constraints, by utilising ordinary and readily available generic resources (Luo and Child 2015). In addition, SMEs are widely recognised to face challenges that inhibit their maximum potential to grow and survive (Hessels and Parker 2013). The unresolved matter of how firms pull through the challenges of an emerging economy without resource advantage is critical for researchers to explore. This thesis puts forward the concept of organizational ingenuity through the CBV theory lens for firms to overcome inevitable challenges and institutional barriers in an emerging economy environment. As proposed in Luo and Child (2015), the CBV concept includes compositional strategy, capabilities, and processes leading to the gain of competitive advantage.

Luo and Child (2015) identified CBV through two complementary components: (1) compositional strategy and (2) processes of implementation. The CBV concept identifies compositional strategy, which determines the composition of ordinary

resources and transformed resources into superior output (Luo and Child 2015). Furthermore, processes of implementation define how ordinary resources are combined and harmonised for superior output (Luo and Child 2015). Compositional strategy under CBV is introduced as an essential component to understand the concept of organizational ingenuity as it integrates the relevance of ordinary resources and the harmonisation of these generic resources in the creative thinking process. While Lampel, Honig, and Drori (2014) defined organizational ingenuity as the ability to create novel solutions using limited resources, Luo and Child (2015) presented CBV as the combination of compositional strategy identifying which generic resources are useful in the processes of implementation to create novel solutions. The CBV theory is proposed to be the complementary strategy that allows firms to achieve organizational ingenuity.

CBV is defined as:

...firms with ordinary resources can establish a strong position among their competition by creatively assembling and integrating the open and generic resources they possess or purchase; that is, they are astute in distinctively identifying, leveraging, and combining ordinary resources, external and internal, to create competitive advantage. (Luo and Child 2015, 381)

The use of ordinary resources and firms' capabilities to leverage such resources to gain competitive advantage through creative approaches reveals new information for strategic management disciplines. This study aims to apply the concept of organizational ingenuity to emerging economy SMEs and present this through a CBV theory lens. Organizational ingenuity is a rare, valuable, inimitable, bespoke strategy



for firms to navigate through these conditions. In addition, there are also limited studies on the specific conditions that SMEs navigate when attaining organizational ingenuity.

Luo and Child (2015) present CBV as a phenomenon whereby firms apply ordinary resources to establish competitive positioning in the business market through creativity and integration of different generic resources and capabilities. Simultaneously, Lampel, Honig, and Drori (2014) propose organizational ingenuity as firms' ability to overcome structural constraints by developing creative and innovative solutions using limited resources and ingenious problem-solving skills. The overlapping similarities between both concepts in recognising creative solutions as a response to institutional constraints and lack of resources initiated the focus of this thesis. Both concepts of organizational ingenuity and CBV highlight organisations' ability to achieve competitive advantage by leveraging their limited resources to overcome institutional constraints.

This study aims to elucidate how emerging economy firms, particularly SMEs, overcome constraints and achieve organizational ingenuity with ordinary resources through the lens of CBV theory. The unique consolidation of capabilities and ordinary resources delineates a CBV strategy to achieve organizational ingenuity. Firms possessing organizational ingenuity are astute in taking advantage of generic resources. A CBV strategy illustrates the extension of this concept through firms' consolidation of generic resources and collective capabilities when responding to the turbulent emerging market environment.

Focusing on resources, the existing literature on organizational ingenuity has only highlighted the issue of limited resources challenging firms to remain competitive. A CBV theory lens stipulates the value of generic resources that firms leverage as they

overcome challenging business environments. The recognition of generic resources and the act of harmonising and transforming generic resources for superior value aligns well with the understanding of CBV theory. In another respect, the specific conditions compelling firms toward organizational ingenuity are yet to be discussed in existing literature related to organizational ingenuity. In the pursuit of success through challenging business environments, fresh value-creating strategies are achievable using the components of a CBV strategy to overcome specific conditions in the emerging economy environment. Understanding organizational ingenuity through a CBV theory lens has remained unexplored. To understand how firms create novel solutions using available resources and capabilities when overcoming challenges of an emerging economy, this study explores organizational ingenuity through a CBV theory lens.

### **2.3 External conditions in an emerging economy**

This section aims to review conditions or factors proposed to be the contributing conditions of an emerging economy, compelling SMEs to pursue organizational ingenuity. The introduction of organizational ingenuity by Lampel, Honig, and Drori (2014) calls for further investigation to define specific forces or conditions compelling firms to attain organizational ingenuity. This section will dissect and discuss each component identified to be a contributing factor influencing firms to attain organizational ingenuity. The key focus of this section is to identify specific conditions of emerging economies that lead SMEs to create novel solutions utilising generic resources and capabilities.

#### **2.3.1 STORM conditions: an overview**

The structure of an emerging economy can be challenging but presents unique opportunities for firms, especially SMEs. The absence of market-enabling institutions and lack of a stimulating business environment becomes more prominent in emerging

economies (Peng, Wang, and Jiang 2008). Volatile business environments and intense competition force firms to be adaptable by creating innovative solutions (Meutia and Ismail 2015). The constrained environment of an emerging economy provides a unique context compelling SMEs to overcome and persist. The challenges presented in an emerging market are the key drivers forcing firms to attain organizational ingenuity and these challenges are striking in India's emerging market.

India has been in the process of market liberalisation since the early 1980s. Initially, the economy of India was largely chained by a strict set of licensing requirements or the Licence Raj model (Soo 2008). The appeal of market liberalisation has transformed India from a closed economy to an attractive stage of globalisation. For a period of time, India was overburdened with rigorous administrative barriers, strict policies by government, requirements for strict licensing, and bureaucratic delays (Chari and David 2012). The industry struggled and had no incentive to explore the possibility of becoming one of the leaders in the emerging market. The reformation led India from a restrictive economic system to a more open trade market policy (Kwok Tong 2008). Such revision of economic policy is a potential platform for firms, particularly SMEs, to exploit market opportunities.

Numerous research reports have highlighted the growing number of opportunities following market liberalisation in India. In fact, market liberalisation has enabled freedom and ease of market entry for both local and foreign firms to operate (Kale and Anand 2006; Majumdar 2008; Piramal 1996). While it is recognised that, through market liberalisation, firms in an emerging economy can enter a world of possibility, it is also accepted that this does not come without a challenge. The post-liberalisation market is described as full of uncertainties with competition saturated both locally and

abroad (Singh, Garg, and Deshmukh 2005). Large organisations have had an advantage compared to SMEs post-trade liberalization in India (Amrinder 2016).

The context of innovation in an institutionally constrained emerging economy such as India can be further explained through the tendency for creative solutions and ingenious use of existing resources, linking back to organizational ingenuity. The resilience of the Indian market as an emerging economy can be traced back to the history of its economy. While India has reformed for market liberalisation, the challenges of the emerging economy for Indian SMEs remain prevalent. The shift of the Indian economy and market towards innovation and entrepreneurship is associated with the country's natural proclivity for frugal innovation or Jugaad (Prabhu and Jain 2015).

There are various challenges facing SMEs that are unique to the emerging economy context. Studies by Singh, Garg, and Deshmukh (2010, 2009) and Amrinder (2016) highlighted challenges facing SMEs, such as lack of access to technologies, limited institutional supports specifically for SMEs, high cost associated with development and innovation, inadequate access to quality labour capital, and limited available funding for growth. In a context of post-trade liberalisation in India, SMEs experience intense pressure from a hypercompetitive environment in which they must adapt to survive (Todd and Javalgi 2007).

The distinctive business environment of the Indian market as an emerging economy presents unique challenges specific to the market. In addition to stated challenges, firms are also under pressure to adapt in the extreme institutional environment of the emerging economy. The critical variations in the institutional environment of an

emerging economy are more complex when compared to the institutional environment of an advanced economy (Meyer and Peng 2016).

An institutional framework is defined as “the set of fundamental political, social, and legal ground rules that establishes the basis for production, exchange, and distribution” (Scott 1995, 33). It is the influence defining a firm’s behaviour, such as strategy and decision-making processes. The tremendous uncertainty in the institutional environment of the emerging economy were being substituted with informal institutions due to limited enforcement of formal institutions in the market (Meyer and Peng 2016; Peng 2000, 2003).

Institutional frameworks established for emerging economies are less sophisticated in comparison with advanced economies, especially regarding matters such as property rights, intellectual property (IP) protection, capital markets, lack of talented labour, and infrastructure (Hoskisson et al. 2000; Narula and Dunning 2000; Estrin et al. 2009). The dynamic interactions between firms and institutional frameworks influence firms’ direction in aspects such as strategic choices and behaviours. Therefore, variances in the institutional environment of an emerging economy influence firms’ actions in the market.

Peng (2000) observed the interaction between industry conditions and firm-specific resources, along with formal and informal constraints, influencing firms’ strategic choices. The industry conditions, firm-specific resources, and institutions that face both formal and institutional constraints reflect the environment experienced by firms in an emerging economy. This thesis explicates these unique conditions as the underlying forces compelling SMEs in an emerging economy to create novel solutions.

Specific factors that can be distinguished in an emerging economy need to be identified to understand organizational ingenuity. In the context of the challenges and institutional environments discussed previously, this study proposes specific conditions or factors to be the compelling mechanisms for firms to pursue organizational ingenuity. This study introduces the STORM conditions which comprise (1) social, (2) technological, (3) organisational, (4) regulatory, and (5) market (Luo, Sun, and Wang 2011) to be the main motivations for SMEs in an emerging economy to attain organizational ingenuity.

This study utilises STORM conditions to capture the challenges of conducting business in an emerging economy such as India. This thesis identifies STORM conditions to be the key drivers of SMEs in India towards organizational ingenuity. This study argues STORM conditions to be the antecedents that compel firms to achieve organizational ingenuity. STORM conditions are the proxy capturing the overarching complex environment of an emerging economy.

STORM conditions in emerging economies encapsulate the uncertainty of the market which prompts firms' aspirations towards organizational ingenuity. STORM conditions can be the explanatory variables to decipher how firms in emerging economies overcome constraints and institutional challenges. From (Luo, Sun, and Wang 2011), this thesis has taken the framework and adapted to capture inevitable challenging conditions of emerging economy to further understand organizational ingenuity. This study argues STORM conditions are relevant to and an emerging economy such as India, driving firms towards organizational ingenuity, as presented in Table 4.

Table 4: STORM Conditions

<b>STORM condition</b>	<b>Social</b>	<b>Technological</b>	<b>Organisational</b>	<b>Regulatory</b>	<b>Market</b>
<b>Characteristics</b>	Disparity and fragmentation in economic and social development (Luo, Sun, and Wang 2011).	Overcome lack of access to advanced technology by exploiting readily available technologies, reducing pressure to invest in in-house research and development (Chittoor et al. 2009; Verwaal 2017; Luo, Sun, and Wang 2011; Gunasekaran et al. 2001).	Forced to develop entrepreneurial orientation and inclination towards taking business-related risks due to uncertain challenging environment of an emerging economy. Firms oriented towards serving regional niches and develop limited specialisation (Tang and Tang 2012; Luo, Sun, and Wang 2011; Singh, Garg, and Deshmukh 2005, 2009).	Emerging economies offer weak protection for emerging economy firms. Hence, enforcing contracts or anything related can be very costly (Young et al. 2008; Singh, Garg, and Deshmukh 2009).	Volatile and uncertain market conditions for emerging economy firms, possibly from limited market research (Hashim and Wafa 2002).

***STORM: social condition***

The rise in inequality related to income distribution, employment opportunities, and living conditions—to name a few—are discriminations defining society in many countries today. These are common characteristics of disparity and fragmentation in economic and social development (Luo, Sun, and Wang 2011) fostering an environment which compels firms to be creative. Some of the important dimensions characterising the social condition in India include, but are not limited to, the gap in income equality, the high level of absolute poverty, and religious and gender differences (Dang and Lanjouw 2021).

Such social injustices within the institutional context add another level of constraints for SMEs operating in an emerging economy such as India. Emerging economies lack social condition that can help facilitate a positive business environment for firms' survival (Gao et al. 2017). Social condition is recognised as a category defining informal institutions in emerging economies that includes social change and development and social norms, commonly perceived as institutional constraints in an emerging economy (Czech 2014). Bradley et al. (2012) stated that business development will naturally take place with efforts for equal distribution or access of education, social connections, and financial supports. However, improvement on social conditions are not variables that firms expect to be developed and improved as a solution to overcome challenging emerging economy environments.

Although emerging markets are often afflicted by social uncertainty and insecurity, changing social conditions have a unique rallying effect that initiates gathering a pool of internal and external competences and resources for firms (Hyvärinen, Keskinen, and Levänen 2020). Indeed, social uncertainties inflict challenges that ultimately influence firms' pursuit for innovation. Emerging economies differ greatly from



developed/advanced economies in their speed of political and economic pace which also generates a different set of challenges for firms to navigate (Marquis and Raynard 2015).

The social condition of emerging economies incubates higher levels of investment and operational risks due to inefficient legal structures, weak financial systems, trade barriers, discriminating regulatory systems, and lack of enforcement of property rights protection (Brouthers 2002; Aybar and Ficici 2009). Lack of law enforcement and the burden of regulations are common themes that characterise most emerging economies (Rajagopalan and Zhang 2008; Tai and Wong 2003).

SMEs facing social challenges are compelled to adapt to existing conditions by repurposing and creatively consolidating available resources to the firms' advantage. This study argues that the mobilising effect of changing social conditions motivates firms to achieve organizational ingenuity. This study aims to explore how organisations effectively manage and leverage social condition to their competitive advantage and their path to organizational ingenuity.

***STORM: technological condition***

Major technological development in several parts of the world, including emerging economy markets, has been triggering a major shift in the business environment. Rapid technology change poses a significant threat for firms which, in turn, forces firms to be creative to remain competitive (Grigoriou and Rothaermel 2017; Jiang, Wang, and Jiang 2019; Wadhwa and Kotha 2006). Inadequate access to technology is one of the greatest obstacles for companies to remain competitive.

Technology access is no longer a luxury but a necessity for SMEs to gain success (Prasanna et al. 2019). Studies such as Jones and Jain (2002) and Gunasekaran, Rai, and Griffin (2011) highlighted that the resilience and ability to remain competitive of

SMEs is attributed to benefits gained from technology. In addition, Jones and Jain (2002) argued SMEs' ability to innovate is through utilising available technology. Technological changes have been proven to support a dynamic business environment by expanding industry limitations, facilitating greater competition, promoting better quality products, and enabling innovation (Ahlstrom et al. 2020). Multiple scholars have concurred that technology is a critical element for business innovation (Loon and Chik 2019; Chesbrough and Rosenbloom 2002).

Multiple strategy researchers attributed firms' inability to reuse and recombine existing technology for a new and more productive purpose to be one of the main contributing factors for failure (Carnabuci and Operti 2013; Galunic and Rodan 1998; Hargadon and Sutton 1997). Building on this observation, this study recognises the need for companies to possess technology and the technological know-how to face a dynamic and changing economic and business environment. In addition, this study sees the importance of firms' ability to extend the value of existing technological resources as a vital attribute, especially in a climate where resources are limited and potentially inaccessible for many.

Firms are constantly pressured to compete in a rapid-paced, ever-changing environment and there is an expectation to remain competitive through cost reduction (Sharma and Gupta 2004). Cost efficiency can be achieved with access to adequate technology; thus, allowing firms to be flexible and respond accordingly to a dynamic market. In addition, access to advanced technology is imperative in a competitive market environment for firms to survive and gain a competitive advantage.

In addition to gaining competitive advantage, technology has been shown to improve firms' productivity and quality product offerings (Enemuo et al. 2019). Technological

access enables firms to enter markets that would have been off limits in the past. Firms in emerging economies make revolutionary advances by utilising readily available technology which has greatly enhanced their positioning in the global market (Ahlstrom et al. 2020).

This study argues that firms in emerging economies leverage the lack of access to advanced technology by utilising readily available technologies, when adapting to limitations (Chittoor et al. 2009; Verwaal 2017; Luo, Sun, and Wang 2011; Gunasekaran et al. 2001). Exploiting readily available technologies has helped firms reduce the pressure to invest in-house. Through creativity, firms can provide superior value using readily accessible technology. In this instance, firms experiment with existing technologies and possibly redefine the value and functions of the technology (Carnabuci and Operti 2013).

The setting of an emerging economy for lack of technological advancement forces firms to develop technological know-how that, in turn, develops competitive advantage that is critical for their success (Yiu, Lau, and Bruton 2007; Barney 1991). Firms navigate highly challenging conditions, such as limited access to advanced technology, using novel solutions applied using readily available technology. This study argues that SMEs challenged by issues related to technological conditions, such as limited access to technology and lack of advanced technology, to be contributing factors in the pursuit of organizational ingenuity.

***STORM: organisational condition***

The source of organizational ingenuity in emerging economies can be traced back to the tendency of the emerging economy society to be entrepreneurship oriented. According to Lumpkin and Dess (1996), entrepreneurial orientation includes characteristics such as acting independently, a propensity to innovate and endure risk,

an inclination to contest competitors aggressively, and being proactive to opportunities available in the market. In addition, entrepreneurship-oriented firms are more opportunistic in knowledge creation as they can creatively leverage generic resources and information to manoeuvre amid uncertain conditions (Jiang, Wang, and Jiang 2019; Yli-Renko, Autio, and Sapienza 2001).

These arguments suggest that organisational conditions facilitate entrepreneurial orientation, which ultimately spurs firms' creative thinking to make the best of the available resources and information. The inclination towards entrepreneurial orientation among SMEs is rooted in the nature of the institutional context in which the SMEs are operating (Gupta and Batra 2016; Lee and Peterson 2000; Narayanan and Fahey 2005). Many scholars have argued India to be central in innovation with a heavy reliance on entrepreneurship (Nair et al. 2015; Chakraborty and Kumar 2013; Kulkarni 2013).

The differences in institutional constraints across countries in emerging economies shaped society to be confrontational to achieve success. Such differences forged formidable firms which exploit existing generic resources available to pursue new opportunities, embark on new endeavours by braving unavoidable risks, and innovatively derive enhanced value from readily available resources. Therefore, firms are forced to develop a critical trait of entrepreneurial orientation which empowers them to face institutional constraints and the competitive environments of emerging economies.

India can be associated with a growing appreciation of the business approach of market inclusivity (Jain 2020). The trend for firms to be market inclusive influences them to change their market focus and business strategies. As a result, SMEs are

more oriented towards serving regional niches and developing limited specialisations (Tang and Tang 2012; Luo, Sun, and Wang 2011; Singh, Garg, and Deshmukh 2005, 2009). Studies such as Khan and Lew (2018) and Tödtling and Kaufmann (2001) found niche strategies or development for specialisation can positively influence SMEs' success. The demanding condition of an emerging economy requires SMEs to change their business strategies as per the market condition to cater to the local market, such as India. Thus, this study posits that organisational condition is one of the conditions that drive SMEs towards organizational ingenuity.

***STORM: regulatory and political conditions***

Laws and regulations are instrumental constraints that lay the foundations for firms to function. Lack of regulatory institutions exacerbates the probability of instability and volatility among firms in emerging economies (Gao et al. 2017). Emerging economies offer weak and vulnerable protection for firms. Hence, enforcing contracts or implementing legal requirements can be very costly (Young et al. 2008; Singh, Garg, and Deshmukh 2009). In contrast, the strong institutional structure of a more developed economy would benefit from ease in enforcement of contracts and legal protection (Wang, Wong, and Xia 2008; Fan, Wang, and Zhu 2011).

A stable and more developed institutional structure in developed economies has supported facilitation of business agreements and reduced uncertainties (Meyer 2001; Harrison et al. 2018). The lack of regulatory enforcement in emerging economies creates an institutional void that forces firms to be creative, leading to innovative solutions to compensate for lack of regulatory support. Marquis, Zhang, and Zhou (2011), Engau and Hoffmann (2011), and Kingsley, Vanden Bergh, and Bonardi (2012) suggested different regulatory conditions such as political risks, regulatory uncertainty, unstable government, and difficulties in obtaining regulatory approval for

certain industries to be among the many challenges for businesses in emerging economies.

Firms' performance is noted to be directly influenced by the severity of regulatory uncertainty (Kingsley, Vanden Bergh, and Bonardi 2012). Temouri et al. (2020) argued that a strong understanding of the regulatory condition supports SMEs in emerging economies to pursue an exploratory growth strategy. However, most emerging economies, including India, are not equipped with solid market-supporting institutions such as sophisticated legal infrastructures and intermediaries for law enforcement (Bai et al. 2004; Tenev, Zhang, and Brefort 2002).

A volatile political system is another condition considered to be one of the biggest risks when operating in an emerging economy (Henisz and Zelner 2015). Precarious political conditions can severely impact an already constrained SME. Mambula (2002) argued political risk to be influential in SMEs' growth. In addition, policy outcomes are greatly influenced in emerging economy countries with weak legal systems (Campos and Kinoshita 2003; García-Canal and Guillén 2008). Based on this literature, this study argues for political condition to be another contributing factor driving firms to creative solutions.

SMEs in emerging economies are more likely to coordinate available resources within a bespoke strategy in the face of regulatory challenges (Temouri et al. 2020). The efficiency of an emerging economy legal system is argued to be the mechanism for trust among investors (Johnson et al. 2000). The lack of certainty compels firms in emerging economies to be implicated in consequences related to the inefficiency of a legal system. Building on this understanding, this study relates SMEs' strategic intent to be significantly influenced by challenges associated with the regulatory condition of

a market. It is worth acknowledging that there is limited current research to explore the influence of regulatory and political conditions directly on organizational ingenuity.

The creative problem-solving process of SMEs in emerging economies is initiated by challenges associated with regulatory and political conditions. Therefore, this thesis contends regulatory and political conditions are the supporting conditions compelling SMEs in an emerging economy to pursue organizational ingenuity.

***STORM: market condition***

Emerging economy market condition is an environment that directly shapes firms' strategies in an emerging economy (Xu and Meyer 2013). The distinctive characteristics, such as institutional supports, hypercompetitive market, and preference for frugal tactics, are among the many factors defining the market condition of an emerging economy. The challenging environment of an emerging economy tends to be emphasised further in comparison with countries with developed economies (Temouri et al. 2020). The market condition of an emerging economy frames the challenging context for SMEs to stay competitive.

Researchers largely describe the market condition of emerging economy to be imperfect market institutions (Khanna and Palepu 1997, 2000; Wright et al. 2005; Chang and Choi 1988). India's emerging economy has drawn the attention of academics for its ability to engage in low cost, creative solutions (Govindarajan and Ramamurti 2013; Prabhu and Jain 2015; Prahalad and Mashelkar 2010; Rai 2014; Nair et al. 2015). Minović, Lazarević–Moravčević, and Beraha (2017) argued that SMEs in emerging economies are more oriented towards low-cost and distinctive strategies compared to advanced economies. Such strategic orientation is deemed as an appropriate solution for SMEs to overcome the challenges of operating in an emerging economy.

Nonetheless, firms are built, and achieve success, in this very unstable institutional market condition. In fact, there is success or growth among SMEs in emerging economies despite institutional voids, including unpredictable institutional environments in both formal and informal institutions (Roxas and Chadee 2011; Xheneti and Bartlett 2012). Scholars from the economics, politics, sociology, and science disciplines have found institutions to be both a formal and informal influence affecting organisational and economic activity (Marquis and Raynard 2015; North Douglass 1990). Peng (2003, 275) defined institutions as “fundamental and comprehensive changes introduced to the formal and informal rules of the game that affect organizations as players”. SMEs operating within the context of emerging economies are more likely to experience limited institutional supports that ultimately create additional cost for their continued operation (Chrysostome and Molz 2014; Farashahi and Hafsi 2009).

Narooz and Child (2017) suggested the contrast in institutions between emerging economies and advanced economies is that the former are considered ‘soft institutions’ whereas the latter are known as ‘hard institutions’. Derived from this definition, market condition in this thesis is described as the structures shaping firms’ behaviour in the market. Market condition is characterised as volatile and uncertain for emerging economy firms, possibly due to lack of market research in decision-making processes (Hashim and Wafa 2002). The uncertain conditions facing organisations forces firms to adapt and change accordingly. This thesis argues that SMEs operating in such volatile market conditions are inclined towards creative or alternative solutions.

The market conditions of an emerging economy may encourage firms to cater to the demands of the mass market. Firms in emerging economies are increasingly targeting



the relatively low and 'new middle class' consumer to expand their market reach (Leliveld and Knorringa 2018). To meet constrained finances among low and new middle class consumers in an emerging economy such as India, firms are forced to produce products and services through frugal tactics (Krishnan and Prashantham 2019).

Market liberalisation in India has provided firms with growth opportunities and access to middle class customers in emerging economies (Khanna and Palepu 2004; Prahalad and Lieberthal 2008). Scholars such as Prabhu and Jain (2015), Radjou, Prabhu, and Ahuja (2012), and Ananthram and Chan (2019) emphasised the emergent form of innovation associated with low-cost, frugal, quick fixes and creative novel solutions in an emergent context such as India. It is this context of organisational condition which forces firms to attain organizational ingenuity.

#### **2.4 Compositional capabilities overview**

This section provides an overview of competitive attributes required or developed by SMEs utilising generic resources to overcome the institutional constraints and challenges of operating in an emerging economy context. CBV elucidates the importance of ordinary or generic capabilities and resources for firms to create distinctive paths for growth (Luo and Child 2015). Luo and Child (2015) defined compositional capability as the extent to which firms are able to coordinate and consolidate open resources available to them. Furthermore, compositional capability has been emphasised as vital for firms to create competitive advantage (Luo and Child 2015).

Complementing the above views, understanding organizational ingenuity through a CBV theory lens includes the supporting elements of compositional capabilities and processes. The logic behind utilising common resources is emphasised by the

overlapping qualities of organizational ingenuity and CBV. This demonstrates firms' clever approaches to leveraging generic resources when creating competitive advantage. This section argues that there are distinctive capabilities that firms develop as challenges of an emerging economy are conquered. CHAIN-D capabilities are argued to be the distinctive capabilities firms develop in the process of creatively leveraging generic resources for competitive advantage. In this thesis, compositional capabilities are characterised as (1) combinative, (2) hardship-surviving, (3) absorptive, (4) intelligence, (5) networking, and (6) dynamic.

#### **2.4.1 An overview of CHAIN-D capabilities**

The second conceptual property of organizational ingenuity is proposed in this study to be the compositional capabilities required to implement a CBV strategy. This thesis postulates that possession of unique and distinctive capabilities is essential for firms to achieve organizational ingenuity. These capabilities are known to be CHAIN capabilities (combinative, hardship-surviving, absorptive, intelligence, and networking) inspired by Luo and Child (2015) and (Luo, Sun, and Wang 2011) as illustrated in Table 5. In addition, this study proposes the inclusion of dynamic capabilities into CHAIN capabilities as prerequisites for firms to be capable of achieving organizational ingenuity.

Through a CBV, capabilities are referred to as a firm's ability to create and combine different resources, including generic and readily available resources (Luo and Child 2015). In this study, capability is identified as critical, and possibly the underpinning path, for firms' competitive advantage. In the pursuit of organizational ingenuity, capabilities complement CBV strategy through the logic that capabilities are critical attributes for firms to achieve organizational ingenuity. This thesis perceives

capabilities as different from resources as, without complementing capabilities, firms lose the mechanism to convert resources to something valuable (Lu et al. 2010).

Complementing the above views, this thesis takes a step further to expand from compositional capabilities (Luo and Child 2015) to specific capabilities inspired by Luo, Sun, and Wang (2011) that were subsequently categorised as CHAIN capabilities. The inspiration has created an adaptation to CHAIN-D capabilities, with the addition of dynamic capabilities as prerequisite capabilities of successful SMEs in emerging economies.

Table 5: CHAIN-D Capabilities

<b>CHAIN-D Capabilities</b>	<b>Combinative</b>	<b>Hardship-surviving</b>	<b>Absorptive</b>	<b>Intelligence</b>	<b>Networking</b>	<b>Dynamic</b>
<b>Definition</b>	Unique ability of combining existing and external resources to produce exclusive and augmented products or services at lower cost.	Firms' ability to operate and sustain themselves within institutional constraints and an uncertain, volatile emerging economy environment.	The ability to recognise and adapt new knowledge and efficiently apply this new knowledge within business operation for better decision-making processes.	Process thinking capability for firms to gain the competitive advantages of cost, speed, or channel in decision-making processes.	Ability to create genuine business connections to sustain competitive advantage and obtain resources from outside the institution.	Processes to integrate, reconfigure, gain, and release resources to match, and even create market change. Thus, dynamic capabilities are the organisational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die. (Eisenhardt and Martin 2000, 1107)

***CHAIN-D: combinative capability***

The common themes characterising emerging economy markets include limited access to resources for firms to survive. An emerging economy market is characterised by resource scarcity (Yiu, Bruton, and Lu 2005) and this has largely impacted the business environment. SMEs in emerging economies are severely impacted by lack of resources (Wan 2005). Batra et al. (2015) suggested that SMEs' strategic orientation and innovation are dependent on access to resources.

This study argues that the challenge of resource scarcity is managed in each firm through combinative capability as firms transform readily available resources into valuable outcomes. Both Sirmon, Hitt, and Ireland (2007) and Morrow Jr et al. (2007) suggested that the set of processes in recombining resource portfolios allows firms to create value and achieve performance targets because a firm's critical path to create value is strongly determined by its ability to meet consumer demand and leverage available or new resources.

Combinative capability is defined as a unique ability to combine existing and external resources to produce improved products and services at a lower cost. Similarly, Kogut and Zander (1992) described "combinative capabilities" as processes by which firms fuse and attain knowledge resources and generate new value-creating resources. However, Kogut and Zander's (1992) original study of combinative capability focused on the value of knowledge and how firms synthesise knowledge as a resource in the context of combinative capability.

This study aims to extend the understanding of combinative capability beyond knowledge as a resource and to leverage and synthesise information across a range of value-adding resources. Combinative capability is viewed as an ability to absorb

and synthesise information to firms' advantage (Carmeli and Azeroual 2009; Smith, Collins, and Clark 2005).

Firms capitalise on information that could be associated with technologies, assets, management know-how, and all other relevant resources as intermediate links defining combinative capability for SMEs to attain organizational ingenuity. Through combinative capability, firms are argued to have the mechanism to adapt by coordinating, recombining, and allocating existing resources to overcome the challenges of an emerging economy.

Biedenbach (2011) demonstrated the influence of combinative capability in facilitating innovation. The combinative way of managing resources is key for SMEs to remain competitive (Donbesuur et al. 2020). Combinative capability is argued in this thesis as key to SMEs synthesising acquired information, considered as resources, to the SMEs' advantage. This subsequently helps SMEs to attain organizational ingenuity.

***CHAIN-D: hardship-surviving capability***

Part and parcel of operating in an emerging economy market is surviving the challenging and volatile business environment. This study suggests hardship-surviving capability to be the second integral capability for firms to weather STORM conditions. Do et al. (2022) and Kantur and Say (2015) highlighted the underlying influence of organisational resilience, especially among SMEs, when adapting to the challenging business environment of an emerging economy. Richtnér and Löfsten (2014) argued that firms' capacity for resilience is correlated with their level of innovation. This study introduces hardship-surviving capability as part of SMEs' resilience in adapting to and managing the challenging condition of an emerging economy. Hardship-surviving capability is defined as a firm's ability to operate and

sustain within institutional constraints and the volatile emerging economies environment.

The nature of an emerging market has long been established as an environment with weak institutional structure for firms to stay competitive (Kothari, Kotabe, and Murphy 2013). According to Gao et al. (2017), firms in emerging markets are equipped with underdeveloped institutions in a rapidly changing market but, at the same time, stay persistent in such conditions. The resilience of firms which facilitates survival in such challenging markets is a unique capability observed among firms in emerging economies. Hardship-surviving capability is a specific response of SMEs that create novel solutions while operating within weak institutional structures. In this study, hardship-surviving capability is an integral attribute of a firm that attains organizational ingenuity.

The rapidly changing business environment in India's emerging economy presents a tremendous amount of business opportunities, encouraging firms to pursue innovation by leveraging existing imperfect market institutions (Tang 2010). Market-inhibiting institutions force firms to seek opportunities and resources in their commitment to survival (Khoury, Cuervo-Cazurra, and Dau 2014). Hardship-surviving capability presents as a mechanism supporting SMEs to seek opportunities in response to the dynamic business environment of an emerging economy.

The talent of firms to survive in such challenging conditions has been long undermined in the scholarly world. The pressure of institutional forces compels firms to draw on their hardship-surviving capability in order to compete and sustain their business. Many emerging economy firms continue to survive amid market challenges such as weak fiscal position, economic downturn, and slow poverty reduction (Kose and

Ohnsorge 2021). Therefore, this thesis recognises the competency to survive in a market-inhibiting environment to be a capability that maps firms' path towards organizational ingenuity. Hardship-surviving capability is an attribute that equips firms to create novel solutions to survive in the challenging emerging market environment.

***CHAIN-D: absorptive capability***

Knowledge is often critical to firms, either for survival or for developing innovative solutions. The ability to recognise the worth of new knowledge, then integrate and apply it as part of business operation, is critical in the development of innovative solutions. Such capability is a rare opportunity for firms to utilise and leverage information as valuable knowledge as they navigate through the challenging and competitive conditions of an emerging economy.

Every firm's strategic decision-making process is determined by the quality of knowledge (Senivongse, Bennet, and Mariano 2019). Dutta (2012), Lee, Liang, and Liu (2010), Park (2011), and Senivongse, Bennet, and Mariano (2019) stated that, in addition to the ability to respond to external challenges, firms rely on absorptive capability to capitalise on new knowledge for increased performance and competitiveness in the market. In fact, absorptive capability is useful for firms to comprehend the value of information and how it can be applied for innovation (Wong 1995; Cohen and Levinthal 1990).

Absorptive capability is identified as an organisational learning-based ability for knowledge absorption and application (Tsai 2001; Senivongse, Bennet, and Mariano 2019; Lichtenthaler 2009; Song 2015). Drawing on this ability, firms are equipped with a process-driven thinking capability to effectively draw upon new and existing knowledge in strategic decision-making processes. Firms capitalising on absorptive capability acknowledge the value of external knowledge when conceiving novel



solutions for organizational ingenuity. Tsai (2006) referred to absorptive capability as firms' capability to understand and synthesise knowledge gained from customers' feedback.

This study defines absorptive capability as the ability to concede and adapt new knowledge and efficiently apply this new knowledge within business operation for better decision-making processes (Lichtenthaler and Lichtenthaler 2009; Lane, Koka, and Pathak 2006; Zahra and George 2002). On this basis, absorptive capability recognises the value of knowledge to offset external challenges facing SMEs in emerging economies by attaining organizational ingenuity. This ability facilitates firms to achieve competitive advantage through the reconfiguration of knowledge as a vital resource when adapting to a dynamic market environment (Zahra and George 2002).

Learning in an organisation involves knowledge transfer among different organisational units that enables firms to gain core competencies that are central to surviving in a competitive business environment (Tsai 2001). For example, saturated competition and weak regulations enable shareholders of firms in China to have a tighter rein and better access to insider knowledge in comparison to the same circumstances in developed economies (Qian et al. 2017).

The ability to synthesise knowledge is argued as a vital capability for firms to create novel solutions when faced with dynamic change in the market. Both Yun, Zhao, and Hahm (2018) and Huang and Rice (2018) highlighted the importance of the absorptive capability role when facilitating open innovation outcomes among SMEs. Absorptive capability facilitates SMEs to achieve open innovation with efficiency and effectiveness (Huang and Rice 2018). Absorptive capability allows firms to leverage acquired knowledge to attain organizational ingenuity when confronted with the dynamic market

conditions of an emerging economy. The transformative influence of absorptive capability in effective knowledge absorption and creating novel solutions is argued as important for SMEs to achieve organizational ingenuity.

***CHAIN-D: intelligence capability***

While absorptive capability mentioned in the previous section focuses on the deliberate learning process of assimilating and integrating knowledge, organisational improvisation is a process of absorbing and utilising information swiftly in an unpremeditated manner (Hughes et al. 2018). In this study, organisational improvisation is identified as a key contributor to intelligence capability. This thesis argues that intelligence capability is a unique thinking process for firms to gain competitive advantage of cost, speed, or channel in decision-making processes.

Improvisation is distinguished from absorptive capability mentioned previously in this thesis as it deviates from standard practice and involves novel actions and decision-making processes (Hughes et al. 2018; Bergh and Lim 2008). It is with intelligence capability that firms can improve, and deviate from, their strategic planning in order to respond to opportunities or a dynamic change in the business environment. This thesis recognises intelligence capability as the ability of firms to utilise information given as part of creative problem-solving processes.

According to Qian et al. (2017), strategic investment in knowledge-based assets is proven to reinforce value-creating activity and positively affect firms' performance. Alzghoul et al. (2022) emphasised business intelligence capability as important for firms, especially in decision-making speed and influence on performance. While firms are often striving for competitive advantage through strategic investment in knowledge-based assets, this thesis contends that the heterogeneity in intelligence can be expanded to a firm's capability.

In fact, this capability is an attribute that enables firms to attain organizational ingenuity as they navigate through STORM conditions. For example, intelligence capability is well demonstrated among Indian pharmaceutical firms to correspond with increasing global demand for generic drugs (Luo, Sun, and Wang 2011). With intelligence capability, firms can prioritise investment focusing on improving the quality of strategic decisions.

According to Luo, Sun, and Wang (2011), intelligence capability pertains not only to firms' ability to recognise market-related information—such as competition, standards, technology knowledge, and regulations—but also to interpret and leverage the information to their advantage. Intelligence capability is especially vital for SMEs in emerging markets to develop as superior information is useful to overcome weak institution environments of emerging economies (Sun et al. 2021). The notion of intelligence capability is not limited to the brains of the company but also includes various types of capability aiding firms to gain competitive advantage.

In other words, intelligence capability is proposed to help firms decide what to do with the information given when constrained and challenged in emerging market condition. SMEs operating in an emerging economy rely on key information to stay competitive in the market. The intelligence capability of SMEs is important as it enables SMEs to distinguish valuable information when adapting to the challenging conditions of an emerging economy.

***CHAIN-D: networking capability***

Firms' external relationships or social ties are proven to play a major role in supporting firms to fill institutional voids and provide necessary resources for innovation (Arnoldi and Villadsen 2015; Du and Luo 2016). The combination of a hypercompetitive market and institutional uncertainty has intensely increased the complexity of the market

(Sirmon, Hitt, and Ireland 2007). Prior studies have long discussed the rationale for firms to possess networking capability to enhance organisational learning as well as compensate for limited organisational skills on the path to achieving business innovation (Powell, Koput, and Smith-Doerr 1996; Ahuja 2000; Zhou, Wu, and Li 2019). Connections between firms and external networks have a positive impact on business innovation. Resources gained from inter-organisational relationships are important as these are resources that are unique, rare, and imperfectly imitable (Helfat et al. 2009; Lavie 2006; Kogut and Zander 1992).

Many emerging economy firms rely on networking in order to access resources and survive in an uncertain business environment (Hoskisson et al. 2000; Luo, Sun, and Wang 2011). This study concedes networking to be one of the major capabilities required for firms to be able to cope with challenging business environments and to attain organizational ingenuity. In this thesis, networking capability is defined as the ability to create genuine business connections as a powerful tool to sustain competitive advantage and obtain resources from outside organisations.

A few studies focusing on Asian countries have conceded managerial networking relationships to be interrelated with organisational performance (Acquaah 2007; Peng and Luo 2000; Park and Luo 2001; Lee, Lee, and Pennings 2001). For example, Elango and Pattnaik (2007) and McDermott and Corredoira (2010) indicated that collaborative networks provide firms in emerging economies with access to market-related knowledge, such as opportunities and market intelligence, that can be utilised when adapting to the dynamic market change of an emerging economy. Building on this view, this study argues that networking capability is a quality developed by firms through maintenance of positive relationships with stakeholders, such as managers at other firms, suppliers, customers, governments, or governing institutions.

Numerous studies exploring the role of networking suggested that the higher the level of uncertainty in the business environment, the higher the level of firms relying on managerial networking relationships (Acquaah 2007; Pfeffer and Salancik 1978; Peng and Heath 1996). Uncertainty in the business environment encourages SMEs to rely on networking relationships with parties that may support firms to attain organizational ingenuity. SMEs gain advantage from networking with key stakeholders such as local governments and financial institutions. This is essential to create a conducive environment for firms' operation (Zhou, Wu, and Luo 2007).

The contingency effect of networking capability allows firms to be flexible in decision-making processes which enables them to gain competitive advantage. Through positive networking relationships and interactions with integral stakeholders, firms are guaranteed secure access to financial and strategic resources (Acquaah 2007). In addition, Acquaah (2007) argued that networking may benefit firms by providing access to valuable information.

Evidence from Jin and Jung (2016) revealed access to positive business networks increased SMEs' foreign market knowledge and overall performance. Networking capability is argued to allow SMEs to acquire necessary resources, valuable information, and intelligence that can potentially aid firms to proactively manage uncertainties and improve results. It is with networking capability that SMEs gain relevant access to information and resources when creating novel solutions to overcome the challenging conditions of an emerging economy.

***CHAIN-D: dynamic capabilities***

With the overview of CHAIN-D capabilities, this study posits dynamic capabilities to be an integral component for firms to achieve organizational ingenuity. Dynamic capabilities are described to be the drivers of competitive advantage that lead firms to

implement processes to integrate, reconfigure, gain, and release resources to match—and even create—market change. Dynamic capabilities, thus, are the organisational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die (Eisenhardt and Martin 2000, 1107). Through dynamic capabilities, firms are forced to recombine, reintegrate, and transform existing resources into new sources of competitive advantage. In addition, this study takes the understanding of dynamic capabilities from one of the three paradigms proposed by Teece, Pisano, and Shuen (1997). Teece, Pisano, and Shuen (1997) emphasised a distinct approach of firms building on competitive advantage by capitalising on entrepreneurial orientation stemming from firm level efficiency advantage. Because of this distinct approach, this study recognises dynamic capabilities as key for firms to draw upon for organizational ingenuity as this is in line with the entrepreneurial orientation identified in STORM conditions mentioned earlier in this thesis.

While this study recognises the similarity of dynamic capabilities with combinative capability from earlier work (Eisenhardt and Martin 2000; Teece 2009; Kogut and Zander 1992), it is worth noting that the word ‘dynamic’ in dynamic capability should include firms’ capability to respond to dynamic change in the business environment. The component of dynamic in dynamic capabilities is distinctive and differs from combinative capability, included earlier in this thesis.

Dynamic capability in emerging economies is proven to be essential as a response to the ever-changing and rapid pace of emerging economies (Teece, Pisano, and Shuen 1997). The key element of dynamic capabilities is adaptive capability which aligns with a firm’s ability to reconfigure resources and consolidate processes swiftly in response to the rapidly changing business environment (Gibson and Birkinshaw 2004). Borch and Madsen (2007) highlighted the particular importance of dynamic capabilities in

SMEs when facilitating innovation and conceiving growth strategies. In addition, evidence from Weaven et al. (2021) demonstrated the contribution of dynamic capabilities in SME survival and growth during economic downturn.

The current thesis adopts the dynamic capabilities definition of Eisenhardt and Martin (2000) in Table 6. However, other definitions detailed in Table 6 by Teece, Pisano, and Shuen (1997), Zollo and Winter (2002), Adner and Helfat (2003), Helfat et al. (2009), and Shuen, Feiler, and Teece (2014) offer an in-depth understanding of the dynamic capabilities and further extend the definition as initiated by Teece, Pisano, and Shuen (1997).

The complementary value of dynamic capabilities to attain organizational ingenuity allows firms to modify and integrate resources promptly and effectively in response to dynamic market change. Dynamic capabilities are recognised to be vital for firms to coordinate appropriate strategic decisions when responding to dynamic change of market environment (Hou 2008; Weaven et al. 2021). Through this evaluation, this thesis effectively recognises the distinguished characteristics of dynamic capabilities highlighted in this study to be slightly different than combinative capability mentioned earlier. Firms provisioned with dynamic capabilities are able to promptly respond to dynamic market change by altering and utilising organisational resources and altering processes accordingly.

The addition of dynamic capabilities as part of CHAIN capabilities proposed in this study captures firms' ability to recognise opportunities and forecast the unique potential of generic resources. Furthermore, firms exploit and capitalise on such unique potential of generic resources on the path to attaining organizational ingenuity. SMEs capitalise on dynamic capabilities to overcome the challenging conditions

proposed in STORM conditions of an emerging economy. Dynamic capabilities can be useful to SMEs, especially when responding to the typically volatile market in an emerging economy. Thus, this study extends CHAIN to CHAIN-D capabilities. Table 6 collects the key definitions of dynamic capabilities as disseminated by prominent scholars in strategic management.



Table 6: Various Definitions of Dynamic Capabilities

Author/s (Year)	Definition of dynamic capabilities
Teece, Pisano, and Shuen (1997, 515)	<i>“The term ‘dynamic’ refers to the capacity to renew competences so as to achieve congruence with the changing business environment; certain innovative responses are required when time-to-market and timing are critical, the rate of technological change is rapid, and the nature of future competition and markets difficult to determine. The term ‘capabilities’ emphasizes the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and external organizational skills, resources, and functional competences to match the requirements of a changing environment.”</i>
Eisenhardt and Martin (2000, 1107)	<i>“The firm's processes that use resources-specifically the processes to integrate, reconfigure, gain and release resources-to match and even create market change.”</i>
Zollo and Winter (2002, 5)	<i>“A learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness.”</i>
Adner and Helfat (2003, 1012)	<i>“...capabilities with which managers, build, integrate, and reconfigure organizational resources and competences.”</i>
Helfat et al. (2009, 4)	<i>“A dynamic capability is the capacity of an organization to purposefully create, extend, or modify its resource base.”</i>
Shuen, Feiler, and Teece (2014, 6)	<i>“The ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing markets.”</i>

Source: The authors

## 2.5 Compositional process

The final component that completes the conceptual property of organizational ingenuity is proposed as specific processes or procedures that SMEs steered through when achieving organizational ingenuity. There is a lack of understanding of SMEs'

specific processes in achieving organizational ingenuity or creating novel solutions. Clearly, there is a need to identify what processes are involved for SMEs to adapt to different challenging conditions, equipped with distinctive capabilities, to survive in challenging business environments with organizational ingenuity.

This thesis proposes processes to be customised and adapted according to business contexts and differing business environments. Compositional process is the final component of the CBV. CBV logic explains the distinctive process that SMEs apply when attaining organizational ingenuity. As compositional strategy identifies generic resources, compositional process examines the process of integrating and harmonising generic resources which are altered to provide innovative solutions leading to organizational ingenuity. According to Luo and Child (2015), CBV is an approach taken in response to customers' demand with an emphasis on improvisation.

CBV specifically identifies process as creatively composing multiple capabilities and generic resources by leveraging a challenging business environment (Luo and Child 2015). Therefore, compositional process here is an organised way that permits SMEs to achieve organizational ingenuity with a CBV strategy. This thesis argues that organizational ingenuity through a CBV lens is established with the combination of CBV strategy, capabilities, and the leverage of generic resources in a creative problem-solving process. The step-by-step approach that firms take when attaining organizational ingenuity through CBV is what defines compositional process. The distinctive process of SMEs enacting organizational ingenuity can be complex.

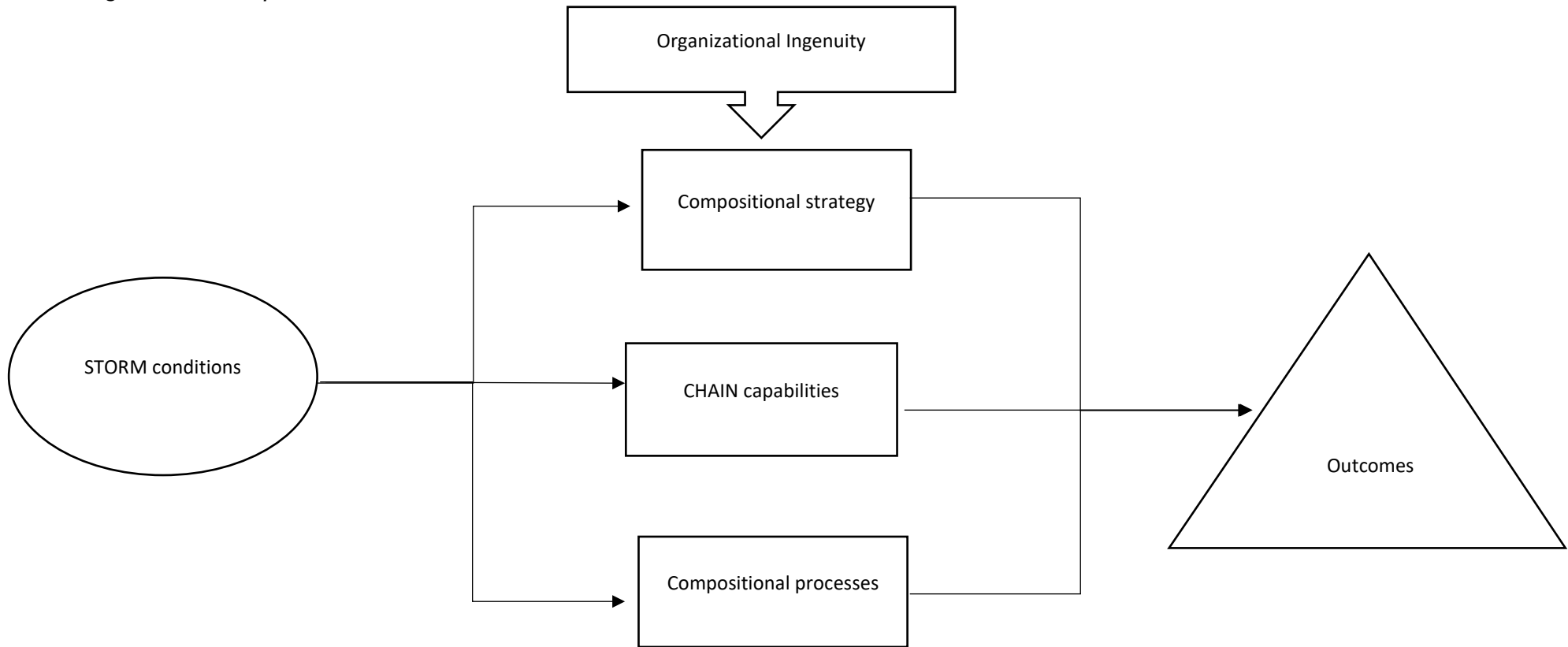
Improvisation incorporates the firms' ability to deviate from original strategic moves in response to changing business environments, as mentioned in the intelligence capability in the CHAIN-D capabilities section. Through compositional processes,

compositional strategy derived from CBV concept is initiated, complemented by CHAIN-D capabilities, to weather STORM conditions.

## **2.6 Conceptual framework**

This research aims to contribute to the existing literature by exploring the so far untouched concept of organizational ingenuity. This study recognises the importance of understanding creativity as the missing puzzle piece in the understanding of ingenuity. The concept of organizational ingenuity at a firm level is essential for emerging economy firms to understand as a pressing prospect for new scholarship. The above arguments are synthesised into a conceptual framework illustrated in Figure 2.

Figure 2: Conceptual Framework



## **2.7 Chapter summary**

This chapter has reviewed the literature which has informed a final framework to understand the concept of organizational ingenuity. To begin, the emerging economy context was discussed in terms of relevance and the focus of the context for the study of organizational ingenuity. Next, the perspective of SMEs in the emerging economy of India was discussed as it is the setting for this thesis. The next section introduced the concept of organizational ingenuity and CBV as a theory lens. Next, the overview of emerging economy conditions presented as STORM conditions were included to divulge knowledge on what forces SMEs to achieve organizational ingenuity. Next, an overview of CHAIN-D capabilities that firms develop to weather STORM conditions were investigated. The final conceptual property of organizational ingenuity was proposed to be compositional processes, described as bespoke processes for firms to attain organizational ingenuity. Lastly, a conceptual framework was presented to illustrate the overall concept proposed to understand organizational ingenuity.

## **Chapter 3: Research design and methodology**

### **3.1 Chapter introduction**

This chapter deliberates and justifies the research paradigm and the selection of case study methodology for this thesis. This thesis adopts a qualitative exploratory case study approach. The choice of qualitative exploratory case study approach is justified in this chapter by comparing different types of case studies methodologies. Furthermore, research design, such as data collection, preparation, and analysis are also discussed in this chapter. Finally, this chapter discusses the criteria on which to judge the quality of the case study research in terms of validity and reliability.

### **3.2 Research design/research paradigm**

Research design is a blueprint that guides researchers in collecting, analysing, and interpreting evidence (Yin 2014; VanWynsberghe and Khan 2007). In conducting research, a properly executed research design involves detailed planning of a step-by-step approach to conduct a scientific study. The choice of research design depends on the standpoint of the researcher and the objectives and aims established for the study. The quantitative versus qualitative debate has been ongoing in the world of academia and, more specifically, in the social sciences field. Qualitative research is the pursuit of subjective 'meanings' while quantitative research is more oriented towards establishing 'facts' (Silverman 2020; Morgan and Smircich 1980). Although there are paradigmatic differences between qualitative and quantitative research, there are respective qualities that offer the best chance of answering particular research questions.

Epistemology is indicated as the study of understanding the nature and the process of knowledge (Easterby-Smith et al. 2018). It is argued that the two dominant research paradigms of positivist and interpretivist represent two opposing ontological assumptions (Farquhar 2012). The contrasting view of positivism and interpretivism are respectively associated with quantitative and qualitative research methods (McEvoy and Richards 2006). Table 7 provides an overview of the key distinctions between positivism and interpretivism which provide perspective to the researcher in maintaining a coherent and rigorous

investigation. The positivist approach states that reality is objective and independently measurable as it aims to understand the phenomena scientifically (Crotty 1998; Rashid et al. 2019). In contrast, the ontology of interpretivism describes interpretivism intention as uncovering subjective realities in research topics. Consequently, this allows researchers to experience multiple views of a research problem through the realities of the participants (Guba and Lincoln 1994; McKenna, Richardson, and Manroop 2011; Rashid et al. 2019).

*Table 7: Positivism versus Interpretivism*

	<b>Positivism</b>	<b>Interpretivism</b>
Researcher	<ul style="list-style-type: none"> <li>• Detached</li> </ul>	<ul style="list-style-type: none"> <li>• Engaged</li> </ul>
Research question	<ul style="list-style-type: none"> <li>• What?</li> </ul>	<ul style="list-style-type: none"> <li>• Why?</li> <li>• How?</li> </ul>
Values	<ul style="list-style-type: none"> <li>• Free</li> </ul>	<ul style="list-style-type: none"> <li>• Laden</li> </ul>
Concepts	<ul style="list-style-type: none"> <li>• Clearly defined to enable measurement</li> </ul>	<ul style="list-style-type: none"> <li>• Defined but open to reconsideration during course of research</li> </ul>
Units of analysis	<ul style="list-style-type: none"> <li>• Classified and simplified</li> </ul>	<ul style="list-style-type: none"> <li>• Rich and complex</li> </ul>
Generalisation underlying logic role of theory	<ul style="list-style-type: none"> <li>• Deduction</li> <li>• Theory testing through hypothesis formulation, data collection, and testing</li> </ul>	<ul style="list-style-type: none"> <li>• Induction</li> <li>• Generation of theory through pattern analysis</li> </ul>

Samples	<ul style="list-style-type: none"> <li>• Random</li> </ul>	<ul style="list-style-type: none"> <li>• Selected according to research objectives</li> </ul>
Findings	<ul style="list-style-type: none"> <li>• Measure</li> </ul>	<ul style="list-style-type: none"> <li>• Meaning</li> </ul>

Source: Adapted from Easterby-Smith et al. (2018); Blackmon and Maylor (2005), as quoted by Farquhar (2012).

The relative merits of research design methods have long been debated. In fact, purists have emerged from both sides of quantitative (Ayer 1959; Maxwell and Delaney 2004; Popper 1959; Schrag 1992) and qualitative research (Guba and Lincoln 1989; Lincoln, Lynham, and Guba 2011; Schwandt 2000; Smith 1983). The adequacy of a particular method relies on assumptions about the nature of the study to be explored. Differing aims consequently influence the research methodology chosen. The objective of qualitative research is to understand the subjective meanings of human experience, behaviour, and social contexts and deepen understanding of human patterns (Silverman 2020; Fossey et al. 2002). Quantitative research is often reinforced by distinctive and defined processes through statistical measures (McEvoy and Richards 2006). Qualitative versus quantitative approaches differ greatly on two opposing spectrums of research paradigms as the former is based on non-numeric inquiry associated with interpretivism while the latter is commonly linked with numerical narratives associated with objectivism.

As aligned with the interpretivist paradigm, this thesis aims to capture information from a business setting and to understand the subjective interpretations of individuals that only exist in specific social constructs. The interpretivist paradigm allows the researcher to gain possible insights into different perspectives and experiences of the participants (Thanh and Thanh 2015). This study focuses on exploring and understanding the lesser-known concept of organizational ingenuity and investigates the perspectives of organizational ingenuity as



stated and experienced by study participants. In addition, this study aims to understand organizational ingenuity through the theoretical lens of CBV.

According to Creswell and Poth (2016), qualitative research is initiated with probes into the study of research problems that may begin with assumptions and possible use of a theoretical lens to investigate the meaning attributed to a social or human problem. Through a qualitative approach, this study is not limited to a generalised reality but strives to pursue personal constructs as interpreted by specific individuals in an environment (Gall, Gall, and Borg 2003). Through the interpretivist research paradigm, the researcher gains the opportunity to explore the perspectives and unique insights of study participants. The Interpretivism paradigm places great importance on the socially constructed world and how it can be understood in a study (McEvoy and Richards 2006). Therefore, this thesis employs the interpretivism paradigm as it holds the value of humans' perspectives, grounded in specific experiences, as valuable knowledge. The study aims to capture unique experiences and personal constructs of individuals in the business setting to answer the research questions and transform them into valuable knowledge.

### **3.3 Case study methodology**

There are multiple research methods commonly used in qualitative study which include, but are not limited to, ethnography, narrative inquiry, in-depth interview, semi-structured interview, focus group interview, case study, multiple case study, and various other tools (Leavy 2014). Methodology has been referred to as "the research strategy that outlines the way one goes [about] undertaking a research project, whereas methods identify means or modes of data collection" (Howell 2012, 4). Stake (2005) approached case study to not be a methodology, while other scholars such as Yin (2014), Merriam (1998), and Denzin and Lincoln (2008) identified case study as a qualitative research strategy. Creswell (2007) viewed case study as a methodology and a qualitative approach to explore detailed information and gain in-depth data understanding.

The case study methodology is particularly useful when the research purpose is to understand a specific condition or context in great detail (Merriam and Tisdell 2015). This study aims to investigate organizational ingenuity within the specific context of India's emerging economy. Case study methodology is an effective approach to gain new knowledge of a specific phenomenon (Eisenhardt and Graebner 2007). Merriam and Tisdell (2015) stated that qualitative case study is an approach to provide an in-depth understanding of a specific problem within a bounded system. The goal is to have an in-depth understanding of organizational ingenuity within a bounded system of SMEs operating in an emerging economy. The approach to case study research design is influenced by both positivist and interpretivist philosophies.

Case study research is identified as one of the key instruments for conducting an inquiry in social science study (Thomas 2011). Case study methodology has commonly been used in business economics research, specifically when the study is contextualised within firms and organisations. Case study methodology applies well to the investigation of organisational behaviour examined in its natural environment (Mills, Durepos, and Wiebe 2010). This thesis utilises case study design to explore the relatively new concept of organizational ingenuity and provide in-depth, descriptive analysis of organizational ingenuity in SMEs within the challenging context of an emerging economy.

The definition of case study is as follows:

A case study is an empirical inquiry that investigates a contemporary phenomenon (the case) in-depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident. In other words, you would want to do case study research because you want to understand a real world case and assume that such an understanding is likely to involve important contextual conditions pertinent to your case. (Yin 2014, 16)

The choice of methodology is largely attributed to the research question and the depth of understanding required in the research context. Both Yin (2014) and Crowe et al. (2011) identified case study research methodology as instrumental in helping answer research questions such as “how?”, “why?”, and “what?” and provide in-depth, extensive description of a social phenomenon. Furthermore, Farquhar (2012) identified the “who?” type of question to be suitable for case study methodology. In this study, case study methodology is utilised to help understand what organizational ingenuity is, how organizational ingenuity is achieved, and why SMEs are compelled towards the path of organizational ingenuity within the challenging condition of an emerging economy. These “what?”, “how?”, and “why?” questions are intended to capture the initial intention of the researcher and what exactly they are interested in studying, which subsequently leads to case study research strategy (Yin 2014). In this thesis, case study method is relevant as it substantively focuses on the rationale of “what?” “how?”, and “why?” in a research context.

According to Yin (2014), case study research is used to understand complex social phenomena as it allows investigators to holistically study areas such as behaviour, organisational and managerial processes, and international relations. Merriam and Tisdell (2015) stated that the purpose of qualitative research is to understand and interpret situations or conditions in a specific context. For the purposes of the current study, case study is the most suitable method for various reasons. Firstly, by using case study methodology, this study aims to gain specific understanding and unique insight into the stated research questions or objectives. Secondly, case studies allow researchers to explain, describe, and explore possible human behaviours, actions, and patterns as a phenomenon in the everyday circumstances in which they occur. Thirdly, case study research strategy is identified to be useful in forming and proving theories, especially in business research, as it can be used to evaluate and resolve practical business problems (Dul and Hak 2007). Lastly, case study research approaches the research subjects with focus and interest to delve further into the study context.

### 3.4 Exploratory case study

Three variations exist in case study approaches. According to Yin (2013, 2014), case study approaches include descriptive, exploratory, and explanatory. Definitions of the mentioned variations of the case study are provided in Table 8.

*Table 8: Categories of Case Study*

<b>Categories</b>	<b>Definition</b>
Explanatory	“This type of case study would be used if you were seeking to answer a question that sought to explain the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies. In evaluation language, the explanations would link program implementation with program effects” (Yin 2003), as quoted by (Baxter and Jack 2008, 547).
Exploratory	“This type of case study is used to explore those situations in which the intervention being evaluated has no clear, single set of outcomes” (Yin 2003), as quoted by (Baxter and Jack 2008, 548).
Descriptive	“This type of case study is used to describe an intervention or phenomenon and the real-life context in which it occurred” (Yin 2003), as quoted by (Baxter and Jack 2008, 548).

Selection from the case study variations above is guided by the central research purpose (Baxter and Jack 2008). Descriptive case study is useful for research with the purpose of describing a phenomenon. Explanatory case study attempts to explain connections and how they occur. Exploratory case study enables open-ended exploration of a phenomenon. According to Ogawa and Malen (1991), exploratory case study is a sensible choice for research that has not been extensively examined empirically. Exploratory case study is selected for this thesis as it enables unrestricted inquiry into the stated research questions, particularly as the concepts involved have not been the subject of extensive empirical examination.

### **3.5 Types of case studies**

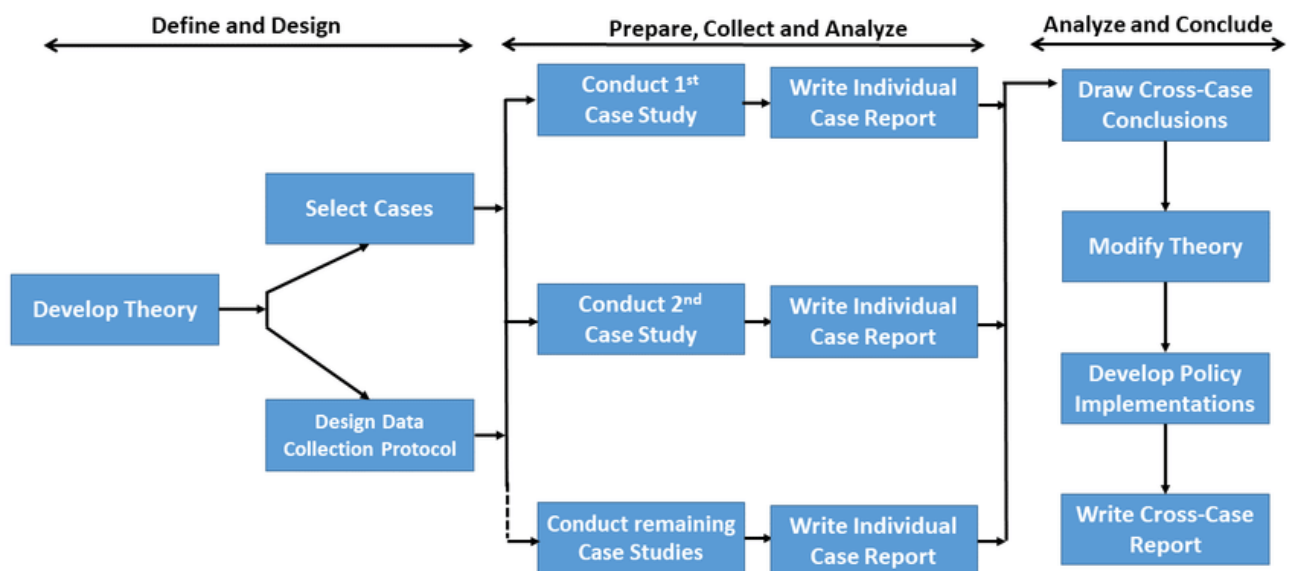
In addition to identifying the right case study approach, researchers are also required to determine whether to conduct a single case study or multiple case studies (Yin 2014). A single case study can be (1) single holistic case study or (2) single case study with embedded units and multiple case studies—referred to as collective case study or multiple case study (Yin 2003; Baxter and Jack 2008). When case study is chosen as a method, researchers need to determine what would be the best type of case study to resolve their research questions.

In this thesis, the multiple case study variation is utilised as a research method. The multiple case study method is useful in this research as it allows the researcher to analyse within a context, or across different contexts (Baxter and Jack 2008). With this setting, the researcher can assess similarities and differences between the cases. Unlike single case study, multiple case study provides a rich presentation of evidence for researchers to compare and cross analyse. A multiple case study design provides a good understanding and dependable outcomes from the study (Eisenhardt 1989; Gustafsson 2017; Gibbert, Ruigrok, and Wicki 2008).

The selection of case study types can influence the depth of information achieved in a research study. The application of multiple case study methodology in this research provides the opportunity to uncover and compare the rigorous perspectives of different companies from

diverse industries, operating in various conditions headquartered in India. As stated in Yin (2003, 47), multiple case studies methodology “predicts similar results (a literal replication)” or “predicts contrasting results (a theoretical replication)”. In addition, using multiple case studies typically provides a number of advantages in comparison to the single case variation, such as (1) stronger evidence, (2) more reliable and, (3) more comprehensive analysis of research questions and theory development (Heale and Twycross 2018; Gustafsson 2017). This study has adapted Yin’s (2013) multiple case study design method as illustrated in Figure 3.

Figure 3: Multiple Case Study Design Method



Source: Adapted from Yin (2013)

### 3.6 Theoretical framework and research question

As proposed by Yin (2014), case study research is most suitable to answer the “how?” and “why?” questions. The central research question to be examined in this study is:

- **RQ1:** How do SMEs in an emerging economy with constrained resources and challenging environment achieve organizational ingenuity?

Furthermore, the following sub-questions are proposed as vital to be addressed in this the study as it specifically examines specific scope of this study. According to Eisenhardt (1989), the central research question should be formulated with the inclusion of possible critical

variables derived from the literature. Therefore, the sub-questions below are variables developed from the constructs of the literature in this study. The sub-questions are as follows:

- **RSQ1:** How do STORM conditions of emerging economy compel SMEs towards the path of organizational ingenuity?
- **RSQ2:** Is organizational ingenuity an integral component to SMEs operating in emerging economy? Why?
- **RSQ3:** How do SMEs create cost-effective, ingenious solutions in constrained and challenging environments of emerging economy?
- **RSQ4:** How does the concept of organizational ingenuity lead to outcomes such as innovations and successful business success?

The research questions are developed based on the literature review of this study. By answering the central research question and sub-questions, this study aims to delve further into the concept of organizational ingenuity and illuminate how SMEs can improve and gain competitive advantage with the inevitable constraints and challenging environment of an emerging economy such as India.

### **3.6.1 Selection of the cases**

This section focuses on the selection of the cases and the number of case studies selected in this study.

### **3.6.2 The number of case studies**

There is no 'one-size-fits-all' as regards the number of case studies that should be included in a study. Meyer and Benedicte (2001) added multiple case study sampling enhances the quality of the findings in comparison with the single case study approach. Yin (2014) noted that there is no single acceptable or typical criterion in relation to sample size of a study as researcher should focus on seeking rich insight and information from different perspectives of the case. The choice of number of case studies utilised in a research study is based on the researcher judgement's call (Gummesson 2017). In other words, there is no optimal number of cases but researchers should concentrate on attaining comprehensive insights from each

case involved in the study. Eisenhardt (1989) suggested four to 10 cases as the ideal for a case study approach. However, Rowley (2002) argued that the rigour of a study can be improved with a greater number of case studies, on the basis that the robustness of a research outcome is increased. Eisenhardt (1989) stated that a pragmatic approach to the number of cases, considering resources such as time and money, is common in research design, which may cause researcher to determine the number of cases in advance. Therefore, a sample size of 24 participants, representing 12 different companies, is considered as adequate to complete the current research objectives.

### **3.6.3 Case study selection method**

A well-constructed research plan includes developing a clear sampling strategy (Punch 2000). This study employed a purposive sampling strategy in the case study selection method. As indicated in the research objectives, this study explored how SMEs within a constrained environment such as India achieve organizational ingenuity. As stated in the literature review, the context of India as an emerging economy was an important variable in this study. In addition to specific location, there were other contributing variables that contributed to the selection of the case study for this study. The researcher created a list of specific criteria as input for Orbis database (see Appendix- 3) to purposefully select the firms. The specific criteria were applied to the selection of cases extracted from Orbis. The following criteria were applied in the Orbis search database: (1) an active firm with a maximum 500 employees as this was defined in the literature review as firms in SME category; (2) specific locations/regions in India including Gujarat, Karnataka, Maharashtra, New Delhi, Tamil Nadu, Telangana, Uttar Pradesh, and West Bengal; (3) active companies with available contact details such as phone numbers or email addresses; and (4) various industries including education, IT, manufacturing, pharmaceutical, and agriculture. The database extracted 726 potential companies that fit the selected criteria. In general, the characteristics input selected in Orbis database are as follows: (1) All active companies; (2) Specific Location and regions; (3) All companies with telephone number; (4) All companies with email address; (5) Specific number of employees; and (6) Specific type of industry. Studies such as Hagedoorn and Cloudt (2003),



Rumelt (1991) and Luo (2003) state that different indicators in sampling such as industries and countries to be an important consideration when measuring innovative performance. Luo (2003) states that insights of different industrial conditions especially in an emerging market can be an explanatory power that capture the different degree of constraints in different sectors.

From here, a data collection agency was employed to approach selected organisations that possessed appropriate characteristics related to the research objectives and research questions. A data collection agency was employed to approach these SMEs because the researcher had no background or local contacts established with the potential participants. Outsourcing data collection was a positive step in the specific context of this research to overcome complications with data collection, such as the researcher's limited local familiarity (Flintsch and McGhee 2009). The data collection agency outsourced for the data collection stage is a reputable and experienced organisation based in India. It is one of the leading agencies that Indian organisations rely upon for market research. Necessary cooperation was achieved by employing the data collection agency to reach out to relevant SMEs for contacts. Orbis database conveniently provided firms' basic contact information such as email address and contact number. Potential companies selected from Orbis database were approached and requested to participate in this study. A total of 12 companies from multiple industries agreed to participate in the study out of 726 companies extracted from Orbis database.

### **3.7 Research design, processes, and data protocol**

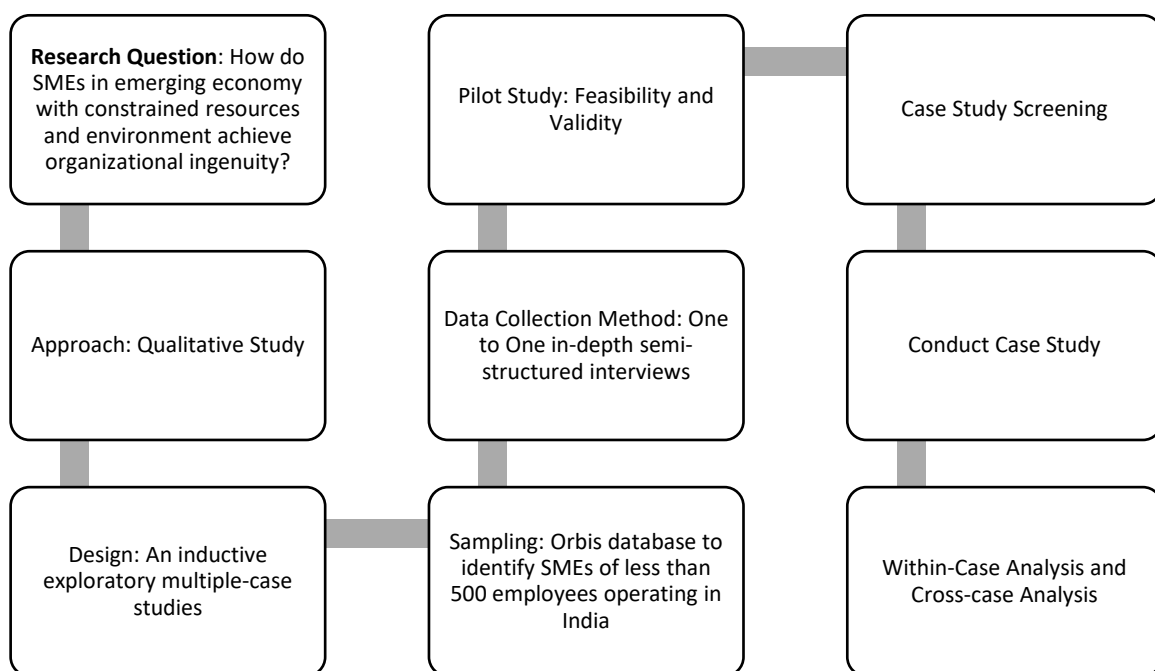
This study employed a qualitative method, exploratory, and multiple case studies strategy.

The design and methodology in this study were purposefully selected to support the objectives of this study. The study began by identifying appropriate research questions according to the development of the relevant literature review. A total of 12 SMEs based in India from various industries were identified through Orbis database for the final study. Each SME represented one case study unit analysis in this study. Two participants from different position levels from each SME were requested to participate in a semi-structured interview. Two participants were

approached from each SME to increase the validity and reliability of the data collected. Therefore, a total of 24 semi-structured interviews were conducted in this study. A qualitative study approach, based on multiple case study strategy, was adapted to help answer the study's research questions. This study complied with the step-by-step procedure for multiple case study research design as recommended in Yin (2014). The multiple case study research design is structured according to three stages: (1) definition and design of the study; (2) preparation, collection, and analysis of the case study; and (3) analysis and conclusion.

The interview questions were divided into four categories according to the key points developed in both the literature review and research objectives. Figure 4 maps the research pathway, including the methodology and design implemented to complete this study.

*Figure 4: Research Pathway*



Source: Adapted from Yin (2014)

### **3.7.1 Design data collection protocol**

This section includes major protocols implemented to address the research problems. The major protocols employed are: participants; instrument; secondary data supported; semi-structured interview design; and pilot case study protocol.

## **1. Participants**

The participants approached for this study were strategically selected due to their position in each organisation. Employees of the top management team and mid-level positions were approached for participation to provide rich data regarding the processes, organisational strategic approaches, and day-to-day decision-making processes. According to Eisenhardt (2013), the performance of an organisation is influenced by employees in both top management teams and mid-level positions. The participants chosen were anticipated to be well-informed on day-to-day operations, and overall issues concerning the organisation's decision-making processes and achievements.

## **2. Instrument**

According to Yin (2014), the central focus of data collection protocol lies in interview questions reflecting the line of inquiry of the study. Furthermore, Yin (2014) identified interview to be an important source of case study evidence as it provides important insights relating to the study being undertaken. There are three methods of interview: structured; semi-structured; and unstructured (Qu and Dumay 2011). The semi-structured interview approach was adopted in this study's data collection protocol. The semi-structured interview method aligned with the researcher's intention to capture specific information relating to the research questions, such as how is organizational ingenuity achieved within the constrained environment of an emerging economy? A semi-structured interview instrument (see Appendix 2) gave the researcher the advantage of interpreting and summarising data collected according to pre-determined topics established from the literature review (Schmidt 2004). In addition, a semi-structured interview approach enabled the researcher to probe further into specific details, following up on any interesting responses to the standard questions. For this study, probes were included at the end of each question to evoke the fullest responses and clarify the questions asked (Roberts 2020).

## **3. Secondary data**

Secondary data were sought to corroborate the data gathered from the interviews. Incorporating the comparison of primary data from the semi-structured interviews conducted, and secondary data, sources build on the validity, as well as enhancing the quality, of the evidence collected in a study (Yin 2014). Data triangulation between data from conducted semi-structured interviews and secondary data can enhance the trustworthiness of the study's results (Farquhar 2012; Farquhar, Michels, and Robson 2020; Halkias and Neubert 2020). Data drawn from different sources can help in strengthening qualitative findings (Jack and Raturi 2006; Lemon and Hayes 2020). The researcher used email correspondence to verify interview data and for further clarification. Other sources such as annual reports, information related to the organisations from their websites, news articles, and secondary data from the Government's website were collected in combination with the semi-structured interview data. For example, some of the participants were unsure about the number of patents registered under the SME so Intellectual Property India database was utilised to verify the figures stated by participants in the interviews.

#### 4. **Semi-structured interview design**

Semi-structured interview is a method that falls between the closed-ended and open-ended approaches (Newcomer, Hatry, and Wholey 2015). The semi-structured interview questions (see Appendix 2) developed for the interview guide were tested in the pilot study to verify their relevance. Pilot testing is a useful step to produce a quality and logical semi-structured interview guide for data collection (Kallio et al. 2016).

**Introduction:** The interview session began by establishing positive first impressions. The research team were instructed to express gratitude and appreciation to the participants for their agreement to partake in the research. The research team briefed all participants on the relevant protocols to partake in this research. A participant information sheet, including the details of the research and participant's confidentiality and anonymity, was given to each participant. See Appendix 1- Section A for a copy of the participant information sheet. Verbal

consent was requested from each participant at the start of the interview. This verbal consent included permission for the interviewer to record the interview session.

**During the interview:** The interview guide was crafted as per a semi-structured design by dividing the questions into eight broad categories (see Appendix 2). The eight categories were constructed in relation to the research questions developed for this study. The categories were: (1) Personal questions related to the participants, including background information; (2) General questions related to the topic of the study; (3) Questions about the external environment; (4) Questions about different challenges; (5) Questions about organizational ingenuity; (6) Questions about processes to achieve organizational ingenuity; (7) Questions about firms' different capabilities to achieve organizational ingenuity; and (8) Questions about the outcomes achieved from organizational ingenuity. Following suggestions from Kvale (1996) and Brinkmann and Kvale (2018) on pre-testing, each participant was requested to complete a screening interview before the main interview session to ensure they were an appropriate subject for the study. Preliminary interviews can help researchers identify participants who can bring rich insights and perspectives related to the study (Kohn 1997). Probes and definitions for some of the terms that participants might find unclear were included in the interview guide. According to Harrell and Bradley (2009), probes included in semi-structured interviews help researchers to further investigate a specific topic whilst creating a conversational atmosphere in the interview. In addition, participants were requested to provide examples where possible to enhance the responses given. Semi-structured interview format was deliberately selected to permit follow-up questions if participants were vague in their responses and additional examples or evidence were required.

**End of the interview:** At the conclusion of the interview, the interviewer expressed gratitude to the participants for their responses and feedback. Some of the participants were keen to share additional insights but had prior commitments and, therefore, a follow-up session was requested. Additional insights were requested from the participants towards the end of the session in case they wanted to provide additional comments. However, most participants

declined to provide further feedback and clarified that the responses given were considered sufficient to address the research questions.

**Post-interview:** Once all interviews had been completed, the next step was to explore the evidence collected. The interview audio recordings were transcribed, and a copy of the transcript was given to a sample of participants for clarification and review. Once approval was received, the researcher analysed the data collected and searched for ways to consolidate themes identified from the evidence using NVivo 12 Pro software.

### **Pilot case study**

A pilot study is a smaller version of a full-scale study which is a vital trial run to identify potential issues (Hazzi and Maldaon 2015). A pilot study is employed to refine the methodology and assess the adequacy and feasibility of the main research (Grove, Burns, and Gray 2012; Moxham 2012; Burns and Grove 2009). A pilot study is essential to assess the quality of the interview questions and whether they require adjustments before proceeding to the actual study (Vivar et al. 2007). In addition, a pilot study is conducted to allow researchers to reconsider the validity of the instrument used in the data collection protocol of the study. In this study, a pilot study using one SME was conducted and the problems that arose were addressed accordingly before proceeding to the actual case study. The researcher considered the outcome of the pilot case study and discussed with the supervisors. Areas requiring adjustment were identified, such as refining the questions, rearranging the sequence of the questions asked during the interview, and many other unanticipated issues. The interview data collected for the pilot study was included in the final sample. The next paragraph discusses the issues identified from the pilot study that were rectified before the rest of the interviews were conducted for this study.

The same protocol planned for the main study was utilised for the pilot case study. The researcher conducted the pilot case study through telephone interviews and the established protocol was followed accordingly. The sessions were audio recorded with the approval of the

participants and the sessions lasted between 60 and 65 minutes. The pilot case study yielded the following results:

1. The participants indicated that the interview questions were clear and easily interpreted.
2. Some of the terms used in the interview questions required further explanation from the interviewer to avoid confusion. Therefore, the researcher decided to add definitions and examples for some of the terms in the interview questions for the participants' comprehension.
3. The participants suggested the session could be divided into two as it may be taxing for some of the participants. Therefore, the researcher provided the options to the participants at the start of each interview session. In addition, after office hours and weekends were also included as alternatives for participants to select.
4. The researcher identified that some of the terms would require simpler context so examples were given to support the participants during the interview session.

It was concluded that the pilot study provided insights for the researcher to administer and assess. The researcher took the opportunity to share these insights with colleagues and supervisors for feedback.

### ***3.7.2 Preparation, collection, and analysis***

The preparation and collection phase began with the gathering of qualitative data from each of the 12 selected SMEs in India from various industries. The analysis and conclusion phase included analysis within each case, cross-case analysis, modifying the theoretical framework, and writing up the case analysis reports.

#### **1. Preparation**

Preparation for the collection of interview data began by selected participants from each SME being contacted by telephone and email to confirm the most suitable time for an interview session. A time was agreed upon with the participants for conducting the semi-structured

interviews. Participants were provided with the details of the study for review in advance, before the actual interview took place. Two sessions were scheduled with each participant—one for screening purposes and a second for the actual interview. The screening interview served the purpose of confirming participants' suitability for the study.

### **Data collection**

This section addresses ethical considerations, interview data collection, and secondary data collection.

### **Ethical considerations**

Appropriate ethical consideration was given in accordance with the *National Statement on Ethical Conduct in Research*. An application was submitted and reviewed by the Curtin University Human Research Ethics Committee before proceeding with the research. The researcher applied for ethics approval for a 'low-risk' research project using the following procedure:

1. Ethics approval for a new project was applied for through the InfoEd system, classified as 'New Human Protocol in Human Ethics Development'. An online form on the research's data collection techniques, interview guide, participants' privacy, and confidentiality were lodged. Once the application was approved by the Ethics Committee, the researcher proceeded with the interview sessions as agreed with the participants.
2. Prior to the interview session, all participants were informed about the research objectives. All participants were briefed in detail relating to their rights when participating in the study, including their voluntary participation and the right to withdraw from the study at any point in time. A participant information sheet in plain language statement (see Appendix 1 Section A) and completed and consent form (see Appendix 1 Section B) were given to each participant of the study.



3. All participants were requested to provide verbal consent to be part of the study and to be audio recorded during the interview session. Participants were reminded that a copy of the transcript would be given to them for review and permission to be used in the study.
4. Audio recordings and copies of transcripts were saved both in electronic form and hard copy at the Curtin University School of Management.
5. Access to the data was secured only to relevant individuals. The data were stored, encrypted and password protected in an external hard drive, in preparation for any unexpected events.
6. All participants were assured that the data obtained from the interviews would be kept confidential and anonymised. The names of participants and SMEs would not be included in any part of the study or any publication relating to the study.

### **Interview data collection**

Given that the researcher was unfamiliar with the location of the research, a data collection agency in India was enlisted to support the study. The purposive sampling strategy was utilised in selecting the participants of the study. According to Robinson (2014), purposive sampling strategy is useful in studies that employ a multiple cases design when specific criteria and categories of subjects' presence is required in the study. The researcher provided the data collection agency with a list of companies that were extracted from the Orbis database, selected with required criteria developed from the literature review. The agency then extended requests for those companies to participate in the study. As detailed previously, two sessions of interviews were conducted with participants via telephone and Skype. The first session served as a screening interview and the second session as the main interview session. The interview sessions began by reading and clarifying the participant information sheet, which included details about the thesis objectives and research questions, audio recording permission, rights to withdraw at any point of the interview, and assurance of participants' privacy and confidentiality. A copy of the participant information sheet, including a plain

language statement (see Appendix 1 Section A) was also given to each participant to keep as a record. A verbal consent was requested from each participant before the interview session began.

Each participant was interviewed using the semi-structured interview questions for approximately 60 to 90 minutes. The length of the interview session was considered sufficient to collect in-depth data about how SMEs achieve organizational ingenuity within the constrained environment of an emerging economy, as well as the other sub-questions developed for the study. All semi-structured interview sessions were conducted from April 2019 to October 2019. Table 9 shows the profile of the interviewees from each SME, from different industries. Additionally, Table 9 includes the secondary data that were collected for the triangulation stage of the study.

*Table 9: Case Studies Interview Details*

<b>Firm name</b>	<b>Participants</b>	<b>Location</b>	<b>Industry</b>	<b>Communication means</b>	<b>Number of interviews</b>	<b>Secondary data</b>
<b>A</b>	1. Deputy Manager of Marketing 2. Territory Manager Sales	Coimbatore, Tamil Nadu, India	Automotive	1. Skype 2. Telephone	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>B</b>	1. General Manager 2. Senior Manager Business Development	Khar West, Mumbai, India	Education	1. Skype 2. Telephone	2	Annual report, website, investor presentation slides, press statements, India IP Database

<b>C</b>	<ol style="list-style-type: none"> <li>1. Vice-President</li> <li>2. Head of Regional Sales</li> </ol>	New Delhi, India	Information technology	<ol style="list-style-type: none"> <li>1. Skype</li> <li>2. Telephone</li> </ol>	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>D</b>	<ol style="list-style-type: none"> <li>1. Program Manager</li> <li>2. Customer Service Manager</li> </ol>	Pune, India	Information technology	<ol style="list-style-type: none"> <li>1. Skype</li> <li>2. Telephone</li> </ol>	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>E</b>	<ol style="list-style-type: none"> <li>1. Manager</li> <li>2. Senior Manager</li> </ol>	Mumbai, Maharashtra, India	Pharmaceutical	<ol style="list-style-type: none"> <li>1. Skype</li> <li>2. Telephone</li> </ol>	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>F</b>	<ol style="list-style-type: none"> <li>1. Business Development Manager</li> <li>2. Quality Assurance Manager</li> </ol>	Ahmedabad, Gujarat, India	Pharmaceutical	<ol style="list-style-type: none"> <li>1. Skype</li> <li>2. Telephone</li> </ol>	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>G</b>	<ol style="list-style-type: none"> <li>1. Vice-President Development</li> <li>2. General Manager</li> </ol>	Mumbai, Maharashtra, India	Information technology	<ol style="list-style-type: none"> <li>1. Skype</li> <li>2. Telephone</li> </ol>	2	Annual report, website, investor presentation slides, press

						statements, India IP Database
<b>H</b>	1. General Manager 2. Deputy Manager Quality Assurance	Faridabad, Haryana, India	Manufacturing	1. Skype 2. Telephone	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>I</b>	1. Manager 2. Quality Control Manager	Vile Parle East, Mumbai India	Pharmaceutical	1. Skype 2. Telephone	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>J</b>	1. Senior Sales Manager 2. Senior Manager	Saket, New Delhi, India	Manufacturing	1. Skype 2. Telephone	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>K</b>	1. Senior Manager Business Development 2. General Manager	Ahmedaba d, Gujarat, India	Education	1. Skype 2. Telephone	2	Annual report, website, investor presentation slides, press statements, India IP Database
<b>L</b>	1. Vice-President of Operation	Mumbai, India	Information Technology	1. Skype 2. Telephone	2	Annual report, website,

	2. Project Manager					investor presentation slides, press statements, India IP Database
Total					24	

A total of 24 semi-structured interview sessions were conducted, as illustrated in Table 9. The average time to complete each interview was approximately 75 minutes. All interview sessions were recorded and saved for record keeping. Once the interview recordings were transcribed, samples of the transcripts were sent to participants for review.

### Secondary data collection

Secondary data were used for data triangulation to increase the credibility of the data collected from interviews and to enhance the trustworthiness of the qualitative findings (Lemon and Hayes 2020; Jonsen and Jehn 2009). The secondary data collected for this study were mainly from the SMEs' annual reports and publicly available information from the firms' websites. Furthermore, additional secondary data sets were collected from the Indian Government's website, non-government institutions' websites, online press releases, and news articles related to the SMEs. Intellectual Property India database was also utilised to confirm the number of patents registered for each SME.

### Qualitative data analysis processes

The key procedures to complete this study were as follows:

1. All semi-structured interviews were recorded and saved as audio files on a password protected computer. Copies of the audio files were uploaded onto the Dropbox and Google Drive websites. Only researchers had access to the audio files to ensure privacy and confidentiality of the participants.

2. The researcher enlisted a professional transcription service to transcribe semi-structured interviews as soon as the researcher received each interview. To maintain accuracy, the researcher reviewed each transcription word-by-word and errors were corrected accordingly. Each interview transcript was saved as a Microsoft Word document on a USB storage device and uploaded onto both the Dropbox and Google Drive websites.
3. Samples of the transcripts were sent via email to the interviewees for verification and feedback. In addition, the researcher requested for the interviewees to confirm the validity of the shared transcripts. Obtaining participant verification can be a useful step of the analysis to increase validity (Kohlbacher 2006).
4. Twenty-four interview transcripts were uploaded to the NVivo 12 Pro software to facilitate qualitative data analysis. NVivo is identified as a useful tool to envisage and create connections of data through different codes and nodes (Bazeley and Jackson 2013).
5. Each interview transcript was analysed using the NVivo 12 Pro software.
6. There are two stages of analysis involved in a multiple case study—within-case analysis and cross-case analysis (Merriam and Tisdell 2015; Eisenhardt 1989; Creswell and Creswell 2017; Stake 2005). This study utilised within-case analysis and cross-case analysis as recommended for qualitative study. Within-case analysis is conducted to provide rich description and patterns within each case (Stake 2005; Creswell and Poth 2017). Within-case analysis was completed in conjunction with a template analysis developed from the literature review of this study using NVivo 12 Pro software. Each case study was dissected in detail and a report was written for each. This included information such as the SME's background information as well as details of the firms' responses related to the research questions of the study.
7. The researcher proceeded with cross-case study data analysis also through NVivo 12 Pro software. As stated in the sixth step, there are two strategies in qualitative data analysis which include within-case and cross-case analysis. Within-case analyses

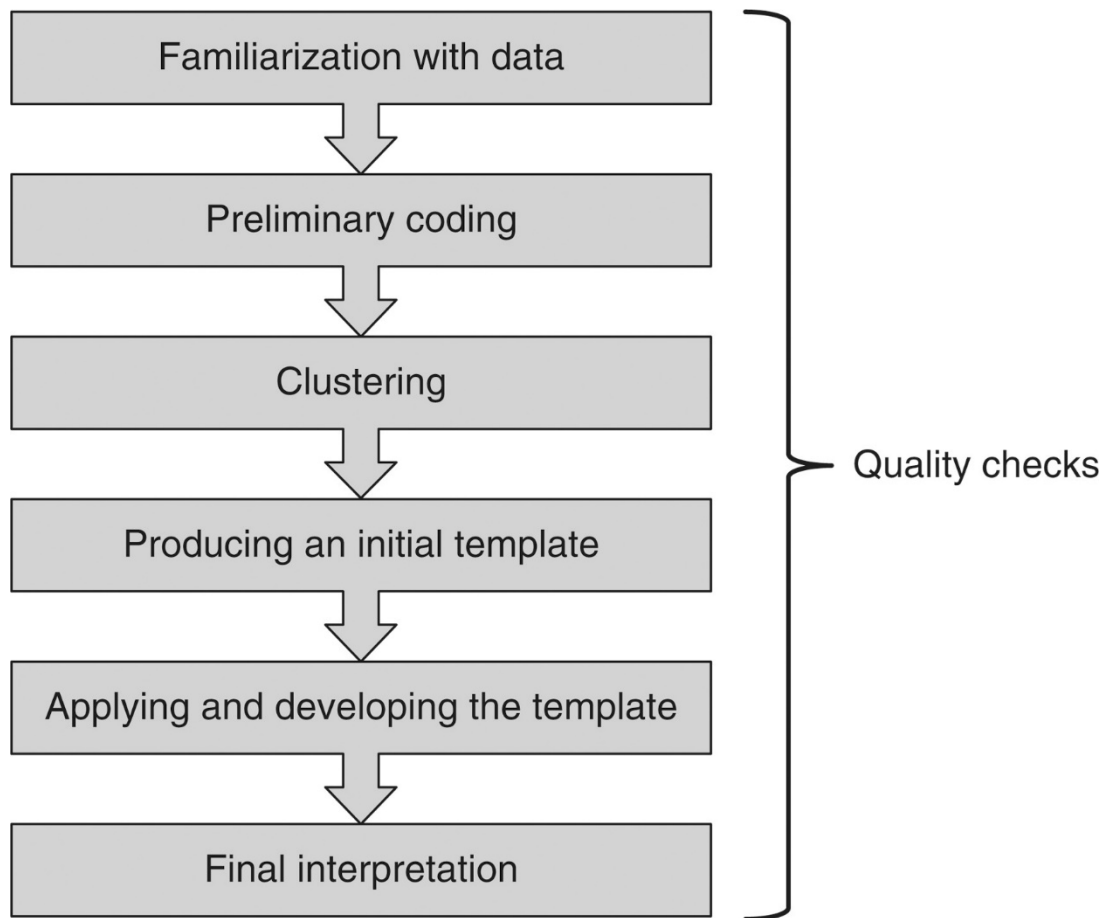
were firstly conducted to provide rich description for each case study. Cross-case analysis was then conducted to analyse patterns across the cases in this study. Cross-case analysis is an essential step in multiple case study research to identify similarities and differences of patterns across case studies (Eisenhardt 1989; Eisenhardt and Graebner 2007).

8. Patterns were identified using relevant codes of the study in order to answer all research questions. Furthermore, the analysis was analysed accordingly to compare and contrast the initial conceptual framework of the study.
9. The conceptual framework for how organizational ingenuity is achieved within a constrained environment of the emerging economy of India through the CBV theoretical lens was modified and refined based on the results of both within-case and cross-case analysis. The revised conceptual framework and all contributing components of the framework are discussed for comparisons and clarification in Chapter 7.

### **3.7.3 Template analysis**

A codebook or thematic coding, known as template analysis, is a method to thematically analyse qualitative data, specifically interview transcripts (Lockett et al. 2012; Brooks et al. 2015). Template analysis is a tactic in data analytical techniques to manage the volume and complex nature of qualitative data (King 2012). Figure 5 illustrates the common steps taken in template analysis.

Figure 5: Step by Step Approach in Template Analysis



Source: Adapted from King and Brooks (2017)

As recommended in Figure 5, familiarisation with the interview data collected was done before proceeding to preliminary coding. A list of priority themes was developed from the literature review stage of the study. In addition, the semi-structured interview instrument was categorised according to different sets of themes identified in advance for this study. The identified priority themes are helpful to the researcher in the data analysis stage as they organise the emerging themes into distinct clusters (Brooks et al. 2015). Template analysis is commonly used to analyse data thematically in the organisational and management research disciplines (Brooks et al. 2015). Merriam and Tisdell (2015) stated that it is essential that data coding is relevant to the study and is conducted according to the theoretical framework of the research which this study developed from the literature review. The researcher produced the following initial template or list of codes based on the list of priority themes identified in this



study. The pre-defined themes detailed in Table 10 were derived from the literature review and guided the researcher in the data analysis stage. The coding is later refined based on the analysis of the data collected in this study.

*Table 10 :Pre-defined themes*

<b>Themes</b>	<b>Categories</b>	<b>Codes/Nodes</b>
1. Organizational ingenuity	1.1 Organizational ingenuity 1.2 Composition-based view 1.3 Compositional Strategy	OI or CBV
2. Challenges	2.1 Social 2.2 Technological 2.3 Organisational 2.4 Regulatory 2.5 Market 2.6 Other	Social, technological, organisational, regulatory, market, sub-challenges
3. Capabilities	3.1 Combinative 3.2 Hardship-surviving 3.3 Absorptive 3.4 Intelligence 3.5 Networking 3.6 Dynamic 3.7 Other	Combinative, hardship-surviving, absorptive, intelligence, networking, dynamic capabilities, sub-capabilities
4. Processes	4.1 Process	Process

5. General information	5.1 Number of Employees 5.2 Position in the company	Top management, mid-level
6. Industry	6.1 Education 6.2 Automotive	Education, automotive,....
7. Outcomes	7.1 Innovation 7.2 Other outcomes	Innovation, outcomes
8. Significance of location	8.1 Location of the company	Significance of country

#### **3.7.4 NVivo software**

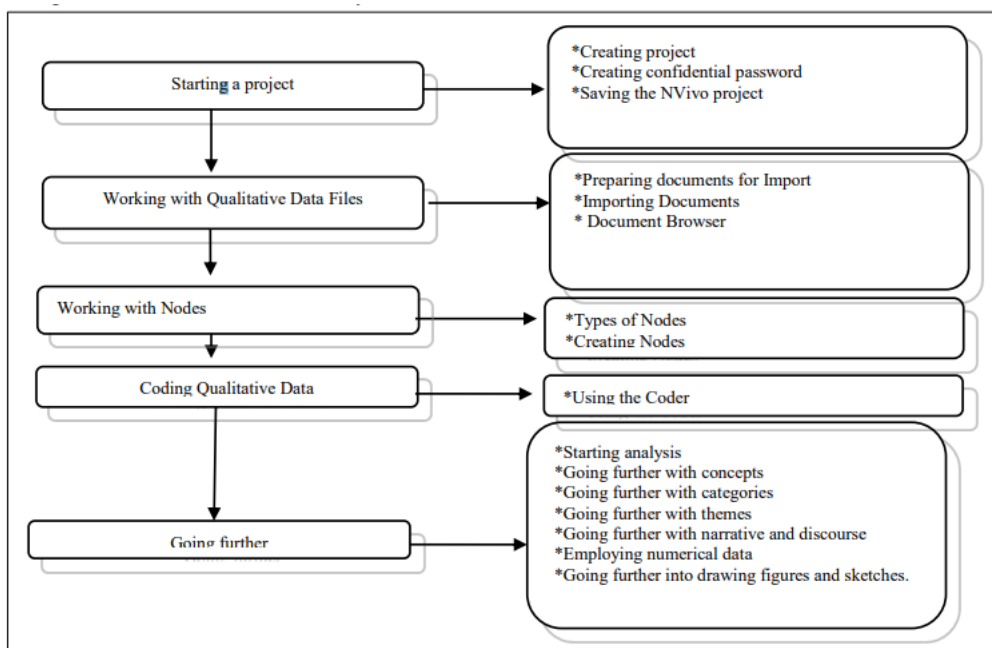
With the innovation in software technology, electronic data coding through NVivo software was employed in this study for rigour (Hilal and Alabri 2013). Interview transcripts were imported into NVivo software for analysis. According to Lindsay (2004), qualitative data analysis assisted by NVivo software is a useful approach that can enhance rigorousness in data analysis compared to manual analysis. NVivo software enables a more systematic and organised process in qualitative data analysis which can lead to breakthrough insights in the study (Weitzman 2003; Lindsay 2004).

NVivo software was utilised in this study as it facilitated the researcher to identify trends, recognise and organise themes, and generate the conclusion of the study (Hilal and Alabri 2013). Upon the completion of data analysis of both the interview transcripts and secondary data, the initial template above was reviewed and revised through the NVivo software. The analysis of qualitative data gathered in this study through the NVivo software program is according to the procedures illustrated in Figure 6.

According to Bazeley and Jackson (2007), NVivo software provides an analysis of qualitative data through (1) data management: organising data management including interview transcripts in an systematic and professional manner, (2) idea management: to understand both conceptual and relevant theories generated in the study, (3) data query, (4) data visual: creating graphs to demonstrate relationships or create connections between data, and (5) reporting: formulating results for the study conducted.

This study firstly dissected the data for comparison and categorisation to independently visualise the data available. The first round of coding involved an open coding process. With the support of NVivo software, the researcher revised existing codes and modified the initial template accordingly. Relevant literature was utilised to identify emerging trends or themes related to the study using a comparative method. Once open coding process was completed, the researcher proceeded to make connections between categories, guided by the literature review. The categories aided the researcher to develop the final template and generate the final conceptual framework of the study through NVivo software.

*Figure 6: Qualitative data analysis using NVivo software*



Source: Bazeley and Jackson (2007), as quoted by Hilal and Alabri (2013, 182)

### **3.8 Criteria for judging the quality of case study research**

The quality of criteria in case study research depends on the assessment of validity and reliability in both data collection and data analysis. As stated in Yin (2013) and Yin (2014), a clear case study protocol is important and shapes the validity and reliability of research.

#### **3.8.1 Construct validity**

Construct validity refers to the act of developing a sufficient operational set of measures and subjective judgements to complete a research study (Yin 2014). Three strategies are required to increase the construct validity of a study. The researcher applied the following three strategies as suggested in Yin (2014) to increase construct validity of the study: (1) multiple sources of evidence collected, including semi-structured interviews, companies' annual reports, relevant information from SMEs' websites, and external reports; (2) chain of evidence established from the research's main question and sub-questions, semi-structured interview questions, data collected, and conclusion of the study; and (3) review of study findings by the participants.

#### **3.8.2 Internal validity**

Internal validity, also known as 'logical validity', refers to the underlying connections between variables and outcomes (Gibbert, Ruigrok, and Wicki 2008). The researcher employed the triangulation method to increase internal validity of the study, as proposed in Yin (2014). Triangulation refers to the strategy of cross-referencing evidence from multiple sources to corroborate findings of a well-organised collection of the evidence for a case study database: a chain of evidence supported by citations of multiple sources of evidence followed by evidence collected from interviews (Rowley 2002). Therefore, this study has enhanced internal validity by employing the following procedures: (1) semi-structured interviews with two participants representing each SME; (2) secondary data documents relating to the SMEs such as annual reports, press releases by the organisations, information from the firms' websites, and other external information; and (3) participants' review and assessments of the data collected and findings from the study. Feedback on the findings and clarifications related to meeting the research objectives improved the internal validity of this study. According to

Merriam and Tisdell (2015), the use of multiple sources of data in triangulation is a critical strategy to enhance internal validity of research. In addition to the triangulation method, this study has implemented Gibbert, Ruigrok, and Wicki's (2008) measure of formulating a clear research framework for the study. As illustrated in Figure 1 in the Literature Review, the researcher developed a conceptual framework that demonstrates the causal relationships occurring in the study. From the main objective of discovering how SMEs attain organizational ingenuity, contributing variables and the outcomes of the study are all clearly illustrated in the conceptual framework.

### **3.8.3 External validity: transferability and generalisation**

According to Yin (2014), external validity is to test whether the findings of the study are generalisable. However, Merriam and Tisdell (2015) stated that generalisation in qualitative study is non-existent in a statistical sense. Therefore, it is suggested that providing rich and sufficient descriptive data is necessary for the transferability to occur (Merriam and Tisdell 2015). This study favoured the case study approach due to the posing of research questions of a "how?" and "why?" nature. As with the two-step strategy in analysis, this study utilised both within-case and cross-case analysis. Within-case analysis is a step employed in this study to provide a rich description of each case study with the objective to make transferability possible to a different context. The detailed description provided for each case study in Chapter 5 allows readers to make their own judgements on the findings of this study and to consider the transferability of the results from this study to another setting. Eisenhardt (1989) suggested cross-case analysis for theory development as a good starting point for analytical generalisation. Additionally, case studies of different firms were conducted to increase the rigour of this study (Cook, Campbell, and Day 1979). Cross-case analysis of 12 different SMEs were conducted. According to Yin (1994) and Zainal (2007), generalising findings of case studies for both single and multiple case studies is generalising to theory rather than on populations. The researcher achieved external validity through replication logic of multiple-case design implemented in this study. According to Meyer and Benedicte (2001), multiple

case studies enhance external validity by preventing researchers from specific bias influencing the study.

### **3.8.4 Reliability**

Morse et al. (2002) argued the importance of developing strategies to assess reliability and validity in qualitative studies. The reliability of case study research can be achieved through the development of appropriate case study protocols (Tellis 1997). Developing an appropriate case study protocol ensures the reliability of case study research. Reliability in this study is achieved through the transparency of the research process to attain a degree of dependability. According to Yin (2014), clear documentation of the case study research procedures is important to overcome reliability issues. In this study, the following procedures were completed to ensure the reliability of the case studies: (1) a case study protocol involving 24 participants representing 12 case studies were subjected to the exact modus operandi and the same interview questions as the instrument of the study; (2) an identical documentation database was created for all 12 case studies—the same rules implemented for each case study included interview questions, audio recordings, transcripts, annual reports, and additional documents relating to each firm; (3) development of a case study database containing qualitative data, data interpretations, reports, and other materials gathered according to the same protocols for each case study.

### **3.9 Conclusion**

This chapter discussed the research design and case study methodology utilised in this research. The specific choice of case study methodology was justified in this chapter. Information relating to the design of the case study methodology included the criteria considered in case study selection, data collection method, and two-step strategy analysis of within-case and cross-case analyses. Furthermore, the chapter outlined ethical approval obtained from the Human Research Ethics Committee of Curtin University. Finally, the quality of case study in terms of establishing validity and reliability were also clarified in this chapter.

## Chapter 4: Within-case analysis

### 4.1 Chapter introduction

This chapter presents the findings from within-case analysis of the 12 firms selected in this study. This chapter is composed of two parts. It begins with an overview of the background information for each firm and an in-depth analysis of the framework components for each case. The second section presents a summary of these findings.

### 4.2 Case 1: Firm A

#### 4.2.1 Firm background

Firm A was a recognised automotive company in India as well as a significant industry player in the global market. The firm was a wholly owned subsidiary company founded in 2007 which focused on manufacturing and trading of automotive equipment. A search for Intellectual Property India registration revealed Firm A to hold 13 patents at the time of the study. Table 11 provides a summary of background information on the firm.

Table 11: Firm A Demographics

Firm A	Details
Headquarters	Coimbatore, Tamil Nadu, India
Year of foundation	2007
	Wholly owned subsidiary
Industry	Automotive, manufacture, and trading of automotive equipment
Turnover (million INR)	1800.20 INR (2019-20)
Employees	201–500
Patents	13

Source: Secondary and interview data

#### 4.2.2 *STORM* conditions

##### Social

Both participants from Firm A underlined various conditions initiating the path towards organizational ingenuity. For Firm A, public expectations and pressure for environmental responsibility was established as be one of the social conditions forcing the company to be creative in their product development and offerings. In this instance, external pressure from society for environmental responsibility pushed Firm A to reconfigure existing and available resources to cater to the local demands. The Deputy Manager of Firm A stated the following:

For example, our market in Bangalore, in this case, water pollution is a concern...you will find news that there is a lot of pollution...so that is why we had to come with [a] certain product which we had to apply, along with the washing, like [an] automatic car washer, treatment plant, service centre et cetera. (Deputy Manager, Interviewee CA1, 2019)

Furthermore, Firm A was faced with other social conditions, such as the challenge of doing business in a low development area. It is noted that rural areas such as Andaman Nicobar face stunted growth due to a lack in structural transformation and economic development (Kumar et al. 2020). Jayadatta (2017) stated that critical issues, such as financial constraints, low levels of education, and limited infrastructure are among the many major problems facing rural areas in India:

There are different parameters sometimes...and this is very much important...like some of the countries are very low in terms of development...suppose we have to sell some of the equipment to Andaman Nicobar...providing the service can be costly...and most of the Andaman Nicobar...it is not so much [a] developed area until now or business is not so much developed...we have to see the city of the business and particular areas...and this can act as a barrier to innovation.... (Territory Manager Sales-Interviewee- CA1, 2019)

It is perceived that underdeveloped market environment can act as a constraint for a company such as Firm A to innovate and achieve favourable outcomes in overall business performance. The challenges for Firm A to operate in an underdeveloped area included the high cost associated with delivering services in a disadvantaged area.

## **Technology**

Technology condition was identified as the main barrier and driver for Firm A towards organizational ingenuity. For Firm A, technology condition was a concern, given that the company had been the industry leader, based on the products developed using old and existing technology available to the company. However, the emergence of new technology, advanced development, and new trends in the industry threatened Firm A's competitive positioning.

The Deputy Manager of Marketing made the following comment:

...for close to 50 plus years, we have been following the same, technology, we have been putting the similar kind of products...you know without change in technology. (Deputy Manager, Interviewee CA1, 2019)

It is important to note that Firm A had so far created success by leveraging existing technology available for the industry. In addition, Firm A had maintained prominent positioning in the market, based on the products and services created and developed according to the market trend relevant to their industry at that point of time. However, emerging trends in the industry, such as the introduction of electric vehicles, eco-friendly manufacturing processes et cetera, put pressures on Firm A to re-assess the significance of their current products and services..



## **Organisational**

Frugal orientation was stated to be an influence for the organisational condition for Firm A:

GST was implemented for certain products we were manufacturing... this has created a lot of problems for us and our suppliers in determining the proper value of the product...so, as a company, we had to take the call, whether we are manufacturing this product, or we outsource this product, from the supplier itself. (Deputy Manager, Interviewee CA1, 2019)

In this instance, it was determined that Firm A had identified the opportunity cost of continuing in-house production or the potential savings from outsourcing. Participant CA2 highlighted similar concerns about organisational conditions and stated that each situation varied accordingly and would need to be assessed on a case-by-case basis before making the final decision.

## **Regulatory**

It was highlighted in the interviews that organizational ingenuity was created due to different external pressures such as local regulatory requirements, cost, and market demand.

For example, regulatory condition was a threat necessitating Firm A to hatch novel solution:

...with the Government's regulation of water consumption...in certain areas...areas like Andhra where water washing is banned in summers...this is an issue that is a threat for us.... (General Manager, Interviewee CA1, 2019)

In this circumstance, Firm A took the restriction of water consumption in certain areas as an opportunity to innovate existing product offerings. According to both participants, this restriction forced Firm A to find an ingenious solution to survive in the market—an automotive washer with recycling water feature. This unique added feature could reduce water consumption from 85 to 130 litres per car.

## **Market**

For market condition, both participants confirmed that the emerging trend of electric vehicles significantly stirred the automotive industry:

Nowadays, electric vehicles are about to come to this market. According to that, we have to survive...because electric cars are requiring different moving parts, requiring overall changes...we have to see what it does to the market...if anything...fuel is getting completely banned...our equipment getting outdated...our company could become completely useless.... (Territory Manager Sales, Interviewee CA2, 2019)

It has been noted that industry disruption with the emergence of electric vehicles could completely change the dynamic of the market, consequently affecting Firm A. By recognising such upcoming changes in the market as early as possible, Firm A had the potential to sustain success in the industry.

#### **4.2.3 Organizational Ingenuity**

It was highlighted in the interviews that organizational ingenuity was created due to different external pressures such as local regulatory requirements, cost, and market demand.

For example, regulatory conditions and change in market demand for electric vehicles transformed the automotive industry landscape. Firm A responded to such challenges by finding novel solutions in order to stay relevant in the industry as the market leader:

The Government is putting some regulations on the automotive equipment manufacturers like Maruti and Honda to come up with electrical vehicles...so we will also be forced to come up with service centres which cater to electric vehicles.  
(General Manager, Interviewee CA1, 2019)

According to their website, Firm A focused on providing convenience and efficiency to clients through the 'one-stop-shop' strategy. Firm A continued its success with an extensive range of products catering to various clients locally and internationally. Furthermore, the firm had retained successful partnerships as an authorised original equipment manufacturer (OEM) with respectable market leaders. In the 2019 investor presentation, the company stated that it had maintained positive relationships with important customers through industry events and conferences. Furthermore, the 2019 investor presentation noted Firm A as a preferred supplier in the automotive industry.

Supported by their positive reputation in the industry, Firm A was able to further leverage this standing as a company strength. Firm A's participants stated that the company was built on the reputation of producing affordable quality products and services. The investor presentation highlighted the quality of Firm A's products in terms of reliability, innovative design approach, manufacturing and output, and quality products and solutions available at an affordable price.

Firm A proactively searched for different opportunities within the industry through diversification. For example, participant CA1 stated the following innovation which was considered as one of the prime products of the company:

The washer which was manufactured in 1965...18m litres of water per minute...that is the water flow rate of the machine. A car normally takes 15 minutes of washing...the consumption is close to 270 litres per car...so coming up with innovation, we have developed few products...which can wash the car in seven to eight litres of water, then

we have automated car washers also which can wash a car in five minutes.... And water consumption is 80 to 100 litres. (Deputy Manager, Interviewee CA1, 2019)

As stated on its website, Firm A relied heavily on its manufacturing abilities to sustain themselves in the industry. The company delivered confidently in the automotive industry by continuously investigating measures to improve on manufacturing efficiency and productivity while preserving the quality of products and services. In this respect, this study connects such superiority in offsetting the ever-increasing cost of labour, mentioned by participant CA2.

#### **4.2.4 Firm A's capabilities**

Appropriate capabilities enabled Firm A to weather STORM conditions and consequently attain organizational ingenuity.

##### **Combinative**

An example of combinative capability for Firm A can be observed through the following example:

We have come up with a new range of washer which is premium to that [former washer model]...which is quite complex compared to the other one, with a higher pressure of the water...better vision of the water usage...so we are using the same resources...same setup...to come with the same product and cater to the same market.... (Deputy Manager, Interviewee CA1, 2019)

In this example, combinative capability is achieved by recombining existing resources for a better and enhanced product output which can ultimately be linked to attaining organizational ingenuity.

##### **Hardship-surviving**

For hardship-surviving capabilities, participant CA2 stated that, overall, the firm was capable of surviving in the uncertainty of the economic condition:

I suppose we have the basic...we are capable...we have the means to sustain through the unreliability of emerging economy. (Territory Manager Sales, Interviewee CA2, 2019)

##### **Absorptive**

Firm A had proven absorptive capability through their acceptance of ideas and the direction of those ideas for development towards innovation:

So, our company had to come up with certain products...we spoke to our you know academic...we did in our factory...we did a survey first to understand what those

people as customer was expecting...okay, then our R and D team sat with marketing team and we tried to give our ideas and finally we came up with our solution.... (Deputy Manager, Interviewee CA1, 2019)

Specifically, one of Firm A's biggest clients, Honda, requested an automatic process in the automotive washing product range that could clean bike chains. The participant stated that—as exemplified in this case—absorptive capability was leveraged to cater to the local market's needs

### **Intelligence**

The intelligence capability of Firm A is proven through the thinking process of diversifying their output in the industry:

Earlier we would have one single team and focus and now we have separate team for every vertical...so it comes with more focus on a particular segment...like I told you, there is a segment catering to garage equipment...we have dealers around India...we cater to different segments.... (Deputy Manager, Interviewee CA1, 2019)

Thus, Firm A developed intelligence capability through a diversification strategy that ultimately led to gaining competitive advantage. The intelligence capability showed by Firm A demonstrated the company's quick decision-making process to gain competitive advantage by catering to the wider range of the market. In fact, Firm A's approach to vertical expansion afforded it the opportunity to focus on the wider market.

### **Networking**

Firm A demonstrated networking capability as a well-known preferred supplier in the industry. In addition, Firm A's participants stated network capability to be developed as a foundation for the company's path towards organizational ingenuity:

If you are asking about networking...we have the networks...like channel partners...our channel partners are very much involved in our systems...we are taking feedbacks from them and we are giving them feedbacks also...we are sharing equipment with them...also, many of the innovation ideas are on the basis of networking with our channel partners.... (Territory Manager Sales, Interviewee CA2, 2019)

## Dynamic

Firm A had adequately responded to dynamic change in the environment with the support of dynamic capabilities. The following was stated by Firm A's Deputy Manager regarding dynamic capabilities:

...in the last couple of years, we have tried to grow our organisation in a way that we can do all type of business. Earlier we would have one single team which would cater to all of the segments...now we have a separate team for every vertical, so it comes with more focus on a particular segment.... (Deputy Manager, Interviewee CA1, 2019)

In this example, Firm A established a focus team for each vertical to appropriately respond to any changes in demand occurring within the industry. Both participants confirmed that creating divisions for each focus area allowed the company to adequately respond to any emerging changes in the industry.

### 4.3 Case 2: Firm B

#### 4.3.1 Firm background

Firm B was a branch company under the management of a leading IT-related education company founded in 1947, which became Public Limited in 1986. The branch's core business was education and training solutions. The parent company of Firm B was a successful leading firm specialising in IT education and was an ISO certified institute. According to Firm B's website, the firm was a reputable company specialising in education and providing efficient technology solutions. The company had won various credible awards and became recognised as a Microsoft certified solution provider. At the time of the interviews, both participants stated that the company held between nine and 10 trademarks but no patents, to their knowledge. No public data was available to confirm the number of trademarks or patents. Table 12 provides a summary of background information on the firm.

Table 12: Firm B Demographics

<b>Firm B</b>	<b>Descriptions</b>
Headquarters	Khar West, Mumbai, India
Year of foundation	1947
	Public
Industry	Education, IT hardware training, networking, and digital courses
Turnover (million INR)	1955.54 INR (2019–20)
Employees	400–500

Source: Secondary and interview data

### **4.3.2 STORM conditions**

#### **Social**

Both participants from Firm B stated that the dynamic of society could strongly influence the company's decision-making processes.

According to the Senior Manager of Firm B:

...the mindset of the society...can overall affect education qualification...the society that we live in...so, definitely, there are challenges...social challenges...to make them become employed and this can be difficult.... (Senior Manager, Interviewee CB1, 2019)

The social dynamic in India can influence the mindset towards education access that ultimately influenced the market in which Firm B was operating. Jayadatta (2017) suggested social norms and cultural biases are often attributable factors for exclusion in education access. For example, women are often excluded in access to education for certain areas in India influenced by the gender inequality rooted in the country (Khan and Ghadially 2010; Bhat 2015). Firm B participants particularly stated that social challenges such as inequality in education access for female students were one of the barriers contributing to social challenges. Participants stated that some courses or training offered by Firm B were male dominated, triggered by the social mindset in India.

#### **Technology**

Technological conditions were considered an important aspect for companies such as Firm B. The General Manager stated that access to the internet had completely changed the education industry landscape. They further added that simple issues, such as lack of access to fast internet, to be one of the barriers under technological condition:

...easy availability of internet...you can learn anywhere...there are a lot of online schools and there are a lot of online courses that you can pursue...getting online was a challenge...there is also poor internet speed. (General Manager, Interviewee CB2, 2019)

Both participants recognised the emerging trend towards virtual learning in the education industry but encountered roadblocks to acting on this trend due to consumers' internet access. Pushpanadham, Khirwadkar, and Joshi (2002); Paul et al. (2018); Jena (2020) suggested an increasing trend towards e-learning, especially for higher education in India in recent years. However, the shift from traditional learning to e-learning is not straightforward given the various challenges of digital inequality associated with accessibility, affordability, flexibility, and much more (Dhawan 2020; Jindal and Chahal 2018). For firm B, lack of quality and access

to internet connections resulted in the push for the firm to become creative and innovate in the way that they operated and created their products and services.

## **Market**

The Senior Manager of Firm B identified industry trends to be one of the influencing factors for organizational ingenuity. In particular, specific market demands and trends were stated to be the influencing factors for Firm B to create novel solutions. Interestingly, specific influence of the market condition, such as the demand for ethics in IP exerted influence on the way Firm B approached digital learning and product offerings:

Today, the trend is ethical related, so we have moved into ethical IP...ethics in intellectual property... in terms of learning and teaching...product development...people are talking about ethical hacking...so we are happy to reintroduce that... (General Manager, Interviewee CB1, 2019)

What your students want to learn is a very important factor when deciding what we're offering...we conduct a lot of research and strategies in the market...in terms of what courses to introduce and what courses are not in the market...which is also influenced by new technologies.... (Senior Manager, Interviewee CB2, 2019)

### **4.3.3 Organizational ingenuity**

Both participants highlighted the great number of awards to be one of the key achievements of the company. These accomplishments were possible due to the degree of company openness and creativity:

Our management is very, very open to innovation. We don't mind experimenting with new initiatives and new technologies. (General Manager, Interviewee CB1, 2019)

The range of products and services offered by Firm B were defined as inclusive, innovative, and affordable in the industry:

The latest solutions are very important, and you develop these solutions by just matching the right technology in the market. (Senior Manager, Interviewee CB2, 2019)

Firm B General Manager explained how ingenious solutions helped the company to adapt accordingly:

...with creative solutions...it has to be very unique...it has to adapt...for anything...which increase your productivity, or it is not considered as unique.... (General Manager, Interviewee CB1, 2019)

The General Manager further added that finding creative solutions without sourcing outside resources resulted in cost and time savings for the company. The constrained environment of India forced Firm B to consider the best approach to reducing the time and resources used when responding to a challenging situation. With this mindset embedded deep in the strategic thinking at Firm B's operational level, an ever-increasing push for organizational ingenuity was observed, especially for a firm presented with continuous and inevitable obstacles.

As stated on Firm B's website, the company took pride in providing the latest knowledge and tools through a technology-driven learning process. In this respect, this study acknowledges Firm B's endeavour to become the leader of the industry in technology solutions for education:

The kind of business that we are in...IT training is a very interesting development...it is very specific to where you operate...it's not only about students, it's also about...government in these countries that they are...inviting companies to that kind of work...we are there to provide the training.... (General Manager, Interviewee CB1, 2019)

According to the General Manager, Firm B provided both technology and training solutions to companies. In addition, some of their business came from the governments of different countries such as India and Vietnam which were encouraging businesses to access the education and training solutions provided by Firm B. Firm B's website highlighted the firm's goal in creating breakthrough content and solutions to develop learners' skills to thrive in the present day and forthcoming competitive era. With that goal, Firm B integrated a key performance indicator measuring graduates' employability in the market. Furthermore, the company upheld a competitive position in the industry by winning multiple recognised industry awards. According to the 2019 investor presentation materials, Firm B's recognition warranted public trust and strong competitive positioning in the industry. Firm B claimed the company's milestones included at least one million students trained across 150 centres worldwide.

#### **4.3.4 Firm B's capabilities** **Hardship-surviving**

Participant CB1 stated the firm was proven to survive the challenging context of the emerging economy through hardship-surviving capability:

I think hardship-surviving is formed with the ability to sustain and survive within the uncertainty of emerging economy...and for SME this is another level...and to possess this is a capability to combat strong condition...like the downfall of stocks and the market crash and profit drop dramatically.... (General Manager, Interviewee CB1, 2019)



According to the Firm B participants, hardship-surviving capability was developed as the company combatted challenging and volatile economic conditions that ultimately led to a revenue deficit for the company.

### **Absorptive**

The competitive education industry in India forced Firm B to develop absorptive capability in the lead up to attaining organizational ingenuity. For Firm B, knowledge building was an approach that allowed the company to discover new knowledge useful for product development:

...to do things that we can do now...yes, we do a lot of knowledge building everywhere...we have absorptive capability.... (General Manager, Interviewee CB1, 2019)

One of the examples stated by participant CB1 is that the company went to South Korea to explore and learn some of the different approaches implemented in the industry. From here, the company took on the discovery, brought it back to India, and worked on adapting the knowledge according to the local market.

### **Networking**

Firm B's networking capability was developed by creating valuable social capital that could support the company's leading position in the industry. As stated on their website, Firm B established an alliance with educational institutions around India, allowing Firm B to maintain a positive reputation in the industry. Furthermore, Firm B was promising guaranteed employment for students upon completing the company's training course.

The company's substantial reputation in the industry positioned Firm B to form student placement partnerships with recognised IT companies such as Microsoft, IBM, Amazon, Tech Mahindra, Infosys, and many others. Such partnerships were key to Firm B's networking capabilities that allowed the company to extend their service to provide guaranteed job opportunities to enrolled students. According to the General Manager, the company's positive reputation strengthened the company's social capital which allowed them to leverage those networks and create career opportunities for existing clients.

### **Dynamic capabilities**

Dynamic capabilities for Firm B were developed as the company proactively responded and adapted to any market or industry change. This capability was stated to be one of the important capabilities for Firm B as it supported the company in creating novel solutions to stand out from its competitors:

We purposefully adapt the organisation resource base...we do the market survey reporting today, we design our product.... (Senior Manager, Interviewee CB2, 2019)

From the company's website, Firm B appeared to offer a variety of courses with different completion times and various target markets. In addition, there were different specialisations introduced in the product offerings as options for students to choose as part of their education plan. Dynamic capabilities enabled Firm B to adequately understand the current market trend and, with this capability, the company recognised emerging technology trends in the education industry, such as virtual reality (VR). According to the secondary data, VR was introduced as one of the innovative methods of Firm B's course delivery to enhance the classroom learning experience.

#### 4.4 Case 3: Firm C

##### 4.4 Case 3: Firm C

##### 4.4.1 Firm background

Firm C was a dedicated firm in the IT industry specialising in self-service cloud platforms in India. Firm C began as a start-up company and successfully became one of the leading IT companies in India. One important note from the interviews was that Firm C operated in a context requiring them to compete with other dominant cloud service providers, such as Amazon and Google. Participant CC2 noted that the company had registered 35 patents and two trademarks at the time of the interview. Table 13 provides a summary of background information on the firm.

Table 13: Firm C demographics

Firm C	Details
Headquarters	New Delhi, India
Year of foundation	2009
	Public company
Industry	IT services and consulting
Turnover (Millions in INR)	342,046,583 INR
Employees	51–200
Patents	35
Trademarks	2

Source: Secondary and interview data

##### 4.4.2 STORM conditions

##### Technology

Technology condition was stated to be one of the conditions that had impacted the various facets of Firm C, especially considering technology can be a key aspect of success:

So, technology wise would be the latest technology in the market...for us it takes time so we have to compare before we decide to include the technology.... (Vice-President, Interviewee CC1, 2019)

According to the secondary data available, the company kept up with trends in the industry by developing products according to the new technological advancements. Some of the examples in the secondary data included artificial intelligence (AI) and machine learning, robotic process automation, cloud computing, VR, and augmented reality.

## **Regulatory**

When first asked about the conditions that significantly affect the company, Firm C participants identified legal requirements in India to be the pressure that pushed the company towards organizational ingenuity:

Legal...due to the challenges for getting certification, compliance for a number of people to get certification...and this can be a challenge to provide to our clients.... (Head of Regional Sales, Interviewee CC2, 2019)

According to both participants, these certifications were important as a demonstration to their clients of their minimum compliancy in the industry. As noted on the company's website, Firm C was certified for its compliancy in Information Security Management System and Quality Management System.

Another example noted by a participant from Firm C was the effect of goods and services tax (GST) on the pricing of products.

## **Market**

The market condition of STORM is also considered as a factor that pushed Firm C towards organizational ingenuity. For Firm C, market condition is identified at a firm level with limited access to human resources. The uncertainty of the market condition for Firm C focused on the uncertainty of obtaining talent essential to maintain the upkeep of the company. In fact, the Head of Regional Sales stated that the biggest challenge for the company was access to human resources with the right skills and backgrounds relevant for the industry. Most graduates or potential employees were seeking a career opportunity outside of India and, for this reason, Firm C struggled at an operational level:

When it comes to [the] IT industry, the biggest challenge...or maybe adversity for India or maybe for my industry is we are losing the market...because they are shifting to overseas...they are joining companies like Microsoft...if I would have had the same

kind of person in India, they would have been a miracle for the company.... (Head of Regional Sales, Interviewee CC2, 2019)

#### **4.4.3 Organizational ingenuity**

As claimed by both participants and on the company's website, Firm C was one of India's fastest cloud solutions providers. The stand-out achievement of the company was providing fast, reliable, flexible, and cost-effective cloud solutions to companies in India. The company's unique self-service cloud platform provided superior performance at an affordable price point compared to big players such as Amazon Web Services (AWS) and Azure, as stated in the 2019 investor presentation. According to the 2019 investor presentation, Firm C served at least 10,000 customers and had approximately 2,000 active customers in the financial year prior to the presentation. The company established a strong presence in Delhi, the National Capital Region (NCR), Bangalore, Vellore, and many other areas. The main selling point for Firm C's cloud solutions was its cost-effective services across different types of client foci, such as e-commerce, financial technology, education, and travel.

When asked about innovation, the Vice-President expressed the following sentiment:

We ask customers what are the problems...and with the problems stated, we check if we have a solution, we guide them with a solution, if they don't, we pass those to our team.... (Vice-President, Interviewee CC1, 2019)

In this example, it is perceived that Firm C's creative play when responding to external market forces explains the pursuit of organizational ingenuity when a firm is pushed into a corner. Firm C's Vice-President indicated pressures, such as customer demands and intense competition in an emerging economy market, instigated the pursuit of novel solutions to sustain and compete in the market. For Firm C, this may have involved reverse engineering the problems presented by potential clients and closing the gaps in the market. Firm C participants emphasised the importance of creativity, using available resources as a path to innovation. Furthermore, both participants elucidated the influence of conditions or forces to be factors pushing firms to seek ingenious solutions.

The 2019 investor presentation underlined stark contrasts in the pricing, product features, and ranges offered, compared to those of established competitors. Some factors included for comparison were technical features, options, and costs. The main selling point promoted in the 2019 investor presentation was the frugal tactic of providing a cloud solution with reduced overall maintenance and operational cost. The following quote highlights Firm C's contention for innovation:

We only value innovation, because innovation is something which you can say [is] part of any organisation. If people are not innovative enough...we cannot introduce you [to] ideas without innovation. As a new company, we have an insight into the very things we want to do...what do we do...? The reasons behind it...we don't have cash flow...we don't have fresh ideas...we cannot work or come up with a patent...and it was something we do whatever to form [innovation].... (Head of Regional Sales, Interviewee CC2, 2019)

Participant CC2 further added an example of how Firm C's vulnerability in a hypercompetitive environment—competing with major players such as Amazon, Google, and Alibaba—identified a gap in the Indian market and responded accordingly, leveraging those gaps to form an in-house cloud solution in the country. In this respect, both participants expressed the same principles on the importance of organizational ingenuity for Firm C to sustain within India's competitive industry and constrained market. Here, organizational ingenuity was attained so that Firm C could compete at the same level as dominant industry players. The following quote further emphasised Firm C's stance on the importance of organizational ingenuity:

We have to be smart...we have to implement something...more innovative in the market...because we have many companies who are recognised more...100 times than ours...and they have all the advantages in the market...so that is why we see organizational ingenuity as important to possess.... (Head of Regional Sales, Interviewee CC2, 2019)

#### **4.4.4 Firm C's capabilities** **Combinative**

Firm C participants firstly stated combinative capability as the first capability developed as the company adapted and responded to the challenging market of India. However, it was interesting to note that Firm C approached combinative capability from the perspective of cost and developed solutions based on the cost demanded by customers:

We work on providing solutions where the cost is the cultivation...which we work on at low cost...how we can provide this...so, instead of working on the native services, we provide which amount of cost, we work on the open solutions...but more R and D is required then we can meet the cost of product according to the customer's request. (Vice-President, Interviewee CC1, 2019)

In this instance, Firm C developed combinative capability by creating solutions according to the cost that was afforded by customers in the negotiation process. For this reason, Firm C

was required to look beyond what was being offered by the company in terms of solutions and available resources, and to creatively adapt available product offerings and features to meet the budget set by customers.

### **Absorptive**

Combinative capability is the ability to adjust tangible resources, while absorptive capability discerned Firm C's creative play with knowledge and transforming such generic or unique knowledge to the company's advantage. For Firm C, knowledge was key to product development:

...we are comparing with our competitors, we find out what are the loopholes we have.... (Vice-President, Interviewee CC1, 2019)

According to Firm C's Vice-President, reinforced with knowledge, the company will then identify a gap in the market and develop novel solutions accordingly. It was usually through comparison with industry competitors that the company was able to identify the gap in the industry.

### **Intelligence**

Firm C cultivated intelligence capability in the deliberation of how they could gain competitive advantage through the solutions offered by the company:

...the only way to survive is through our employees and our products and services that can fit in the market and secondly, creating innovative and a cost-effective solution.... (Head of Regional Sales, Interviewee CC2, 2019)

In this instance, we see Firm C acknowledging the harmonising pair of creative solutions created using generic resources frugally, in a constrained environment rather than a market-supporting business environment, with distinctive resources available for the company to utilise to its advantage.

### **Dynamic capabilities**

Dynamic capabilities for Firm C were based on the reflection of the issues identified from customer feedback. Customer feedback provided Firm C with insights into key features or processes. The challenging aspect in this dynamic condition was the uncertain environment created in the market:

...and so, based on all that, problems from the competitors, customers, and we put everything on R and D and.... Work it out....and, we go into the market.... (Vice-President, Interviewee CC1, 2019)

Firm C's participants stated that it was vital for the firm to respond according to market change in order to survive. In fact, the research and development activity of Firm C mostly concentrated on developing products according to market change. It was observed that, in the secondary data from 2020, the company proactively observed the market change prompted by the pandemic, such as the paradigm shift from in-person to virtual connection.

#### 4.5 Case 4: Firm D

##### 4.5.1 Firm background

Firm D was a private company providing data management and data protection services. Firm D was also a company that was founded as a start-up company in India before moving its headquarters to Silicon Valley, United States. The company first started with only nine active employees before growing successfully. Firm D was known in the industry for its expertise in providing significantly simplified data protection, efficient data control, and gaining data insights and transparency through speed cloud integration. Firm D successfully achieved its strategic positioning in the industry through its approach in Software as a Service (SaaS) in eliminating management-related expenses and intricate IT set-up. The company continued to manage and operate a research and development facility in India with the company's headquarters currently in the United States. Both participants stated that there were both patents and trademarks registered under the firm. At the time of the interviews, both participants confirmed that the number of patents registered under Firm D were not more than 50, to their knowledge. A search in the Intellectual Property India database confirms 35 patents registered under Firm D. Table 14 provides a summary of background information on the firm.

Table 14: Firm D demographics

Firm D	Details
Headquarters	Pune, India
Year of foundation	2002
	Private Company
Industry	IT,
Turnover (USD)	US\$100.2 million
Employees	400
Patents	35

Source: Secondary and interview data

##### 4.5.2 STORM conditions

###### Technology

The pressure from both customers' expectations and the threat of global players with technological advantage significantly urged Firm D towards organizational ingenuity:

From the technology point of view...there's a lot of global players coming up with new things in terms of technology...customers expect you to have technologically advanced solutions to provide.... (Customer Service Manager, Interviewee CD2, 2019)

In this instance, Firm D was motivated to craft novel solutions that were unique in the industry and to differentiate the company from its rivals. The limitation of the technological aspects when compared to Firm D's rivals motivated the company to adopt a creative approach leading to organizational ingenuity.

### **Organisational**

The organisational condition is determined to be another condition affecting Firm D. In this circumstance, Firm D was influenced by specific demands of the customers that might not be available or unable to be incorporated in existing product features.

The Customer Service Manager of Firm D stated:

We have a particular solution which has a specific offering...there are times a customer has come up with a new solution or new requirement, which cannot be fulfilled by our existing products, then the valued customer might go to the competition. (Customer Service Manager, Interviewee CD2, 2019)

In this circumstance, Firm D may have been required to move into a specific niche in the industry that was initially not available within the company. With the threat of customers going to competitors to meet specific expectations, organizational ingenuity emerged as a critical attribute for Firm D to remain relevant in the industry.

### **Regulatory**

Institutional and legal requirements of different countries were identified to be the contributing issues under regulatory condition. For example, policy change of the European Union was stated to be one of the factors under regulatory condition for organizational ingenuity:

In the recent times, there was some regulatory...by the European Union...that is external regulation that is causing us huge problems in terms of data regulation...that basically opened new market possibility...more on the innovation and developers. (Program Manager, Interviewee CD2, 2019)

Firm D Program Manager revealed that the change in direction in institutions had demanded Firm D to be accustomed to the institutional change accordingly.

### **Market**

The shift in the market condition of the IT industry prompted Firm D to attain organizational ingenuity. The accelerating demand to migrate business data from physical to cloud prompted Firm D to creatively play on existing and available resources for innovation. Firm D Program Manager stated the following:



Market condition is like...earlier...people used to keep data in their physical drive...now the market trend is like...so—everything is stored in cloud. (Program Manager, Interviewee CD2, 2019)

Both participants stated that the swing in the industry significantly affected the company's performance and, therefore, a quick and effective response to the market condition was necessary. However, it should be noted that the market trend not only challenged Firm D but the IT industry overall. As noted from the secondary data from 2020, the key IT solutions available were developed in accordance with the current industry trend. Firm D recognised the endless advantages of cloud solutions as a provider, as a response to the shift in market demand of the IT industry.

#### **4.5.3 Organizational ingenuity**

Interviewee CD1 stated that the company valued innovation more than anything as it provided the push for the company to achieve differentiation from its rivals. Firm D's fulfilment of organizational ingenuity reinforced the company's unique position as an industry leader for providing excellence in supporting clients' businesses to navigate data and security risks with cloud technology:

We see the values of innovation because it gives...just the edge over our competitors...it also helps our customers save their storage, their cost, and security of their device. (Program Manager, Interviewee CD1, 2019)

From this perspective, Firm D placed great importance on coming up with innovative solutions in their product offerings. This could only be achieved with the consideration of cost-cutting solutions. Firm D viewed innovation as an integrated approach of creative, quality, and affordable solutions. Secondary data investigation found Firm D significantly valued innovation. The company set aside a portion of its revenue to open a new innovation centre in Pune, India in 2018:

Organizational ingenuity is of course necessary because you cannot build a great organisation without having innovation. The product would not be competent in terms of the market requirements. Your employees would not be competent when it comes to coming up with creative solution that is necessary to have positive development in organisation. (Customer Service Manager, Interviewee CD2, 2019)

The firm's achievement, driven by its passion for innovative solutions, can be proven with the company being included in Deloitte's Technology Fast 500 in the last five years. The company's proactive approach in coming up with integrated IT solutions has gained the attention of IT leaders such as Dell Technologies, AWS, and VMware. Firm D scaled up its

efficiency, providing quality data solutions and protections at a lower cost by removing high-maintenance software and hardware.

#### **4.5.4 Firms D's capabilities**

##### **Combinative**

Combinative capability helped Firm D ascertain generic resources advantage by reconstructing and improving existing available resources to create improved output versions. Firm D's combinative capabilities can be demonstrated through the locational advantage achieved from active effort to reconfigure existing resources possessed, such as infrastructure, to create added value output:

Our infrastructure development and investing in India...operating in India...so our expense is at low cost...I supposed we have the location advantage...we also extend the value of our products. Our organisation offers products with [a] different range of value as we have to cater to everyone. (Customer Service Manager, Interviewee CD2, 2019)

The cost benefit gained from locational advantage allowed the company to focus on the value of the products offered to customers. Firm D was able to create an extended range of products with different features and values from the cost savings of operating in India. This is a great example of how Firm D leveraged wide resources available within the company and assigned available resources in the right area to gain competitive advantage. In this context, it can be observed how Firm D leveraged the advantage of infrastructure location to invest remaining available resources to create variety in product outputs.

##### **Absorptive**

According to the Firm D participants, absorptive capability was developed through an active learning process implemented as part of the day-to-day business operations.

Firm D Customer Service Manager stated the following:

The company believes in innovation. They keep on running Hackathons and R and D department keeps on researching, keeps on exploring the market...all improvements that have to be done for the product.... (Customer Service Manager, Interviewee CD2, 2019)

Firm D recognised knowledge as an important element to continue daily operation of the business and, therefore, developed absorptive capability through various programs under research and development. Through this method, Firm D was able to identify the emerging market trends that were relevant to the company and transform such knowledge into

something valuable. According to the secondary data, Firm D specifically created an innovation team for the purpose of identifying the market gap and leveraging available knowledge to build innovative solutions. Some of the featured ongoing projects in 2021 included data automation, reduction in cost of compliance through an automation process, and AI-powered data identification.

### **Intelligence**

Intelligence capability was not supported in the case of Firm D.

### **Networking**

Networking capability unfolded for Firm D due to issues over limited access to technology. A participant from Firm D stated the following regarding networking capability:

...we collaborate with them...from the technology part we do not have that...that becomes a barrier and hence, of course in the need of ingenuity, it becomes a forced factor for us to have and collaborate so we can create.... (Customer Service Manager, Interviewee CD2, 2019)

In this occurrence, the limited access to technology is one of the contributing factors under technology condition that persuaded Firm D to look beyond resources available internally and utilise business connections to access coveted technologies required to sustain operation in the industry. Strong business affiliations refined by the company over the years created the opportunity for Firm D to fill the void in the absence of advanced technology and allowed them to take advantage of their positive business connections for access to advanced technology.

## **4.6 Case 5: Firm E**

### **4.6.1 Firm background**

Firm E's parent company operated in a highly innovative pharmaceutical industry. Firm E started off in India with a manufacturing facility for tablets and capsules before establishing a research centre for critical product development in the pharmaceutical industry. The company that participated in this interview was a subsidiary of the parent company focusing on pharmaceutical research. At the time of the interview, both participants acknowledged that the company possessed a few patents and trademarks. Participant CE2 noted that there were at least 60 patents registered under Firm E. Table 15 provides a summary of background information on the firm.

*Table 15: Firm E demographics*

<b>Firm E</b>	<b>Details</b>
Headquarters	Mumbai, Maharashtra, India
Year of foundation	1983

	Public company
Industry	Pharmaceutical
Turnover (Millions in INR)	7243.5 INR (2019)
Employees	100–500
Patents	60

Source: Secondary and interview data

#### **4.6.2 STORM conditions**

##### **Social**

For Firm E, limited possibility to administer clinical trials inhibited the company's ability to create affordable medicines. According to the Manager, the low number of cancer patients in India impeded Firm E's progress in developing accessible or affordable cancer disease medication:

For social challenges, you need to consider disease such as cancer...as you can see...there is not many patients with this particular disease in India...and the pressure is arising day by day...as organisation, we have to make such a medicine that will be affordable for all human beings...doesn't have that much of an adverse effect on human beings.... (Manager, Interviewee CE1, 2019)

In this occurrence, it is noted that social conditions related to local population health were directly contributing to the company's overall progress. For Firm E, the limited access to cancer patients was a barrier to the company developing product offerings. Roy and Mathew (2019) reported that the limited clinical trials conducted in India was proven to be one of the challenges associated with creating inexpensive cancer medications. This aligns well with the examples given by the Firm E participants.

##### **Technology**

Technology is noted to be one the conditions forcing Firm E to attain organizational ingenuity and, in the case of Firm E, technology condition is specifically attributed to the challenge of limited access to technology:

We had a very limited access for technology...they are using very advanced techniques to make their medicine... to synthesise their molecule which is very hard.... (Manager, Interviewee CE1, 2019)

The Firm E Manager stated that, when compared with competitors in the industry, their rivals would have the upper hand in terms of resources, specifically gaining access to advanced technology. Restricted access to advanced technology in the manufacturing process of the medicine constrained Firm E in terms of technique. For this reason, organizational ingenuity was imperative as Firm E was obliged to devise creative solutions in both manufacturing process and final output.

In a situation where Firm E could access advanced technology through business connections, there was always a risk of IP theft, especially when the company required specific technology to develop new products that were not yet formally launched.

According to the Manager:

We don't own a lot of current technology...so we had to outsource that technology for [a] particular product...we have to outsource and use that particular technology...and there is a chance of leaking your patented data...that's the main barrier.... (Manager, Interviewee CE1, 2019)

Firm E's strong business connections developed through their networking capability, detailed below, had allowed the company to offset the barrier of not having access to advanced technology. This allowed Firm E to overcome barriers of accessing advanced technology but bore a different risk of having their classified knowledge potentially leaked to competitors.

### **Organisational**

The organizational condition was determined as a challenge for Firm E because the pharmaceutical industry is inherently unpredictable and high risk. Participants from Firm E stated that time was of the essence when it came to product development. In this context, both the time taken to develop a medicine, or timing to introduce or launch the medicine to the public, necessitated significant risk. The pharmaceutical industry obligated the company to engage in a risk-averse decision-making process. As identified in the literature review, the organisational condition is a condition that forces firms to be more risk oriented. In this example, we see the trend of the pharmaceutical industry influencing Firm E to be affected by the organizational condition that led the company to be more risk averse:

It's not an easy task...to decide on a single molecule and launch in the market that generally will take around eight to 10 years.... (Manager, Interviewee CE1, 2019)

The development of a single drug or medication warrants years in development and, for companies such as Firm E, time is key to maintain competitive positioning in the industry. Organisational condition for Firm E necessitated the company to continuously engage in high-risk decision-making processes and the risks associated with the pharmaceutical industry increased exponentially.

### **Regulatory**

Regulatory condition has been challenging for Firm E because the pharmaceutical industry is heavily regulated by both institutions and regulatory bodies. In this respect, Firm E was

challenged and restricted in the way that the company innovated in all aspects. As stated by the Senior Manager:

We have to follow lots of rules, regulations and guidelines and how the innovation process is potentially influenced by this.... (Senior Manager, Interviewee CE2, 2019)

In addition to local regulations, Firm E was also forced to consider regulation or legal requirements relevant to the pharmaceutical industry. Different legal requirements, such as market entry regulation, IP law, and social regulations, can definitely increase the hurdles for innovative developments for companies such as Firm E.

Yes, different country regulatory bodies...for example, we are trying to launch our product and it is in jeopardy at that particular country...so as far as the legal concern...this is a problem. (Manager, Interviewee CE1, 2019)

In this situation, Firm E's product launch would have been halted due to specific regulations of a country that may have restricted the importation of the product. However, the participant was unable to provide specific examples or details of the examples due to the confidentiality of the information. According to Firm E's Senior Manager, regulations were different across different countries and, given the fact that Firm E distributed globally, products would be adapted accordingly:

...in pharmaceutical, different country, regulations wise are different okay...so, if we talk about the United States right, there are different rules and regulations that applies to the pharmaceutical industry...we talk about the Euro...they are different rules and regulations...and we will go for the way they do locally.... (Senior Manager, Interviewee CE2, 2019)

Laws and regulations in different countries are taken into consideration for manufacturing processes, product features, ingredients, formulas, and many other factors. For Firm E, regulatory condition of each country to which the company distributed would require the company to adapt accordingly. From that point onward, organizational ingenuity would be inevitable.

#### **4.6.3 Organizational ingenuity**

When asked about organizational ingenuity, both participants identified it as an important facet for the firm to sustain operation in the industry. Firm E viewed organizational ingenuity as an opportunity to craft something original and differentiate themselves from competitors in the industry:

We are serious about coming up with genuine, authentic solutions in the pharmaceutical industry. Quality and originality must be there and when we are talking about ingenuity, which is basically the ability to create innovative solutions within the limited resources with imaginative problem solving...that is ingenuity. (Senior Manager, Interviewee CE2, 2019)

According to the company's 2019 investor presentation, Firm E allocated seven per cent of the 2019 financial year revenue to research and development. In addition, research and development was centred on affordable and accessible drugs. However, production of affordable solutions/drugs for Firm E would only be achievable by the creative composition of generic resources and by leveraging existing capabilities of the company. Participant CE1 specified the following:

In general, with the understanding of organizational ingenuity...we know as a company, we're not going to do innovation by improving on the same product that has been filed by another ten companies...you do not get any kind of advantage and your competition will be higher...so we look for a unique factor...we think differently and with that ability we try to innovate and create a unique product and make sure that we are better than the competitors of the industry. (Manager, Interviewee CE1, 2019)

In this context, organizational ingenuity supported Firm E through the perspective that improvement on existing products is insufficient and the ability to create a unique factor is essential. Both participants claimed that a unique feature was a key attribute as the company developed differentiated products in the research and development stage. Among numerous milestones and recognitions for Firm E, one of the most highly regarded was being listed among Forbes World's Most Innovative companies in 2018. This recognition attests to Firm E's track record in creating innovative approaches and solutions in the pharmaceutical industry.

#### **4.6.4 Firms E's capabilities**

##### **Absorptive**

Evidence from the interviews illustrated Firm E's absorptive capability, demonstrated through the firm's ability to recognise new knowledge relevant to the industry. The ability to adapt new knowledge is even more critical, especially for companies in a research-heavy industry such as pharmaceutical.

According to Firm E's Manager:

We study the type of formulation, the type of molecule from anything oncoming or in existing markets...we learn what are the problems and how their problems can be

solved...have they been solved...we come up with a concept...and execute....  
(Manager, Interviewee CE1, 2019)

Absorptive capability ensured Firm E attained organizational ingenuity by identifying the gaps in the market. With this ability, Firm E recognised key missing points in the company's solutions and also the industry's gaps.

### **Intelligence**

Firm E established intelligence capability through active research and development. With the funding support for research and development, Firm E concentrated on research and development to come up with differentiated products, such as an inexpensive cure for a complex disease. Evidence from secondary data disclosed Firm E's early investment in research and development gained first-mover advantage in the pharmaceutical industry. However, getting to the finishing line in this industry might not be as easy as it seems, especially for a pharmaceutical company, according to the Firm E Senior Manager:

The development of new product, new drug, cost us and to see it go through clinical trials is very, very expensive. The cost is very high. (Senior Manager, Interviewee CE2, 2019)

For this reason, Firm E participants emphasised the importance of creating and offering affordable solutions that could be achieved through production as well as the price point of the final products for consumers. According to evidence from secondary data, the company's implementation of a differentiation strategy strengthened the development of generic drugs and technologically complex medicine.

The secondary data from 2019 stated the firm's goal to optimise the overall operational expense and establish vertically integrated operations for cost efficiency. The aid of intelligence capability supported the creative process of Firm E in developing competitive advantage, specifically in achieving cost advantage. With this benefit, Firm E was able to refocus on available funding towards the investment of developing affordable final products.

### **Networking**

There was no direct evidence of networking capabilities demonstrated by Firm E.

### **Dynamic capabilities**

Dynamic capabilities of Firm E were observed through the strategy implemented by the company to drive long-term growth. The main feature of Firm E's dynamic capability was its outstanding ability to synergise the balance of the market. This was achieved by harnessing market needs in the development of differentiated and generic products for better provision of



healthcare. With this ability, Firm E could envision a strategy for the company's longevity. Apart from market demands and needs, Firm E also strove to create sustainable revenue streams by directing the focus of their products to target the mass market. According to the secondary data in 2019, the product offerings to the mass market helped the company to maintain steady income that contributed to the funding of research and development.

## 4.7 Case 6: Firm F

### 4.7.1 Firm background

Firm F is another company included in this study operating in the pharmaceutical industry. The parent company of Firm F was founded in 2004 and operated as a contract manufacturing organisation (CMO) through its state-of-the-art manufacturing units in India. All manufacturing units were ISO certified and responsible for the manufacturing of various products approved by the World Health Organization (WHO) in multiple countries. Firm F was one of the leading pharmaceutical companies in India, striving to be a sustainable pharmaceutical organisation. At the time of the study, the company was distributing 243 registered brands. Both participants noted that the company held more than 500 patents. Table 16 provides a summary of background information on the firm.

Table 16: Firm F Demographics

Firm F	Details
Headquarters	Ahmedabad, Gujarat, India
Year of foundation	2004
	Public
Industry	Pharmaceutical
Turnover (Millions in INR)	271.5 INR
Employees	201–500
Patents	500

Source: Secondary and interview data

### 4.7.2 STORM conditions

#### Technology

As many other companies in the industry were challenged, technology condition was stated to be one of the significant challenges pushing Firm F to attain organizational ingenuity. According to the Business Development Manager, limited funding had hindered access to advanced technology that ultimately led Firm F to develop creative solutions:

One of the very important factors that I about my company...we are technologically advanced, but we are not as advanced as required and this is because of the funding issues...and because of this we're meant to develop creativity.... (Business Development Manager, Interviewee CF1, 2019)

In this example, limited access to advanced technology due to limited budget led Firm F to organizational ingenuity. In this instance, the pressure from technology limitation forced Firm

F to be creative in order to compensate for the lack of advanced technology needed when operating in the pharmaceutical industry.

### **Regulatory**

Industry dynamic was established to be one of the factors influencing the overall performance of Firm F. The company identified the dynamic of the industry that created potential barriers to success. Some of the challenges included the standard operating procedures required for manufacturing facilities of the industry:

There are some challenges from the external environment that can be political or legal...one of the common complaints at present I am thinking about is the air and water pollution control...there are a lot of policies mixed up and this is very important for us to control...it has a standard operating procedure...and it affects the company.... (Quality Assurance Manager, Interviewee CF2, 2019)

According to an Organisation for Economic Co-operation and Development (OECD) report, the globalising nature of the pharmaceutical industry directly contributed to the increasing concern over pharmaceutical waste discharge into the environment (OECD 2019). In this context, it can be understood how policy change can stress industry players to proactively manage such requirements to remain compliant:

For [the] regulatory body in India, we have the state level and authority body...they both mutually decide the norms and conditions for which we act and align according to the new guidelines...we follow to make good quality products and the guidelines are things that cannot be changed...it is mandatory.... (Business Development Manager, Interviewee CF1, 2019)

### **Market**

Market condition sets a benchmark in the industry to which Firm F must comply for survival. Firm F was more reactive towards the influence or feedback received by consumers. For example, according to the Quality Assurance Manager, the feedback received by consumers was one aspect that pushed Firm F towards creative solutions:

The market challenge...the market tells the customer what the minimum rate and good quality product...so the market challenge includes how to produce a product with minimum cost and good quality.... (Quality Assurance Manager, Interviewee CF2, 2019)

Based on the example given above, Firm F was more inclined to be influenced by market feedback in their decision-making process. In addition, understanding local demands was considered to be part of the market condition that shaped Firm F for organizational ingenuity:

Understanding the market demand is important...to know the market...for example, we know for market such as Africa...Uganda and some other markets that the number product is syrup. (Business Development Manager, Interviewee CF1, 2019)

This example illustrates that local market preference created uncertainty which Firm E needed to acknowledge to remain competitive in the market. The local preference of the African market for a syrup-based type of medication forced Firm F to adapt accordingly.

#### **4.7.3 Organizational Ingenuity**

Firm F was a recognised company in the pharmaceutical industry as the firm grew and became a reputed and trusted leading pharmaceutical manufacturer. It was noted in the 2018 investor presentation that some of the leading pharmaceutical brands were in fact made by Firm F. The company's flexible approach was based on the strong foundation in innovation that ultimately allowed Firm F to create customised pharmaceutical solutions catering to clients' requirements. This enabled Firm F to offer wider options to prospective clients.

Interviewee CF1 stated that the customised solutions included both product composition and packaging design, innovatively developed to meet clients' requests:

We are still innovating in a few things, one of them is packaging, two different packaging is required for different products...innovation in the packaging might include bolted form or new doses form or the delivery form and this can be different for the African or the American market.... (Business Development Manager, Interviewee CF1, 2019)

As understood from the above, Firm F gained organizational ingenuity by being flexible in product development in order to meet the industry demand. Both participants identified that the ability to be flexible created positive opportunities for the company, leading Firm F to gain worldwide recognition and accreditation in the industry. According to secondary data from 2018, Firm F's strong track record helped create and maintain good relationships with respectable clients such as Baxter, Torrent Pharmaceutical, Merck, Cipla, and many more. In addition, organizational ingenuity gained in the process helped the company to be acknowledged for their ability to offer at least 22 categories in the wide therapeutic segment of the pharmaceutical industry.

When asked about the definition of organizational ingenuity, the following statement was made by a participant:

Organizational ingenuity is when you are doing good innovation...and as a company this is needed to achieve your long-term goal.... (Business Development Manager, CF1, 2019)

From the perspective of Firm F, organizational ingenuity was about achieving the long-term objective of continued operation. According to secondary data evidence, some of the initiatives highlighted in the 2020 investor presentation put forward Firm E's latest ingenious solutions in the research laboratories equipped to be one-stop-shop solution centres. This initiative allowed Firm F to emerge as an organisation with the ability to produce an in-house research-driven oncology formula across different manufacturing units. In this initiative, prospective clients were given the opportunity to liaise with Firm F for complete solutions rather than multiple pharmaceutical organisations.

#### **4.7.4 Firm F's capabilities**

##### **Intelligence**

Intelligence capability can be observed through the firm's example of competitive advantage gained through its four state-of-the-art manufacturing facility. Firm F's manufacturing facility was certified across 14 overseas countries by their respective national drug authorities. One of the unique aspects associated with intelligence capability was the way Firm F maximised manufacturing efficiency by segregating each manufacturing facility to focus on one product category. For example, Plant 1 focused on the manufacturing of liquid orals and other facilities focused on manufacturing product categories such as dry powder injection, liquid injection, and tablets or capsules.

Interviewee CF1 stated that this approach allowed the firm to make the best cost decision applicable to the relevant manufacturing plant and control the level of output:

We can provide different levels of control on the manufacturing process and decide on the best cost and output level.... (Business Development Manager, Interviewee CF1, 2019)

Evidence from secondary data demonstrated Firm F's intelligence capability through their process-thinking ability. Building process standardisation into equipment systems design achieved cost-effective production while meeting regulatory norms. Intelligence capability was exemplified here by Firm F's quick thinking in developing advanced techniques, such as continuous flow technology, in order to deliver competitive in-house production.

## Networking

Networking capability was identified as a capability associated with Firm F. According to Interviewee CF2, the company not only relied on connections for technical knowledge, but also to create strong business connections for sales:

To create new business connections is important...with the networking...in Canada...I am not talking about technical network but I am talking about business connections...your salesperson...and this business connection create sales...they have extended business connections for marketing.... (Quality Assurance Manager, Interviewee CF2, 2019)

According to secondary data, in 2018, the company maintained a strong relationship with 69 distribution partners across 53 countries. Firm F held a strong presence worldwide, especially in Southeast Asia, Africa, and Latin America. In addition, as mentioned before, Firm F retained business connections with different stakeholders to ensure the survival of the company.

### 4.8 Case 7: Firm G

#### 4.8.1 Firm background

Firm G was another IT company that focused on providing integrated software product platforms and solutions for business enhancement. The company primarily provided IT solutions to the health and education industries and had established itself as one of the leading OEMs in the industry. According to the company website in 2020, one of Firm G's well-known OEM partners was Microsoft. Furthermore, secondary data in 2020 showed Firm G's expansion of its product solutions was highly scalable with products available across multiple platforms such as iOS, Android, and Windows. Both participants knew of a few patents and trademarks registered under Firm G but the exact number was unknown to both. Intellectual Property India database confirmed six patents registered under Firm G. Table 17 provides a summary of background information on the firm.

Table 17: Firm G demographics

Firm G	Details
Headquarters	Mumbai, Maharashtra, India
Year of foundation	2010
	Private
Industry	IT
Turnover (Crore)	29.18 Crore
Employees	51–200
Patents	6

Source: Secondary and interview data

#### **4.8.2 STORM conditions**

##### **Social**

Social condition was stated to be a factor persuading Firm G to attain organizational ingenuity. According to the Vice-President, there was a lack of understanding in terms of the difference between generic and brand medications. The lack of awareness created general scepticism around the generic medications created by the company which prompted doubts among society:

An excellent example of how the social mindset can force organizational ingenuity...can pose a challenge when an organisation like ours is generic medicine...you see, people really don't understand...in India people...the general public doesn't really understand the difference between the branded medicines and generic medicines.... (Vice-President Development, Interviewee CG1, 2019)

There was a general assumption in Indian society that generic medicines were of low quality when compared with branded medications and this ultimately became a barrier for Firm G.

##### **Technology**

Participants stated that Firm G was adversely affected by technology condition due to the advanced technology access of their rivals. In the context of Firm G, creative solutions were expected given the firm's lack of access to advanced technology:

They have everything you know...they have access to advanced technology...they are the actors, they have the expertise, the international expertise...they have expertise in a high-end technology...but for us, we create a good solution from the limited resources.... (General Manager, Interviewee CG2, 2019)

Firm G struggled considerably when compared with rivals equipped with advanced technology and expertise.

##### **Organisational**

Under organisational condition, it is noted that Firm G in the IT industry repurposed available resources and capabilities by developing enhanced IT solutions which focused on improving the existing healthcare and pharmaceutical ecosystem. The unconventional direction to develop IT solutions for the pharmaceutical industry was prompted by the uncertainty of emerging economy conditions. Firm G identified potential in offering quality new IT solutions to the pharmaceutical industry and took the risky approach of entering the industry.

Interviewee CG1 added the following:

We created a completely new ecosystem, a complete healthcare and pharma ecosystem to all stakeholders. We are trying to offer innovative solutions and revolutionise the way the supply chain management happens in the industry such as pharma industry. (Vice-President, Interviewee CG1, 2019)

According to the secondary data on the company in 2020, Firm G was inspired to create innovative solutions by leveraging existing technology. With this approach, Firm G's breakthrough solutions were simple solutions created to solve the compounding problems that could be costly and difficult to manage.

### **Regulatory**

Regulatory condition was known to be one of the conditions affecting Firm G as a company. For Firm G, this was particularly prominent as the niche or specialist product solutions were created for the highly regulated pharmaceutical industry:

“There are many regulatory conditions...in fact, with healthcare and pharma organisation...so, mainly government regulations.... (Vice-President, Interviewee CG1, 2019)

And in terms of volume, India is one of the largest producers of medicine...so, not just within India regulations inside the same industry...but also global regulations has a big impact on Indian healthcare and pharma industry and there are also many associations influencing the supply chain.... (Vice-President, Interviewee CG1, 2019)

According to the Firm G participants, the highly regulated pharmaceutical industry was not only a barrier locally but also at a global level due to the legal requirements within the industry.

Firm G General Manager added the following when asked about regulatory condition:

Especially in our domain, if for example, we are filling medicine...there are a lot of you know, approvals required...these are the regulatory bodies.... (General Manager, Interviewee CG2, 2019)

The protocols required in the pharmaceutical industry forced Firm G to adapt their IT solutions in accordance with the legal requirements of the industry. The Vice-President of Firm G further added that simple protocols, such as patient confidentiality and bureaucracy requirements for clinical approvals, were all factors pushing Firm G to attain organizational ingenuity.

### **Market**

Firm G participants stated that the market condition significantly manipulated the market dynamic with ongoing change instigated by pharmaceutical industry associations and unions.

Given that Firm G was mostly focusing on serving the pharmaceutical industry, the effects of change from associations and unions were recognised as potential factors for uncertainty:

There are a lot of associations and unions that are changing...that are capable of changing the market dynamics and impact the market dynamics.... Vice-President, Interviewee CG1, 2019)

In this instance, the influence of the pharmaceutical industry could considerably affect Firm G and this could ultimately lead to the firm attaining organizational ingenuity.

#### **4.8.3 Organizational ingenuity**

As mentioned earlier and confirmed from the secondary data, Firm G excelled in its product offerings with value-adding characteristics such as stable IT platforms, highly scalable and easily deployable across different platforms. One of the unique aspects of Firm G's IT solutions was that, apart from its established niche focus in the pharmaceutical industry, it was also recognised in the industry for its expertise and innovative solutions:

We transformed the way pharmaceutical companies are operating in the marketplace...most of other medical shops they are not directly in touch...currently depending on the distribution model...what we have created is one product that medical shops can directly connect to the company and they get all the information.... (General Manager, Interviewee CG2, 2019)

As stated on the company's website, one of the key aspects contributing to the firm's innovative solutions was leveraging cloud and mobility for optimal product performance. Firm G was well known for its specialty in providing in-house solutions, customised according to problems presented by clients.

Firm G Vice-President stated the following:

Innovation is one of the key values of the organisation when the organisation was founded...it is one of the core principles that we apply to every solution that we create for the industry...we use organisations and technology to try to offer innovative solutions. (Vice-President, Interviewee CG1, 2019)

#### **4.8.4 Firm G's capabilities Combinative**

Firm G recognised combinative capability as the ability to integrate available solutions to create alternative versions of those solutions. Firm G strategically entered into digitisation through creative combinations of the existing solutions already created by the company:



Yes, we are a combination of organisation insights, resources both internal and external avenues...the service offerings for you that is our potential for collaboration with every industry...and getting into digitisation is just coming to terms with integrating different available solutions.... (Vice-President, Interviewee CG1, 2019)

It was recognised that this combination of resources was supported by the possibility of Firm G offering an augmented version of IT solutions, using available resources.

### **Dynamic capabilities**

Firm G Vice-President of Development stated that the company started off as a data company before transitioning to the provision of IT solutions:

We started off as a data company. The two founders were right from the pharma industry and with domain expertise and technology, we created some product solutions for the automation or digitisation in the pharma industry. (Vice-President Development, Interviewee CG1, 2019)

Firm G's 2020 investor presentation revealed that the company was equipped with an experienced management team that possessed substantial experience across different industries. One of the key achievements included Firm G's role in completely transforming the healthcare industry to be equipped with fully integrated solutions in the healthcare verticals. Furthermore, secondary data demonstrated Firm G's dynamic capabilities in their response to the pandemic by creating an AI virtual clinic system. Through this development, Firm G maintained competitive positioning in the industry through the challenging time of the pandemic by being the first to devise novel solutions.

## **4.9 Case 8: Firm H**

### **4.9.1 Firm background**

Firm H was one of the pioneers in the Indian electrical industry. The parent company was founded in 1948, becoming one of India's leading manufacturers of electrical-related products such as cables, wires, welding cable, and telephone cables. The company served multiple business segments such as railways, water treatment plants, premise infrastructure, defence, oil and gas, telecommunications, cement and steel, energy, transportation, and aerospace. Interviewee CH1 indicated that the company held around three patents, while Interviewee CH2 specified that there were about four patents registered under Firm H. Both participants stated one trademark registered to Firm H. Intellectual Property India database confirmed five patents registered under Firm H. Details of Firm H are provided in table 18.

Table 18: Firm H demographics

Firm H	Details
Headquarters	Faridabad, Haryana, India
Year of foundation	1948
	Private
Industry	Manufacturing
Turnover (Millions in INR)	7603.76 (Rupees in lakhs)
Employees	250–300
Patents	5

*Source: Secondary and interview data*

#### 4.9.2 STORM conditions

##### Technology

Technology condition was identified as a factor contributing to the pressure on Firm H to attain organizational ingenuity. Consumer demand for new technology compelled Firm H to develop innovative solutions:

Users are frequently attracted to new technology, right? So, we are always trying to develop those products...those mean solutions...which, can be adopted by the users and provide a satisfactory solution to the customers.... (Deputy Manager Quality Assurance, Interviewee CH2, 2019)

In this context, customer feedback drove Firm H to be creative in order to develop satisfactory solutions and product offerings. For Firm H, the need for advanced technology was vital for both product design and testing. According to Firm H's website, the firm took pride in the design and production process from start to finish for ensuring the highest national and international standards in their range of products.

In addition to consumer demand, access to new technology was stated as a factor affecting Firm H's productivity.

According to Firm H's General Manager:

We are actively working on getting the new technology...there is a need to change the technology with a new one...so that ideas should be more effective and more productive...but, if your technology is not the latest one...it is affecting our productivity and quality as well.... (General Manager, Interviewee CH1, 2019)

The core business of Firm H was highly dependent on access to the latest advanced technology. Firm H highlighted that limited access to advanced technology can be challenging for the company to implement innovative ideas. In addition, productivity is emphasised to be limited without access to sophisticated technology.

## **Regulatory**

Regulatory condition was stated to be one of the challenges affecting Firm H's ability to achieve success in India. When asked about external challenges facing Firm H, the following comments were made by one of the interviewees:

That is going to be some legal factors. Legal sectors are not at optimal levels. Regulation and things like environmental control...so, we have to think how to incorporate this and has taken step towards a practical process. (General Manager, Interviewee CH1, 2019)

According to one of Firm H's participants, legal requirements imposed on manufacturing industries, such as environmental legislation, compelled the company to act accordingly. In this situation, processes and products were reviewed to ensure compliancy:

Sometimes we have to stop a particular idea or particular segment as it can be a legal concern.... (General Manager, Interviewee CH1, 2019)

Legal requirements could be a hindrance for Firm H to proceed with product development, as stated by the General Manager. Evidence from secondary data showed that Firm H's technical team regularly maintained their knowledge of the latest changes and developments in the industry to remain legally compliant. An additional step of product testing during production ensured routine samples and testing were conducted according to national and international standards.

## **Market**

According to Firm H participants, market condition forced the company towards organizational ingenuity, which can be observed through the high level of competition in the industry:

We face really, really high competition over the years...this is a scenario that we have to deal with of course.... (Deputy Manager Quality Assurance, Interviewee CH2, 2019)

This high level of competition compelled Firm H to continuously monitor the market for gaps and opportunities. In addition to significant competition, Firm H was confronted with the pressures of new launches or inventions in the market:

So nowadays, every six months, new things are coming out. So, we are also look into the market...and some research people that we have...we take some advice and from the people specialised in their fields...and they are always keeping eye on any changes.... (Deputy Manager Quality Assurance, Interviewee CH2, 2019)

According to both participants, such context created uncertainty in the market that obliged Firm H to attain organizational ingenuity to achieve creative solutions.

#### **4.9.3 Organizational ingenuity**

Both participants from Firm H identified organizational ingenuity as an important feature for the company. According to both participants, organizational ingenuity led to process-thinking measures that helped resolve challenging issues occurring in the company.

Firm H participants identified innovation to be the most vital aspect of the company. When asked about the importance of organizational ingenuity, Firm H's General Manager stated the following:

For us to create innovative solution within us...because innovative ideas can resolve a lot of things regarding the products as well as our thought process limitation. (General Manager, Interviewee CH1, 2019)

The cost of the project is your cost of creativity. (General Manager, Interviewee CH1, 2019)

Firm H identified innovative ideas to be the pieces that complete the puzzles of excellence:

Organizational ingenuity supports the company as we are bridging the gap between what are the solutions, the requirements and consumers. (Deputy Manager Quality Assurance, Interviewee CH2, 2019)

There is a gap between the manufacturer and the users...we aim to provide a satisfactory solution to the customers. (Deputy Manager, Interviewee CH2, 2019)

According to the Deputy Manager of Firm H, organizational ingenuity was important to the company as a creative thinking process that helped understand the gap between problems and solutions. Evidence from secondary data showed examples of organizational ingenuity attained through a manufacturing process that helped Firm H achieve cost efficiency. Firm H attained organizational ingenuity by modifying their manufacturing facilities to allow machinery to operate autonomously and run continuously, improving production output. This example of organizational ingenuity allowed Firm H to improve the overall efficiency of processes and, ultimately, enhance customer satisfaction. Firm H's decision to modify their manufacturing machinery helped the firm gain advantage in the industry with competitive positioning and profitability.

Apart from fine-tuning activities in the value chain, secondary data evidence also demonstrated that Firm H was well known for the quality of their products. According to secondary data, Firm H was certified for various quality standards recognised in the industry,

as well as the adoption of an integrated management system of quality, health, safety, and environment. Firm H's strong reputation in the industry earned the company a well-deserved advantage as an OEM. Some of the clients that Firm H serviced included Siemens, General Electric, Honeywell, Indian Oil, Indian Railways, Reliance Industries, and Tata Steel:

We have a complete solution for the organisation to operate. So we are bridging that gap in accordance to the current technology and we're good dealing with what is about to come.... (Deputy Manager Quality Assurance, Interviewee CH2, 2019)

#### **4.9.4 Firm H's capabilities**

##### **Absorptive**

Firm H has been proven to possess absorptive capability from the differentiation strategy implemented by the company. According to the participants, the firm took the opportunity to be different than local vendors by manufacturing locally. This allowed the company to gain success in the industry. Firm H's approach using in-house manufacturing highlights the firm's ability in identifying and leveraging knowledge gained from the industry.

Everyone uses optical cables in India...there are local vendors out there but only three to four organisations out there that are manufacturing it...including us.... (Deputy Manager Quality Assurance, Interviewee CH2, 2019)

Equipped with absorptive capability, Firm H effectively utilised knowledge related to the existing market condition to gain competitive advantage. Absorptive capability allowed Firm H to recognise the current market prospect which led to the firm's approach to focusing strategy. Evidence from secondary data showed that the decision to manufacture locally allowed the company to effectively innovate while saving on cost. Examples of product offerings shown on Firm H's website included special order products which were complex in nature, based on their customers' requirements. This aspect of Firm H's operations ensured considerable cost savings and improved customer satisfaction significantly.

##### **Intelligence**

Intelligence capability for Firm H was not just about the process of developing creative solutions but also the implementation those solutions. According to Firm H participants, implementation was as important when attaining organizational ingenuity:

Working towards ideas innovation is not only about collection of ideas but include implementation of the innovative ideas. So, brainstorming is one of the parts we are working in the automation process. (General Manager, Interviewee CH1, 2019)

This unique aspect of Firm H can be observed through the customised solutions included in their product offerings. According to secondary data evidence, intelligence capability of Firm H was channelled by modifying systems and processes, taking into consideration the feedback and needs of their customers. The flexibility demonstrated by Firm H reinforced their reputation as an industry one-stop-shop, able to accommodate customers' needs and demands.

#### 4.10 Case 9: Firm I

##### 4.10.1 Firm background

Firm I was the third and final pharmaceutical company that participated in this research. The company was known for its leading role in the space of Active Pharmaceutical Ingredients (APIs) for use in veterinary and human medicine. One of the managers interviewed stated that the company held between four and five patents at the time of the interview. However, Intellectual Property India database listed 21 patents registered under Firm I. Firm I was a branch of a parent company focusing on research and development in the pharmaceutical industry. Firm I was committed to providing cost-effective and value-added innovative solutions in the industry. The parent company was currently managing three manufacturing facilities and was a leading manufacturer of APIs serving multiple global pharmaceutical companies. Table 19 provides a summary of background information on the firm.

Table 19: Firm I demographics

Firm I	Details
Headquarters	Vile Parle East, Mumbai
Year of foundation	1981
	Public
Industry	Pharmaceutical
Turnover (Millions in INR)	150.78 Crores
Employees	274–300
Patents	21

Source: Secondary and interview data

##### 4.10.2 *STORM* conditions

###### Technology

Technology condition was a compelling reason behind the adoption of organizational ingenuity for Firm I. According to both participants, access to advanced technology forced Firm I to develop creative solutions:

We can potentially become unstable when we compete...for having limited access to these advanced technologies.... (Manager, Interviewee CI1, 2019)

Limited access to technologies exacerbated Firm I's concerns around survival in the hypercompetitive market of the pharmaceutical industry. In this example, Firm I was stated to

be vulnerable in the industry with the absence of advanced technology. Access to advanced technology is a priority, especially in the high-tech conditions of the pharmaceutical industry.

### **Organisational**

Organisational condition for Firm I firstly concerned the high operational costs in the pharmaceutical industry, along with consumer expectations for cost reduction. Consumer expectation for low priced products further added pressure under organisational condition that forced Firm I to attain organizational ingenuity:

One of the main challenges is cost reduction...because nowadays, you can find every company's name under a molecule but that does not guarantee anything...the important element is to reduce the cost of the product, and this is particularly important.... (Manager, Interviewee CI1, 2019)

In the above scenario, organisational condition emphasised the need for Firm I to develop an entrepreneurial approach that could save costs in order to produce inexpensive products. This approach was positively reflected as Firm I absorbed parts of the value chain activities but outsourced activities that were not of added value to the company. According to the company's 2020 investor presentation, Firm I had increased outsourcing production from five to 15 per cent to meet increasing consumer demand. Outsourcing elements of production helped Firm I refocus on business activities that added value and eliminate activities that were costly to the company. Evidence from secondary data stated that, through outsourcing, the company finally attained higher capacities and the ability to cater to increasing demand.

### **Regulatory**

Regulatory condition was stated to be the main barrier for Firm I—a similar sentiment to all other companies in the pharmaceutical industry interviewed in this study. According to both participants, licensing and obligatory industry requirements were some of the main challenges affecting Firm I:

Environmental control is a challenge...it is a challenge for chemical manufacturing.... So, requirements on how to control the environment and how to legalise all the things included such as productions.... (Manager, Interviewee CI1, 2019)

Licensing...it is not an easy task to get license...there is a lot of challenges...to fulfil all the requirements...the Government is involved and a lot of pressure is coming from political and regulatory bodies pressurising the company.... (Manager, Interviewee CI1, 2019)

As noted by other pharmaceutical companies, the heavy regulation of the industry significantly contributed to the pressure for the firm to sustain operation in the market. Different regulatory requirements imposed on the industry moulded the company for organizational ingenuity. It is with organizational ingenuity that companies challenged with heavy regulations can seek creative alternatives.

Evidence from secondary 2021 data showed all three manufacturing facilities of Firm I were designed and built to meet the requirements of both local and international regulatory authorities. The decision to exceed local requirements for Firm I's manufacturing facilities provided the opportunity to cater to the international demand of the pharmaceutical industry. In another example, the obscurity surrounding the regulatory condition was stated to affect Firm I in its new endeavours:

Lack of clarity in regulatory condition can influence business operation such as new ventures.... (Manager, Interviewee CI1, 2019)

However, not all regulatory conditions were identified as a challenge for Firm I. According to the Quality Control Manager, operating in India offered some benefits through tax breaks from the Government:

India is supportive to our company in the sense that we are getting tax benefits from our R and D investment.... (Quality Control Manager, Interviewee CI2, 2019)

In this example, the regulatory condition was not an obstruction to, but an opportunity for, organizational ingenuity. The introduction of weighted tax on research and development expenditure in India helped Indian biopharmaceutical companies fairly compete in innovative drug development with rivals in the United States and European countries (Ivus, Jose, and Sharma 2021). Financial breaks through tax benefit schemes allowed Firm I to explore creative alternatives and potentially develop a competitive advantage.

#### **4.10.3 Organizational ingenuity**

Firm I's business model was centred on the continuous demand of consumers and the ability to offer value-added solutions. Evidence from secondary data stated Firm I's commitment to excellence in product quality, reliability, cost effectiveness, and support. Firm I was unique in the pharmaceutical industry as it exploited the opportunity for competitive positioning under the segmentation of animal health. In this context, Firm I was driven to look beyond the traditional human health focus of the pharmaceutical industry by catering to veterinary medicine—an underserved segment of the pharmaceutical industry. Secondary data from 2021 showed Firm I's strong global footprint as the prominent manufacturer of at least 18 veterinary APIs:



We have customers from almost 40 to 50 countries around the world.... (Manager, Interviewee CI1, 2019)

Firm I's outstanding position in the pharmaceutical industry was attributed to the firm's large product portfolio in livestock and farm animals. In fact, Firm I's key products held a 15 to 50 per cent market share according to the 2021 investor presentation. According to both participants, the animal health market presented a growing opportunity to Firm I. A total of USD \$139 billion market size is accounted for the animal health market and a total of \$6.6 billion market size is accounted for animal API for Firm I in 2020.

When participants were asked about their understanding of organizational ingenuity, the following statement was given:

Organizational ingenuity is about innovation. Innovation comes first and we cannot survive without it.... (Quality Control Manager, Interviewee CI2, 2019)

Organizational ingenuity was considered essential for Firm I to survive in the competitive market of India's pharmaceutical industry. In fact, one of the most challenging phases for Firm I was the inability to cope with the benchmark for level of quality set in the industry:

We face challenging phase as we are not able to cope up with the market quality.... (Manager, Interviewee CI1, 2019)

In this situation, Firm I overcame this challenge by creating imaginative problem-solving solutions using available resources. Firm I made a substantial effort to become the leader in the veterinary API market with a research and development team focusing on the development of the five molecules in the existing pipeline. The creative decision to focus on veterinary medicine, instead of the usual path of human medicine, showed Firm I's effort in creative thinking processes as a response to the competitive pharmaceutical industry market.

#### **4.10.4 Firm I's capabilities**

##### **Combinative**

Firm I was proven to retain combinative capability through the company's unique ability to exploit existing manufacturing facilities to produce improved products at a lower cost. According to evidence from secondary data, Firm I repurposed one of their three manufacturing facilities as a pilot facility specifically to expand on the development of new products and processes. According to the Manager, Firm I was adept at deciding what was important for the company when it came to allocating resources:

We're mobilising all of our resources with the focus towards innovation.... (Manager, Interviewee CI1, 2019)

The pilot facility is an excellent example of Firm I's willingness to take risks by mobilising available resources and infrastructure for the benefit of the company. Through this approach, Firm I allocated the focus of scaling up new products and processes to one centre.

### **Intelligence**

Intelligence capability for Firm I was proven by its ability to gain a competitive cost advantage in the industry. Secondary data from 2021 showed Firm I maintained strong control of the supply chain with 95 per cent in-house manufacturing and backward integrated facilities for economies of scale. The decision to retain majority control in value chain activities reflected Firm I's excellent thinking process to gain competitive advantage in cost:

We have the work protocol...for example, the issue with vendor position...this was a problem...and what we do is we create innovation within ourselves in the way that we have to solve the problem.... (Quality Control Manager, Interviewee CI2, 2019)

Another example which reflects Firm I's intelligence capability was the company's decision to focus on brownfield investment instead of greenfield investment to expand on production capacities. Evidence from secondary data exhibits Firm I's quick thinking to purchase pre-existing facilities instead of building facilities from the ground up:

...because of the constraints...in the end...the requirement for improvement like this is not only about the thing you know or because you can do whatever you ask...but to be ready to invest in the system, in companies.... (Manager, Interviewee CI1, 2019)

The decision to invest in a pre-existing facility supported Firm I to overcome the level of competition whilst meeting the current demand, without having the need to rebuild the entire facility from the ground up. Acquiring a new, but already established, facility opened the possibility for Firm I to gain the competitive advantages of cost, speed, and channel.

### **Networking**

Firm I's networking capability is an example of how a company can exploit a growth opportunity. Networking capability created the opportunity for Firm I to extend the use of existing resources for additional market share. In fact, in the case of Firm I, such collaboration extended the scope of the market share internationally:

Some of the company's key achievements include successful collaboration with foreign companies.... (Quality Control Manager, Interviewee CI2, 2019)

Evidence from secondary data stated that the collaboration between Firm I and other companies helped Firm I's market expansion and increased their customer base. Another

example of Firm I's networking capability was in 2019 when the firm formed an alliance with another local pharmaceutical company to overcome an issue related to the sourcing of chemical intermediates required to support Firm I's production. Being able to use networking capability through a positive relationship with another company in the industry helped Firm I resolve this major production issue.

More evidence of Firm I utilising networking capabilities is illustrated through Firm I's collaboration with different corporations to achieve new goals of the company. A newsletter published on Firm I's website revealed a new partnership with a Singaporean multinational enterprise to promote sustainable pharmaceuticals. Another example of collaboration was highlighted through access networks of suppliers in China.

#### 4.11 Case 10: Firm J

##### 4.11.1 Firm background

Firm J operated in India, specialising in tyre retreading within the manufacturing industry. The company relied heavily on its manufacturing plant to generate revenue. In fact, most of the company's revenue was generated from the sale of pre-cured tyre tread rubber. Firm J was one of the parent company's divisions focusing on production and sales. Interviewee CJ1 stated that the company held five patents at the time of the interview. In addition, both participants specified that there were three trademarks registered under Firm J. Intellectual Property India database confirmed 10 patents registered under Firm J. Table 20 provides a summary of background information on the firm.

*Table 20: Firm J Demographics*

Firm J	Details
Headquarters	Saket, New Delhi, India
Year of foundation	1978
	Public
Industry	Manufacturing, Production, Maintenance and rubber treading
Turnover (Millions in INR)	178.2 Crore
Employees	332–350
Patents	10

Source: Secondary and interview data

##### 4.11.2 STORM conditions

###### Technology

Firm J was faced with the challenge of technology condition when competing with international competitors in the same industry. According to one interview participant, Firm J was constrained in the industry as international competitors were more privileged regarding access to the best technology:

Competition is even more intense with technology.... I would say that competition is intense with technological improvements happening in the USA or UK...Europe or even Japan...so you have to be competing with those with the best technology access.... (Senior Manager, Interviewee CJ1, 2019)

The context above highlights the need for advanced technology for Firm J. Secondary data evidence from the 2020 investor presentation demonstrated Firm J's approach in modifying available machinery and equipment to produce products with superior performance at a competitive price.

### **Regulatory**

Regulatory condition was attributed to be another condition encouraging Firm J to attain organizational ingenuity. According to both participants, regulatory condition was more of an enabler for organizational ingenuity rather than a challenge:

Regulatory conditions are relatively better than what they were earlier because of the GST...because earlier the product was available at different prices in different states`...so there was a product sold in one market but was sent to another market... and when you compare it like the pricing of Rajasthan and Delhi...in Rajasthan this was available on a lesser price because of concession but in that because of GST has been installed...the pricing is almost the same in every part of the country...so that helps.... (Senior Manager, Interviewee CJ2, 2019)

The implementation of GST in India helped Firm J in streamlining their product prices across the country. The introduction of GST is regarded as a reform to the existing taxation system in India (Nayyar and Singh 2018). The Indian Government's efforts to achieve a single unified taxation system provided Firm J with an opportunity to stabilise product pricing. GST reform for the 'Make in India' initiative had positive effects on stabilising product pricing (Ojha and Vrat 2019; Harishekar and Manoj 2021; Gupta 2015).

In addition to reform in the taxation system, evidence from secondary data in 2020 presented another example of a regulatory condition that supported Firm J for a creative approach. According to the 2020 investor presentation, the introduction of a ban on the import of tyres into India in June 2020, specifically from China, gave Firm J the opportunity to strengthen its local positioning. The new ban imposed by the Government created an unattractive market environment for foreign tyre brands to operate in India (Chaliawala 2021).

## **Market**

Market condition was stated to be one of the challenging conditions pushing Firm J to attain organizational ingenuity. High-level competition was identified as one of the aspects contributing to the challenging market condition of Firm J:

There is a strict competition from China...from there, the Chinese tyres are available on a very low prices, and so actually this business is very successful as trading is half the price of the new tyres.... (Senior Manager, Interviewee CJ2, 2019)

The stiff competition is coming because of the Chinese tyres which is available on a very minimal price and because of the entry of these Chinese tyres...the Indian companies have also taken their...sliced their prices.... So that has adversely affected the trading business.... (Senior Manager, Interviewee CJ2, 2019)

The competitive pricing offered by international competitors puts significant pressure on local producers such as Firm J. Significant price differences between the product offerings of Firm J and those of its competitors forced the firm to attain organizational ingenuity.

### **4.11.3 Organizational ingenuity**

Firm J participants stated that organizational ingenuity was an important concept for a firm operating in today's market environment. One participant viewed organizational ingenuity as an opportunity to create innovation in the company and this aspect was attributed across products, processes, and manufacturing:

Your organisation...you know the thing with innovation...it is very important. And if we think about innovation or being innovative in today's world, you cannot exist with the old things...whether it's the products, the process...the compounding phase.... (Senior Sales Manager, Interviewee CJ1, 2019)

Evidence from secondary data showed the business's sole objective was to be a pioneer in providing a product portfolio, including a wide range of tyres, with the company focus on reducing expense for consumers as well as sustainable product quality. Firm J's range of products catered to different types of vehicles such as light and heavy commercial vehicles, passenger vehicles, and off-road vehicles. In addition, Firm J offered extended product features for different road applications with the objective of reducing the cost per kilometre for customers. Some of the innovative solutions already achieved by Firm J included the high quality of their product offerings. Evidence from secondary data from 2020 displayed Firm J's breakthrough innovation for superior and unique rubber compounds to extend the longevity of their products. The need for innovative solutions is exemplified by the objectives set by Firm J.

According to both participants, Firm J was committed to continuous investment in research and development in order to design and develop exceptional products in an affordable price range. As mentioned under market condition, stiff competition from China, based on the ability of the Chinese market to offer products at a very competitive price compared to the Indian market, had significantly challenged Firm J's competitive positioning. However, it has been noted that Firm J was able to overcome this credibility by offering a wider range of quality products than its Chinese competitors:

The company is still able to maintain the say...returns and turnover at a good level... we have been able to retain our position in the market as we offer a wide range of products under the same category...extensive offerings.... (Senior Sales Manager, Interviewee CJ1, 2019)

Evidence from secondary data highlighted that Firm J offered different rubber tread tyre varieties for at least 13 different types of vehicles. Across these 13 vehicle types, the product range also extended to different tyre types, tread patterns, tyre axles, and road applications. In another example of organizational ingenuity, Firm J was also the pioneering company in India for tyre retreading solutions as an alternative to new tyres:

We develop [a] new product and we sell...we keep on innovating...but we are not only a start-up with a breakthrough innovation but really, we find solution that puts you miles ahead.... (Senior Sales Manager, Interviewee CJ1, 2019)

The difference between retreading and the new tyre is that it is a new level of competition as a whole.... (Senior Manager, Interviewee CJ2, 2019)

This example reflects the technical edge of Firm J which put the company in a competitive position in comparison with its rivals. Retreading is an innovative alternative discovered from a continuous investment by Firm J in research and development. This alternative presented Firm J with a different segment of the industry and was considered a competitive advantage for Firm J. Rubber tyre retreading is specially designed and developed to produce high-performance products in terms of both tread life cycle and distance travelled, comparable to buying a new car tyre which would come at a higher cost:

Innovation is at our liberty...there is a wide range of products available for the customers compared to other companies and the other thing is our company look into what we can do better in comparison to other companies and we just shifted the attention for this solution.... (Senior Manager, Interviewee CJ2, 2019)

#### **4.11.4 Firm J's capabilities**

##### **Combinative**

Combinative capability was displayed through Firm J's ability to repurpose both tangible and intangible assets for an alternative product offering—in this case, retreading tyres—as an approach to stay competitive. Firm J excelled in their ability to configure and exploit existing resources for augmented versions of products and services. This ability resulted in the innovative approach of retreading rubber tyres instead of manufacturing new rubber tyres:

We've started off with hot retreading...okay but, unfortunately, it did not work well in this case...and then we know we need to change to survive and then picked up new units by taking loans which lead to cold retreading process. (Senior Sales Manager, Interviewee CJ1, 2019)

Evidence from the 2021 investor presentation demonstrated Firm J's innovative approach to the cold retreading process—curing at 99 degrees Celsius whilst other companies used significantly higher temperatures of between 125 and 150 degrees Celsius. The difference in curing processes set Firm J apart from other competitors in terms of quality. The curing process developed by Firm J is a result of utilising existing resources and firm's creative approach in transforming available resources for products with better or enhanced value. In the case of Firm J, this has allowed the company to offer an alternative with a unique competitive edge that sets apart the company in comparison to other firms in the industry.

##### **Intelligence**

Intelligence capability for Firm J was demonstrated through the company's ability to gain competitive advantage from the modern cold retreading process instead of the traditional approach. The alternative approach helped Firm J achieve economies of learning:

From what I can recall we manage to reduce the cost...and it came down by about 10 to 15 per cent...that was innovation.... (Senior Sales Manager, Interviewee CJ1, 2019)

The refinement of the retreading technology and process aided Firm J in gaining strong competitive positioning in the industry. In this situation, Firm J's pursuit of organizational ingenuity with intelligence capability ultimately helped the firm gain a strong position among competitors in the industry and to achieve economies of learning.

##### **Networking**

Evidence from secondary data demonstrated Firm J's strong business connections developed with different stakeholders including more than 200 dealers, 18 depots, and more than 50 sales teams across India:

As I have mentioned already...we have others in every state and work with us who are only operating from head offices...we maintain good relationship...and then look after our customers...maintaining the stock.... (Senior Manager, Interviewee CJ2, 2019)

Firm J demonstrated networking capability through maintaining positive relationships with distributors and the company's sales teams across the country. The strong relationships developed with local distributors gave Firm J access to an established consumer base in India.

### **Dynamic capabilities**

At the time of the interviews, Firm J participants did not make any statements regarding dynamic capability. However, secondary data demonstrated Firm J's efforts to purposely adapt resources through a joint venture agreement with an electric vehicle service provider company to stay relevant in the industry. Firm J adequately responded to the current demand for products compatible with electric vehicles. Firm J's dynamic capabilities have been demonstrated through the decision to establish a joint venture agreement with an electric vehicle service provider company as an approach to stay relevant in the industry.

## **4.12 Case 11: Firm K**

### **4.12.1 Firm background**

Firm K was a pioneering education training provider in the education industry. The parent company operation extended from vocational training and education to providing IT solutions for the education industry. Firm K specialised in providing custom training solutions for employees across diverse industries. Firm K was selected as one of India's best 50 mid-size workplaces in 2017. The company's other achievements had accentuated the company's credibility and strength in the education industry. Both participants stated that there were no patents held by Firm K to their knowledge, but that there were a few trademarks registered under the company's name. However, Intellectual Property India database found one patent registered under Firm K. Table 21 provides a summary of background information on the firm.

*Table 21: Firm K Demographics*

<b>Firm K</b>	<b>Details</b>
Headquarters	Ahmedabad, Gujarat, India
Year of foundation	1992
	Public
Industry	Education
Turnover (Millions in INR)	140.78 RS (in Crores)
Employees	51–200
Patents	1

Source: Secondary and interview data



#### **4.12.2 STORM conditions**

##### **Social**

Social condition was firstly identified as a factor contributing to Firm K's pursuit for organizational ingenuity. Language barriers or streamlining the use of English as the default language in the system presented a challenge to Firm K when developing solutions. Limited English language use forced Firm K to consider developing training solutions in local languages in order to appeal to the local market. However, such consideration meant added costs and the need to find the right resources to adapt solutions developed in local languages:

We still have so many countries which still do have issues with respect to language as a value.... So, also there are some of the developing countries where you see understanding or learning with respect to English as a language to proceed...but then some are more...mainly major countries in Middle East...they have the language barrier...they still cannot accept that English is required to provide equal of their countries with respect to education...and they expect people to provide education in their own language.... (Senior Manager, Interviewee CK1, 2019)

The restriction of language barriers was a challenge for Firm K which influenced the firm's creative-thinking process as they universally distributed their training solutions in English. The default language in the company's solutions was English and the expectation to develop solutions to accommodate the local language could be challenging for Firm K. The demand for a solution adapted according to the local language enforced Firm K to utilise available resources and developed novel solutions in order to meet the demand of the local market. Social condition in this context is triggered due to the local demand for customised solutions that acknowledged the local language.

##### **Technology**

Technology condition was identified as a factor that pushed Firm K to attain organizational ingenuity, especially in the rapidly changing market:

The market...the technology is moving at a faster pace and if you look at what we are talking about...we can see we are moving towards digitalisation across the globe...so unless we keep on innovating and moving at a faster pace with the developments that are happening in the industry...you will lag and you will lose your pace.... (Senior Manager, Interviewee CK1, 2019)

The need to stay relevant and to keep pace with rapid changes in the industry forced Firm K to innovate and craft ingenious solutions. The condition of technology that could become obsolete in the market pushed Firm K to pursue creative solutions:

Technology is required to conquer the industry...but that always means that technology could become obsolete in the market as our solutions are not able to remedy these things...so basically, this is what is driving the company to engineer creative solutions.... (General Manager, Interviewee CK2, 2019)

The concern over changing technology every year kept Firm K looking for creative solutions:

Every year you move...the technology is changing...the requirements keep on changing...now there are different kinds of requirements in the market...and we keep on updating the software with additional options and additional upgrades.... (Senior Manager, Interviewee CK1, 2019)

For Firm K, updating software was demanded by the changing requirements of the market. Continuous development of technology was required in response to the dynamic change of the market. Rapid change of technology development within the industry pressured Firm K for a creative alternative to meet the customer's demand. In this context, technology condition forced Firm K to develop available solutions with additional features and required upgrades to remain competitive in the market.

### **Regulatory**

Regulatory condition for Firm K was experienced as the company distributed their products abroad. According to Interviewee CK1, the different legal conditions in some countries triggered issues for Firm K to distribute the company's solutions:

If you consider legal in some kind of Middle Eastern countries...legal issues with respect to education is not that easy...there are countries where the education system...they are so rigid that they are not ready to absorb the changes and they go in a slow pace compared to the developments happening.... (Senior Manager, Interviewee CK1, 2019)

In this example, it is noted that Firm K experienced difficulty in meeting the regulatory requirements of certain countries, such as the Middle Eastern countries. This impeded their endeavours to introduce augmented versions of the company's solutions. The time taken to obtain approval to implement new development of the solutions offered in certain countries cost Firm K both time and money:

A minimum of six months to one year for them to act on some changes and by the time they accept these changes...whatever has been proposed to them...this could be outdated system in the market.... (Senior Manager, Interviewee CK1, 2019)

In India as by law whatever is available for the vocational industry...we may go ahead with respect to our curriculum upgrade but the same thing I cannot say that it will go ahead in a country like Uganda, Saudi Arabia or Vietnam.... The government plays an important role and also what happens is in some cases, they have a regulatory body to go through the curriculum and fine tune it.... (Senior Manager, Interviewee CK1, 2019)

In addition to the high cost associated with implementing upgraded solutions, Firm K participants noted that the introduction of such upgrades in some countries could present challenges due to local regulations. In the example provided, the participant stated that specific regulatory bodies would be involved in fine-tuning the training solutions provided by Firm K. This could easily jeopardise the quality of the final solutions, putting Firm K's reputation on the line.

### **Market**

Participants from Firm K stated that market condition was another factor that had challenged the company. According to an example given by the participant, the uncertainty of the market condition was triggered by change in the job market in the year 2000:

One of the main turmoils with respect to the industry was the year 2000. So, till 2000 what we were doing is we were concentrating more on courses...students getting a diploma and the diploma was kind of a thing back then...but then it happened in 2001...issue came and job offerings...the job market got a little diversified and there was a move towards short term goals...which created so many small education companies coming out within a short term...no doubt at that time we had the business going wrong.... (Senior Manager, Interviewee CK1, 2019)

Market change at this time initiated the emergence of small education companies catering to the job market demand. In this instance, the sudden rise in the number of competitors put Firm K in a vulnerable position. Firm K suffered through the phase and had to change the course of the business to focus on the current demand of the market. The uncertainty of the market condition was a result of change in India's labour market landscape (Thomas 2012).

#### **4.12.3 Organizational ingenuity**

Firm K demonstrated organizational ingenuity through the company's excellence in providing IT training solutions to the education industry. Firm K found success as the company identified a significant gap in education delivery through IT software. By innovating for creative solutions in the challenging context of India, the firm found success by recognising the untapped trend

in the education industry. In fact, evidence from secondary data showed Firm K was awarded India's most trusted brand award under the training and education category:

The story begins when we introduced a new product...we didn't own the solution...we took the solution from the government and implemented it using our operational experience...it was something that was being done for the first time and the scale involved at least 51 districts for one of the states and it was one of its kind...one of kind project.... (General Manager, Interviewee CK2, 2019)

Firm K's ability to creatively compose and integrate relevant resources and capabilities from experience and knowledge resulted in the firm's competitive advantage in the industry. Through consideration of the market and identification of what was missing in the industry, Firm K gained the opportunity to exploit the market gap and gain an advantage in the industry.

Accordingly, both participants viewed organizational ingenuity as the ability to leverage gaps in the market and gain competitive positioning in the industry using available resources. In addition, organizational ingenuity was identified as a continuous process to respond to dynamic change in the market:

In general, the idea is to identify the gaps and grow...you find innovative ways to deal with them.... (General Manager, Interviewee CK2, 2019)

It is a continuous process...you cannot see that but yes, we have innovated and this is the end of innovation...since the market is dynamic and the market is moving at a faster pace...you need to be on your toes...innovating every time to gain capital in the market.... (Senior Manager, Interviewee CK1, 2019)

#### **4.12.4 Firm K's capabilities** **Combinative**

Combinative capability was demonstrated through Firm K's ability to use existing resources to create alternative or improved versions of their solutions. Through this process, Firm K expanded their market base to also develop corporate training solutions and universities:

We venture into 30 different verticals...that is why we have a multimedia integration coming into our firm...hardware...and then getting into aviation and hospitality management and the latest one is we also got into banking sector and financial sector because there are a lot of job openings coming.... (Senior Manager, Interviewee CK1, 2019)

In this example, combinative capability was demonstrated through Firm K's ability to exploit available resources and venture into other potential industries. Training solutions developed

by Firm K were extended to cater to different markets and to potentially gain advantage as the company expanded its customer base. Evidence from secondary data from 2020 illustrated Firm K's collaboration with different universities and other education providers as clients.

### **Hardship-surviving**

Hardship-surviving capability was acknowledged to be an ability that Firm K possessed, as illustrated in the example and statement below:

There are some Middle Eastern countries in which we were some 10 years back...we were strong in the market...but then political situations changed so much that within a fraction of one year the whole setup came to a standstill and vanished...so it can happen...so we have to tackle each of these countries with respect to whatever the condition...from time to time and accordingly we have to tackle it.... (Senior Manager, Interviewee CK1, 2019)

The example above illustrates that, with hardship-surviving capability, Firm K adapted according to the dynamic and uncertain market condition. Firm K acknowledged the need to continuously adapt and respond according to the market in order to survive, or suffer the consequences of market uncertainty. Secondary data stated that, to be upfront with those challenges, Firm K had expanded its operation by establishing local centres in Kuwait, Dubai, and Iran. The expansion into the Middle Eastern countries was part of a strategy to understand the depth of the local market and respond to the challenging context of the local market accordingly.

### **Absorptive**

Absorptive capability was demonstrated through Firm K's ability to consider the market need. For Firm K, content or syllabus development was influenced by the local job market as Firm K's solutions included a career pathway upon completion of the course:

We not only look at what is new and upgrading the software market...we also look at whether this upgrade which comes...whether it is really required in the job market...if we develop the content for these upgrades...whether they're in the job market...job openings available for students who undergo this kind of training... (Senior Manager, Interviewee CK1, 2019)

In this instance, it was noted how Firm K adapted their problem-solving process based on knowledge and understanding of the market and, in this case, whether an upgrade of the training solutions would be beneficial in the job market. The insights gained from

understanding the market condition were utilised by Firm K to maintain competitive positioning in the industry.

Interviewee CK1 added the following:

We provide students...a curriculum, which is more of a lateral learning approach...giving a strong foundation before proceeding to advanced topics and which will prepare students to be ready in the job market and the industry.... (Senior Manager, Interviewee CK1, 2019)

Adaptation of knowledge was not only focused on the content or the product but also on the market. Evidence from secondary data demonstrated Firm K's range of training solutions was being marketed as building a future-ready career and catering to different sectors such as training in cloud computing, cyber security, banking and financial services, and communication skills.

### **Intelligence**

Secondary data from 2020 showed Firm K's ability to gain competitive cost advantage as the company expanded its customer base from just Business to Business (B2B) to catering directly to customers through the Business to Customer (B2C) model. The decision to expand the firm's customer base helped Firm K identified additional market demand in the education industry. The emerging trend towards virtual education gave Firm K the opportunity for a better market prospect in the industry.

Some other examples mentioned in relation to intelligence capability included Firm K's choice to work on customised solutions to reduce cost. This quick resolution led to Firm K gaining cost efficiency in product development:

We've customised our solutions to negate the cost of new developments and so this is one of the capabilities of the company. (General Manager, Interviewee CK2, 2019)

Evidence from secondary data illustrated that Firm K's B2B business model provided customised solutions and the opportunity to scale up training solutions according to feedback from customers. This capability led to Firm K's opportunity to collaborate with local universities for designing IT training solutions according to the syllabus provided by the clients.

### **Networking**

Networking capability for Firm K was demonstrated by the company's ability to create positive relationships by collaborating with major players in the IT industry, such as Microsoft and Oracle:

We have a content development team which is looking into doing research with respect to the industry requirements to develop content...when we develop content, what we do is we have in our team collaborate with people like Microsoft, Red Hat, Oracle, and other companies.... (Senior Manager, Interviewee CK1, 2019)

In the example above, it was noted that Firm K recognised the advantage of having strong business connections with relevant stakeholders for the purpose of developing the company's solutions. The ability to network with key industry partners gave Firm K the opportunity to recognise the feedback given and incorporate that information into development. One of Firm K's participants also noted that the company maintained strong business connections with key industry partners:

We have close to 1,200 partners in the industry and we believe that this is an important asset. (Senior Manager, Interviewee CK1, 2019)

Evidence from secondary data showed how Firm K exploited strong business connections with key industry partners by forming a strategic alliance with an education IT solutions provider based in Canada. In fact, this alliance extended Firm K's education training to offer pathways to international careers.

In addition to the above, Firm K also maintained a strong business connection to overcome the social condition of language barriers:

We maintain good relationship with vendors...and vendors are important as for example...one of the vendors...we had to translate the text in our solutions from English to local language...so, we did not have a subject expert matter to do that...and this good relationship helps us to get our work to be done.... (General Manager, Interviewee CK2, 2019)

The example above is a case in point to justify the importance of preserving good relationships with all stakeholders. Networking capability in this case supported Firm K to develop a complete solution according to specifications required by clients.

Firm K participants also stated that good connections with political bodies or local governments were critical for the company:

If you are working in a geography where you have good traction...good relationship with the politicians and the bureaucrats...then, this helps the company to actively seek upward direction for growth.... (General Manager, Interviewee CK2, 2019)

According to Interviewee CK2, good relationships with the local governments helped Firm K establish business locally and expand their consumer base.

## Dynamic capabilities

Dynamic capabilities were demonstrated by Firm K's ability to adequately respond to dynamic changes in the market or the industry. For Firm K, content development was updated according to industry trends, especially based on job market demand:

As I have already mentioned, the curriculum...we have changed time to time...so that's dynamic in nature.... (Senior Manager, Interviewee CK1, 2019)

Evidence from secondary data demonstrated Firm K's attention to developing training solutions in demand, such as cloud computing, mobile app development, and cyber security. The focus on the aforementioned training solutions was in response to market demand for more skills development focused on the skills specialisations above. In addition, evidence from secondary data stated that the latest curriculum presented in the training solutions was based on industry requirements. Firm K's decision to develop solutions to cater to in-demand skills is an example of dynamic capabilities.

### 4.13 Case 12: Firm L

#### 4.13.1 Firm background

Firm L was a leading company providing IT solutions such as image processing, photogrammetry, and drafting and modelling software for professionals. Firm L's parent company was widely known as one of the nation's geospatial domains and a leading IT solutions provider that catered to different industries including agriculture, urban planning, location-based services, and mining. Neither participant was aware of any patents or trademarks registered under Firm L. However, the company's annual report confirmed at least two trademarks registered under Firm L. Table 22 provides a summary of background information on the firm.

Table 22: Firm L Demographics

Firm L	Details
Headquarters	Mumbai, India
Year of foundation	1986
	Public
Industry	IT
Turnover (Millions in INR)	41.27 Crores
Employees	500
Trademarks	2

Source: Secondary and interview data



#### **4.13.2 STORM conditions**

##### **Social**

Social condition was identified to be the first barrier influencing Firm L to develop creative alternatives. An example identified by an interview participant was that lack of understanding and education related to the solutions provided created a challenge for collaboration:

Collaboration with the farmers in some cities are a challenge...it is about getting the appropriate information on these things and getting these people to understand them about the need and how it be out for them...we understand the need for new technology but convincing them to understand is different.... (Project Manager, Interviewee CL2, 2019)

In the example above, the Project Manager of Firm L stated that persuading a certain type of consumer could be challenging due to the lack of understanding of the solutions offered by the firm. This issue could be attributed to collaborators' (such as farmers) level of education or awareness of the solutions available, which was considered as a contributing factor to the challenging social condition for Firm L.

##### **Technology**

Firm L participants stated technology condition to be one of the barriers affecting the company's operation. Being in a technology-related business meant Firm L was highly reliant on technological condition. Therefore, it was noted that technology condition was a critical factor influencing Firm L to attain organizational ingenuity:

Not everything is automated...we need more of the manual power in everything that we do...so, we're not, not the best in the technology part...there are some issues that when it comes to the technological part, because we not that, you know, that advanced in technology. (Project Manager, Interviewee CL2, 2019)

The lack of an automated system necessitated manual system input, which led to an increase in the cost of production. According to Firm L's Project Manager, limited access to technology led to issues in meeting the demand for products made with new technology:

There is a demand of some new technology...you are to come up with something new that involved a new technology in the market...and with our company, we're backwards when it comes to technology. (Project Manager, Interviewee CL2, 2019)

In the example above, access to new technology was required for Firm L as it was expected to be incorporated into the company's product offerings. The participant above stated Firm L's limited access to new technology impeded its ability to meet current consumer demand.

Access to new technology was not the only challenge; access to specific technology was also identified to be an issue for Firm L:

We cannot use some of the technologies that are available in the market...because, this is a scientific work that we are doing...so it takes up to a few technologies...before we go ahead with those technologies...and whenever new technology comes up...like we have to mould it, technology into space kind of domain and then use it...so that is a big challenge for us.... (Vice-President, Interviewee CL1, 2019)

As noted in the example above, technology condition was exacerbated for Firm L, given the firm focused on a specific area of the IT industry. Firm L occasionally endeavoured to mould existing and available technology as a creative alternative. Modifying existing technology allowed Firm L to compensate for the disadvantage of limited access to new technology.

### **Regulatory**

Political instability is identified to be a factor contributing to the challenging regulatory condition for Firm L. According to the Project Manager of Firm L, political intervention in certain states of India could increase the probability of bureaucratic burden on the firm:

There are some political challenges you know...that are affecting our organisation and this is the local party in different states...the officials...they are sometimes creating issues for you...they create issues and saying that these people won't need them and won't be taking the technology...but we know the technology...but the lower official is dealing with the process and they don't have the knowledge of technology...so, it is common to create misunderstanding.... (Project Manager, Interviewee CL2, 2019)

The nature of the solutions offered by Firm L are more suited for clients such as the government. The challenging bureaucratic process for approval with the government, as the main client, added to the challenge for Firm L to sell the solutions. Simultaneously, Firm L would require the approval of the state government before implementing the solutions offered by the company.

### **Market**

As another challenge highlighted by Firm L's participants, market condition was identified as a factor influencing the company to attain organizational ingenuity. According to the participants, limited talent in the IT industry created an uncertain market condition that challenged Firm L's position in the industry:

Limited people for innovation itself is a barrier for the development and innovation of IT industry...this is the result of scarcity of human resources in the industry.... (Vice-President, Interviewee CL1, 2019)

According to the participant, lack of talent in the IT industry was considered a challenge for Firm L to achieve industry success. The nature of Firm L's business meant a high level of skilled human capital would be required to achieve positive growth in the company:

Nobody wants to work in India for this industry...with the right skills many of these people would go abroad...and this is the people that is knowledgeable in the sector and this is one of the barriers that our organisation is facing right now.... (Project Manager, Interviewee CL2, 2019)

According to Firm L's Project Manager, many of these talented IT professionals were inclined to work outside of India; hence, the scarcity of employees with the right skills to work in the industry.

#### **4.13.3 Organizational ingenuity**

Firm L was a leading firm in relation to geospatial technology, which includes earth mapping and surveying, image processing, and computer-aided design (CAD) all within the same platform. The company was known to be the pioneer in the Indian geomatics industry, providing a multitude of IT solutions related to geospatial technology across different industries such as defence, disaster management, and agriculture. The prominent position established by the company facilitated a partnership with the Indian Government.

The company identified innovation as a vital component in the longevity of the company:

We value innovation. It is very important, as we are supporting the making of India. We are making important contribution related to geospatial in India. (Project Manager, Interviewee CL2, 2019)

The keen interest and passion for innovation allowed Firm L the opportunity to create customised solutions based on consumer feedback. Evidence from secondary data showed Firm L's ability to help create solutions according to clients' needs. Firm L's unique success in this respect was demonstrated by the firm's ability to provide solutions to consumers across various industries with distinct specifications. Evidence from secondary data indicated Firm L's success for providing solutions across industries such as agriculture, disaster management, land information, urban planning, and smart city. In addition, participants stated the firm's interest in achieving sustainable production as part of its search for creative solutions:

We are improving...we are looking for process with very low energy rating...and that is as a minimum...with everything else...innovation is important.... (Project Manager, Interviewee CL2, 2019)

Our main product is a result of R and D work...so, innovation is not just new invention but a result of improving existing available solutions...and in India, nobody has this kind of product available in the marketplace...we are the only one.... (Vice-President, Interviewee CL1, 2019)

Organizational ingenuity was considered critical to Firm L, as demonstrated by both participants in the above statements. According to the Vice-President of Firm L, the company's main product was an outcome of creative thinking. Additionally, Firm L's solution was the result of a specialisation strategy that helped Firm L gain a first-mover advantage in the industry. The unique solution helped secure Firm L's reputation as the only provider with such a solution in the industry. The conditions of the Indian market exerted pressure on Firm L to provide innovative solutions. Accordingly, Firm L emerged as the pioneer in integrating geospatial solutions, image processing, photogrammetry, and CAD on a single platform.

#### **4.13.4 Firm L's capabilities Networking**

Firm L's networking capability was demonstrated through the firm's ability to form partnerships to overcome limited access to technology and as an approach to keep up with the latest technological advancement. Firm L's partnerships were considered key to their business operation as they ensured the reliability of future solutions. Evidence from secondary data in 2020 detailed Firm L's partners which included a governmental body and Indian Space Research Organisation:

...we have taken inputs from clients and our partners...and what we do is we do something and move based on those inputs and we consider what we can do to create a product with more...more positive evolutions.... (Project Manager, Interviewee CL2, 2019)

From the above example, the ability to retain positive relationships with relevant stakeholders, such as partners or clients, supported Firm L to create an augmented solution. Maintaining positive stakeholder relationships allowed the integration of relevant feedback in the company's development of creative solutions.

#### **4.14 Chapter summary**

This chapter presented the findings of within-case analysis for the individual case studies. The objective of this chapter was to provide independent data that shaped the view of

organizational ingenuity in each case study. Each case study was analysed based on three aspects: (1) conditions compelling each firm towards organizational ingenuity; (2) the view of organizational ingenuity of each firm; and (3) capabilities that were developed by each firm to achieve organizational ingenuity. An overview of outcomes, such as number of patents or trademarks, were also discussed in this chapter. Each firm's individual consideration of success or achievements was also elaborated upon in this chapter. It is noted that not all aspects of conditions and capabilities were discovered in each case study. Both primary data from the interviews and secondary data, such as company website, investor presentations, and press statements released by the companies, were utilised in the within-case analysis chapter. The next chapter will discuss the findings from cross-case analysis to extract distinctive themes.

## **Chapter 5: Cross-case analysis**

### **5.0 Introduction**

This chapter addresses all four research questions by utilising a cross-case analysis of 12 case studies. The cross-case analysis collates and compares the data from 24 participants from 12 case studies, supported by secondary data noted in previous chapters. For practical purposes, this chapter is structured according to key themes identified in the literature review. Research questions are addressed across the three themes highlighted in this chapter.

### **5.1 Theme 1: Organizational ingenuity**

This section aims to cross analyse the literature on organizational ingenuity using a CBV theory lens with the feedback gathered from interviews. As noted in the literature review, organizational ingenuity is defined as a creative play of generic resources utilising compositional strategy, capabilities, and specific processes to overcome challenging market conditions and achieve superior outcomes. The initial understanding of organizational ingenuity is then refined with the consideration of variances, including strategy utilised and capabilities developed, to successfully overcome the challenging business environment of the emerging economy. The overlapping similarities of organizational ingenuity and CBV are tested through semi-structured interviews conducted across 12 SMEs in different industries.

#### **5.1.1 Organizational ingenuity and CBV**

This section aims to answer the following research question as proposed in previous chapters:

- How do SMEs in an emerging economy with constrained resources and challenging environments achieve organizational ingenuity?

This section firstly explores organizational ingenuity from a CBV theory lens through the complementary point of compositional strategy, capabilities, and processes. All firms indicated that organizational ingenuity was achieved or, at the bare minimum, endeavoured at some point in the business' operation. Most respondents indicated that collective resources and internal capabilities, while vital, were insufficient to overcome the challenging market environment of India. The aim of this research question is to understand how organizational ingenuity is achieved. Findings revealed CBV as the intermediary paving SMEs towards organizational ingenuity. It is through creative composition of available generic resources and distinctive capabilities that firms can be different and sustain in the challenging market of India. In this instance, the integration of generic resources highlights the complementary strategy adapted from a CBV, as proposed in the literature review. Studies show the possibility for firms to overcome and capitalise on the unpredictability of India's institutional environment through specific strategic actions (Gao et al. 2017; Marquis and Raynard 2015).

The implications of limited institutional support in an emerging economy such as India further heightens the level of complexity in the Indian market, given the important role of institution as a framework or “rules of the game” in the market (Doh et al. 2017). In this regard, the complex environment of India, with lack of institutional supports and limited resources, has presented the need for organizational ingenuity. Vulnerable firms in the SME category are clearly more reliant on institutional stability. The development of SMEs is highly influenced by the institutional system of a country (Rus and Igljč 2005; Smallbone and Welter 2001; Torkkeli et al. 2018; Oparaocha 2015). The lack of stable and developed infrastructure and institutions are often the common triggering points for the fall of SMEs in an emerging economy (Kovid, Bhati, and Sharma 2021). Organizational ingenuity helps foster an environment for firms to be creative, while CBV recognises generic resources utilised to overcome uncertainty from limited institutional supports and intense competition in the Indian market.

Results from Beneito et al. (2011), Tang (2006), and Shin, Kim, and Park (2016) consistently found institutional factors such as government support and competition can directly affect innovation input and output. In this thesis, the path to innovation as an outcome is further dissected, with organizational ingenuity as the missing component as firms are incentivised by pressures from limited institutional supports and intensely competitive environments. This view was confirmed by participants from Firms C, E, H, I, and J who expressed that demanding expectations and the need to survive with institutional challenges in India encouraged firms to be creative using simple resources available.

For example, Firm J interviewees stated that the company was constrained with increasing industry competition due to technology condition. A similar example was given by a participant from Firm C who stated the challenge faced by the firm in competing for technology.

We have been able to maintain ourselves to some extent...but it is getting squeezed because of competition.... (Senior Sales Manager, Interviewee CJ1, 2019)

...for [an] organisation like us...it is very essential...organizational ingenuity is essential with a competitive market.... (Quality Control Manager, Interviewee CI2, 2019)

...it's important...or your competition will be higher.... (Manager, Interviewee CE1, 2019)

...there are big issues of quality and competition.... (Head of Regional Sales, Interviewee CC2, 2019)

For instance, whenever petition demands, we react on that petition immediately and along with this there are expectations...that demand for better kind of...competition for better technology. (Head of Regional Sales, Interviewee CC2, 2019)

The evidence above confirmed organizational ingenuity was vital for firms to overcome an intense level of competition. Organizational ingenuity presented an avenue for firms to respond and adapt to the dynamic environment of India. However, this thesis extends beyond the creative measures to overcome challenges in an emerging economy through organizational ingenuity and puts forward the unique potential of available generic resources through a CBV theory lens. The addition of a CBV lens perspective combines the view of composition strategy, capabilities, and processes in organizational ingenuity. The key disposition of CBV delineates the importance of compositional strategy. This strategy identifies the potential of ordinary resources to be utilised and transformed through creativity and compositional process for firms to gain competitive advantage (Luo and Child 2015). In this instance, it is noted that firms' creative endeavours in dissecting and repurposing the parts of each resource can be leveraged to create novel solutions.

A CBV complements organizational ingenuity through strategically recognising the potential value of generic resources to SMEs in India when conquering an intense level of competition. Interviewee CE2, from the pharmaceutical industry, defined organizational ingenuity as the ability to create innovation with limited resources:

...talking about ingenuity, which is basically the ability to create innovative solutions within the limited resources of organisation with imaginative problem solving. So, that is ingenuity.... (Senior Manager, Interviewee CE2, 2019)

Interviewee CE1 echoed their colleague's view of organizational ingenuity and added the importance of creative combination of different approaches, even without resources or resource advantage, as an important factor contributing to the unique success of the firm. In this instance, it can be identified that the overlapping function of organizational ingenuity with a CBV strategy, through the creative combination of external and internal generic resources, provided leverage for the firm's success. A distinctive, amalgamated approach of organizational ingenuity and a CBV strategy can give firms an edge over their rivals or competition in the market.

With my current organisation, you're muted of resources...and therefore, sometimes you do even if you don't have the resources.... (Manager, Interviewee CE1, 2019)

Firm E interviewees revealed that the firm's access to required resources did not put a damper on their motivation to identify an alternative solution. Therefore, Firm E sought a novel solution,



even without resources required for business operation. From a similar perspective, Firm K participants stated the firm's intentional efforts to repurpose existing available resources, based on the knowledge gained through corporate learning, whereas Firm D configured different available technologies and adapted accordingly as an approach to organizational ingenuity and a CBV strategy.

...we purposefully adopt and organise resources based on strategic learning and transforming existing resources.... (Senior Manager, Interviewee CK1, 2019)

...there are different available technologies which can be used...and maybe the upcoming trends like software development model...we can configure and adapt by exploiting internal resources.... (Program Manager, Interviewee CD1, 2019)

The sentiments above corroborate the literature review findings as Firms D and K stated their intentional approach to utilising available resources, including available technologies, for creative solutions. In the case of Firm D, the participant stated that internal resources, such as existing technology, were reconfigured and adapted to creatively solve problems. It can be argued that the sentiments above align with the perspective of organizational ingenuity through a CBV theory lens. The firms' actions in creatively adapting and utilising generic resources align with the definition of organizational ingenuity through a CBV strategy—creating imaginative solutions using generic resources and capabilities. This study puts forward organizational ingenuity as an opportunity for SMEs to overcome the demanding environment of an emerging economy through shifting their focus from traditional to innovative approaches to doing business. Organizational ingenuity and the complementary approach of CBV looks beyond innovative solutions achievable through unique and abundant resources. Further, it considers what can be done to add value to existing resources with the support of the firms' capabilities to overcome challenging environments and achieve overall success.

### **5.1.2 Subcategories of organizational ingenuity**

The following sections present the novel findings of the subcategories of organizational ingenuity as shown by the data. Table 23 illustrates the sub-patterns identified across respondents which relate to organizational ingenuity. The concept of organizational ingenuity is so far defined by different scholars presented limited opportunity to facilitate the understanding of the theory and the impact on SMEs operating on a challenging market environment. Thus far, several studies have identified organizational ingenuity as the ability to generate innovative solutions within the constraints of institutional voids and limited resources (Lampel, Honig, and Drori 2014; Walker, Schlosser, and Deephouse 2014; Kannan-Narasimhan 2014; Rosso 2014; Banerjee 2014; Senf, Koch, and Rothmann 2014; Paris, Lang, and Massé 2015). However, it is worth noting an extent of variation in the definition from Rosso

(2014) and Senf, Koch, and Rothmann (2014) as both studies put forward creativity to be an important component to overcome institutional challenging markets. An additional element of organizational ingenuity was identified by Banerjee (2014) to be reactive in the problem-solving process while Senf, Koch, and Rothmann (2014) implied it as adaptation when facing institutional constraints.

Based on the definitions of organizational ingenuity available, no attempts are made to specifically define organizational ingenuity and its role for SMEs when overcoming the institutionally challenging environment of India. Thus, it became necessary to ascertain the missing components of organizational ingenuity research that were currently unavailable. Data gathered from the interviews conducted emphasise distinctive sub-themes of organizational ingenuity through a CBV theory lens. With this objective, this research attempts to determine the importance of organizational ingenuity to SMEs operating in an emerging economy. In addition, this study also aims to understand what motivates the need for organizational ingenuity for SMEs operating in an emerging economy. Therefore, the following research question is addressed in this section:

- Is organizational ingenuity an integral component to SMEs operating in emerging economy? Why?

Table 23: Subcategories of Organizational Ingenuity

Responses related to organizational ingenuity	
Firms' responses in quotations	Subcategories of organizational ingenuity
"...nobody is getting into the business for survival, and everybody wants to be the <b>best in the field</b> and that's why it is important for that...." (Territory Manager Sales, Interviewee CA2, 2019)	<b>Market leader:</b> The motivation to be the best in the industry rather than the mentality for survival
"...when coming up with a unique solution...the point is that there is no <b>benchmark</b> set by the Indian industry or even globally...there is no precedent in the area in which we are developing a solution...that is the challenge and that is the opportunity...." (Vice-President Development, Interviewee CG1, 2019)	
"We can improve the quality, and this is quick but sometimes that does not help in the pharma industry...but you can go to the market and be...try to the <b>market leader in the market</b> ...." (Manager, Interviewee CI1, 2019)	
"...it can be something for us to <b>overcome</b> things...how we can make things innovative, how we can we avoid issues and then, how we'll get everything from the flow...from the blueprints to delivery...." (Senior Manager, Interviewee CB2, 2019)	<b>Vital to overcome challenges</b> and execute business operation from planning to output delivery
"...if you want to grow the company, you want to grow the organisation...we have expectation...with what we have it is	

<p><b>necessary....</b>" (Quality Assurance Manager, Interviewee CF2, 2019)</p>	
<p>"...yes, definitely important over time as survival is not easy...." (Deputy Manager, Interviewee CH2, 2019)</p>	
<p>"...innovation in today's world...you <b>cannot exist with the old things</b> whether it's the product...and it is only with breakthrough innovation that really puts you miles ahead of others...." (Senior Sales Manager, Interviewee CJ1, 2019)</p>	
<p>"...it is a continuous process...since the market is dynamic and the market is moving at a faster pace, you need to be on your toes, <b>innovating every day</b> from capital to the market." (Senior Manager, Interviewee CK1, 2019)</p>	
<p>"...so, we are a very high moving start-up and for us the innovation comes along naturally...it is a continuous process that we keep doing right...it is about <b>improvising</b> based on what we are facing and what we have available..." (Vice-President, Interviewee CC1, 2019)</p>	<p><b>improvisation:</b> the action of improvising as a measure to face the existing competitive market.</p>
<p>"...we do a lot of <b>modification</b> in our products...we had innovative ideas based on what are available on the lines and then we cross that with issues...so it's all here and we have to convert it into a final product...." (General Manager, Interviewee CH1, 2019)</p>	
<p>"...we classify ourselves as a competitive organisation... something that is different...we have some technologies which are available as we try to <b>re-engineer</b> those modules and we use it wherever it can fit in...." (Senior Manager, Interviewee CK1, 2019)</p>	
<p>"...organizational ingenuity for us is innovation that is, you know, <b>improving</b> on what you have today, and you know, doing better...." (Project Manager, Interviewee CL2, 2019)</p>	
<p>"...because in organizational ingenuity...company grow then there...will then give customer satisfaction and it will be an <b>edge</b> over the competitors...." (Program Manager, Interviewee CD2, 2019)</p>	<p><b>Distinctive competitive advantage:</b> finding an edge to gain a competitive advantage</p>
<p>"...in general, with the concept, you're not going to do the innovation where your market has already done...you do not improve on the same product that has already been filed...you don't get any kind of advantage and your competition will be higher...if you are making any specific one particular...<b>unique product</b>...than it adds <b>value</b>...." (Manager, Interviewee CE1, 2019)</p>	
<p>"...everybody in the pharmaceutical market is very serious about coming up with <b>genuine and authentic solutions</b>...." (Senior Manager, Interviewee CE2, 2019)</p>	
<p>"...as innovation is concerned, in India, nobody has this kind of product or services available in the marketplace...we have and <b>we're the only one</b>...." (Vice-President, Interviewee CL1, 2019)</p>	

## **Market leader**

The motivation or objective to be the market or industry leader is identified as a component that highlights the importance of organizational ingenuity. Firms A, B, G, and I are some of the firms that stated being a market leader was an important aspect when rationalising the importance of organizational ingenuity. Participants from Firm A firstly clarified that the firm's objective should not just be for survival, but also to be the best in the industry. The following comment was made by a Firm A interviewee:

...to basically lead in the market, be the market leader, you need to put all your efforts in R and D, all out for your efforts in [developing] new products, work on latest technologies...that is all we have been doing, for a long time, and we plan to do, based on the customer's voice.... (Deputy Manager, Interviewee CA1, 2019)

It is clearly indicated here that organizational ingenuity was vital for Firm A to create imaginative solutions when overcoming the challenging context of India. Evidence from an industry report in 2015 stated Firm A's increasing reputation as one of the leading manufacturers and distributors of automotive service equipment in India. Firm A was proven to gain such recognition in the industry through its commitment to innovation for quality and efficiency.

As shown in Table 23, Interviewee CG1 noted that setting the standard in an industry without a benchmark was a threat that needed organizational ingenuity, but also presented as an opportunity to the company. In this instance, organizational ingenuity established an opportunity for Firm G to gain the position as a market leader in the industry, as the industry was without a benchmark in India. Through successful achievement of organizational ingenuity, Firm G not only gained the position of a market leader, but also gained first-mover advantage in the IT industry.

In addition to statements in the previous section, a participant from Firm B, within the education industry, stated that ingenious solutions were key to tackling challenges and barriers in the market. The firm's participants stated that creative solutions enabled the firm to sustain and overcome challenging conditions in the emerging economy market by responding to the external environment by utilising a combination of internal resources and capabilities. For example, different product requirements or clients' demands compelled Firm B to modify product features, quality, and price accordingly. This was reflected throughout the interviews of both participants from Firm B, confirming how different challenges forced the firm to pursue creative approaches to become the leader of the education industry. In this instance, survival was not the main goal, but the basic objective for the SME operating in the emerging economy.

Organizational ingenuity here provided an additional perspective to go beyond the need for survival and to set the benchmark in the industry.

### **Vital to overcome challenges**

The second component of organizational ingenuity describes the argument for why organizational ingenuity should be considered essential. Organizational ingenuity is identified as vital to overcome challenges and execute business operations, from planning to output delivery. Cross-case analysis revealed Firms B, C, F, G, H, J, and K delineated the importance of organizational ingenuity when overcoming obstacles and sustaining success in an emerging economy. A Firm F participant firstly proposed that the objective for growth in the market necessitated organizational ingenuity for firms such as Firm F:

...it is important and necessary if you want to grow the company.... (Quality Assurance Manager, Interviewee CF2, 2019)

Firms C and G both highlighted the need for organizational ingenuity, especially for IT firms. Innovative solutions are necessary and essentially considered as key to operation for SME companies in India. Studies by Sudhir Kumar and Bala Subrahmanya (2010) and Ren, Eisingerich, and Tsai (2015) clearly indicated the positive role of innovation to SMEs in emerging economies. Participants from Firm C highlighted the value of innovation as an integral part of an organisation. It was with innovation that Firm C could create breakthrough products.

A Firm C interviewee said:

...we only value innovation, because innovation is something...you can say part of any organisation, if people are not innovative enough, we cannot introduce you [to] ideas without innovation...you cannot come up with new patents without innovation.... (Vice-President, Interviewee CC2, 2019)

Interviewee CG2 specified how the firm capitalised on current access to technology as resources to create product and solutions offerings.

Another participant from Firm G added:

...organizational ingenuity is [an] original thought process...so unless ingenuity [exists] in our business, I don't think any company can you know, create or develop innovative products or solutions. Today, I think generality is an integral component to you know, come up with innovation and as an organisation.... I have witnessed a lot of production...solutions created for the industry...which do not exist and no competition for it.... (Vice-President, Interviewee CG1, 2019)

The Vice-President of Firm G highlighted “generality” as a component in creative solutions and that this alone is a unique feature of organizational ingenuity that should be emphasised. The interview and secondary data collected from the company’s investor presentation in 2020 highlighted how the company’s digital solution offerings expanded from the healthcare to the education industry.

Furthermore, the 2020 investor presentation highlighted that Firm G’s success was only achieved by harnessing available technology to close the gap and solve challenges in the healthcare IT ecosystem. In this instance, it was the current challenges prominent in the industry that inspired Firm G’s innovative solutions. Consequently, this innovative solution was created from the firm’s creative take on existing technology. Firm H interviewees also identified organizational ingenuity to be important when understanding the gaps in the market. In fact, Firm H interviewees stated that the company filled the gaps in the manufacturing industry by utilising existing technology available to the company.

### **Improvisation**

The third sub-theme identified through cross-case analysis uncovers improvisation to be another key component that underlines the significance of organizational ingenuity to SMEs in an emerging economy such as India. Interview data revealed examples given by Firms C, H, K, and L of the link between improvisation and organizational ingenuity. Examples from Firm C interviewees highlighted the approach of improving available solutions through in-house cloud services as an example that illuminates the importance of organizational ingenuity. Evidence from the 2020 investor presentation stated Firm C’s activities aimed at adapting to the changing environment in the IT industry through in-house cloud infrastructure and services.

...with in-house, it will be cheaper...and when compared with overseas, they are very expensive.... (Head of Regional Sales, Interviewee CC2, 2019)

Firm C asserted better control and influence over value chain activities and operational activities of the company through in-house operation. Improvisation under organizational ingenuity supported Firm C to improve on existing and available solutions. This was made possible by a commitment to in-house production. Results obtained from Beneito (2006) showed that in-house activities are one of the main contributors to prominent innovation.

Another example provided by a participant from Firm H, indicated in Table 23, was the company’s commitment to craft novel solutions by modifying the company’s range of products for the final output. However, it is worth noting that organizational ingenuity for Firm H went beyond final output to include improving existing systems and processes in all Firm H

manufacturing facilities, based on the firm's 2020 investor presentation. In this instance, clear representation of organizational ingenuity and a CBV strategy was reflected in Firm H's ability to modify and improve upon available resources. It is clearly indicated that customer feedback highly influenced Firm H to improve on processes and systems in the company's manufacturing facilities and achieve process innovation to enhance customer satisfaction. There is no doubt that the obstacles faced by Firm H were plentiful, but the prospect of improving on existing manufacturing facilities allowed Firm H to overcome the challenging context of India as it created an environment which enabled organizational ingenuity.

Similar sentiment, indicated by participants of Firm K, is shown in Table 23. Interviewee CK1 stated the importance of coming up with ingenious solutions by re-engineering modules using available technologies as the firm overcame challenging competition in the market. For Firm K, improvisation was incremental and used when necessary, based on the industry requirements and trends.

...what we develop is matching to the industry's requirement with respect to the job market...we develop the content, and this process of development is a continuous process.... (Senior Manager, Interviewee CK1, 2019)

Evidence from secondary data of the company's website illustrated Firm K's range of training solutions to offer career-oriented courses, upgraded according to industry trends. Updates were rolled out to improve on existing training solutions to enhance customer satisfaction and create added value to the solutions.

### **Competitive edge as a unique factor**

The final component that contributes to the need for organizational ingenuity is distinguished as finding an edge to gain a competitive advantage. Distinctive competitive advantage is ascertained as the final missing link that leads firms to organizational ingenuity. Cross-case analysis revealed Firms D, E, F, G, I, K, and L recognised the need for a competitive edge as a unique factor in the industry for firms to pursue organizational ingenuity.

Both Firm F participants from the pharmaceutical industry recognised organizational ingenuity as a key contributor to the longevity of the firm. The same notion of organizational ingenuity was identified by Firm E participants as an opportunity to create unique products or solutions.

...we look for a unique factor...we think differently and with that ability we try to innovate and create a unique product.... (Manager, Interviewee CE1, 2019)

Secondary data evidence from Firm E's 2020 sustainability report corroborates this sentiment with a management focus on the development of differentiated generic and specialty products in the pipeline.

An exceptional outcome for Firm G was attaining organizational ingenuity which led to a specialisation strategy with a niche focus on providing IT solutions for the pharmaceutical industry. In this instance, Firm G gained a competitive advantage by focusing the solutions provided by the company on a specific industry; hence, monopolising the niche focus of the stated industry.

Many firms highlighted external environmental forces compelling firms to leverage unique capabilities and create innovative solutions for survival. The combination of various elements, such as external conditions and capabilities, act as building blocks for SMEs to close the market gaps by achieving organizational ingenuity through compositional strategy.

The General Manager of Firm K stated that by identifying market gaps, firms are able to provide different perspectives on how product offerings or solutions can be improved. Firm K bridged the market gap to gain competitive advantage with the successful attainment of organizational ingenuity.

...the general idea is to identify the gaps and grow...find innovative ways to deal with them...[ingenuity] is a new perspective and about how things can be improved and how the gap between the desired result and the actual results can be minimised....  
(General Manager, Interviewee CK2, 2019)

Similar sentiment was identified by Firm G participants about the IT industry. Firm G's General Manager stated that Firm G started as a data company before entering the otherwise untapped market of digitisation in the pharmaceutical industry. Firm G identified potential in the market before creatively combining generic resources and leveraging the firm's capabilities to create an ingenious solution catering to the untapped market gap in a specific industry. Firm C also identified a market gap in in-house cloud service offerings in India and proceeded to offer more affordable cloud service solutions than other major players in the IT industry.

The Quality Control Manager of Firm I stated that organizational ingenuity supported the company by allowing the firm to identify and bridge the gap in the market:

...we are bridging the gap between what is the requirement of the consumers and what is available as a solution.... (Quality Control Manager, Interviewee CI1, 2019)

### **5.1.3 Frugal innovation in organizational ingenuity and CBV**

This section will address the additional element of frugal innovation in organizational ingenuity as SMEs overcome the challenging environment of an emerging economy. This section aims to answer the following research question:



- How do SMEs create cost-effective, ingenious solutions in the constrained and challenged environments of an emerging economy?

*Table 24: Frugal innovation in Organizational Ingenuity and CBV*

<b>Frugal innovation in organizational ingenuity and CBV</b>
2.1 Cost efficiency through value chain activities
2.2 Improved design in product packaging
2.3 Cost leadership through vertical integration

The definition of organizational ingenuity in this study was corroborated by the majority of interviewees, placing an emphasis on creating innovative and cost-effective solutions from generic resources to remain significant in the market. It is worth noting that all firms identified organizational ingenuity as a path to achieve cost and operational efficiencies. The motivation to create cost-effective and novel solutions is significantly related to the understanding of organizational ingenuity with a CBV strategy. The stark contrast of CBV with a resource-based view highlights the perceived value of generic resources rather than superior strategic resources (Luo and Child 2015; Volberda and Karali 2015). In fact, cost-effective solutions or frugal innovation are often approached to outcompete resource-rich competitors (Li 2018). However, little is known about how firms create cost-effective solutions as part of their successful implementation of organizational ingenuity and CBV strategy. Cross-case analysis found the following approaches explain how SMEs in India achieve frugal innovation through organizational ingenuity and CBV strategy, as illustrated in Table 24: (1) cost efficiency through value chain activities; (2) improved design in product packaging to cut overall cost; and (3) cost leadership through vertical integration.

Examples from Firm F participants indicated that limited resources and constraints were factors that drove the firm to become creative. Interviewee CF2 identified both pressures of maintaining low-cost production and meeting customer demand were among those that pushed Firm F to attain organizational ingenuity. Organizational ingenuity through a CBV theory lens shows firms leverage unique capabilities and available generic resources for survival in the uncertain environment of an emerging economy.

The Vice-President of Firm C stated that the company focused on being cost effective when creating innovative solutions. Firm C viewed organizational ingenuity as a response to a challenging market through providing value-added products and improved solutions using generic resources at a low cost. Case study evidence presented by Firm C put forward the firm's latest project of reducing clients' cloud migration cost without compromising on application performance. A Firm A participant emphasised the importance of being able to

enhance solutions offered without increasing cost. In addition, a Firm K interviewee highlighted an example of achieving cost-efficiency by improving on value chain activities. The following interviewees also highlighted different approaches that SMEs implemented in terms of cost efficiency:

...we only have innovative solutions in terms of costs.... (Vice-President, Interviewee CC1, 2019)

...we want to increase our business with the same set of customers, with the same cost but with better product features...so, similar case to our washing range, we haven't increased our cost at least but innovated to [a] new set of washers that should be available at a higher cost but with better features...we have tried to keep our cost to minimal...we have innovated.... (Deputy Manager, Interviewee CA1, 2019)

...operating in India...if we talk about [the] manufacturing segment, we can get cheap labour, so, cost effect is there and it applies to our company.... (Senior Manager, Interviewee CK2, 2019)

Both participants from Firm H further emphasised market forces to be the push towards productivity and creativity for cost-effective solutions.

...equipped with our resources like machinery and production line...we dominate to produce elevated product[s] by developing internal resources.... (Deputy Manager, Interviewee CH2, 2019)

...the feedback or concern [from] the market...we actually see that [as] key to [being] competitive...this can include lowering prices and more diverse products in the markets.... (General Manager, Interviewee CH1, 2019)

In addition to the above statements, firms from the pharmaceutical industry, such as E, F, and I, recognised organizational ingenuity as an opportunity to reduce cost. Firm F stated an example of designing an improved packaging process to reduce the overall cost, whilst Firms E and I cited overall manufacturing processes as an example to reduce cost. Firm E's 2020 sustainability report showed implementation of multiple initiatives which yielded various benefits, such as cost optimisation and operational efficiency. The report highlighted an example of cost leadership through vertical integration and a focus on cost optimisation in process innovation. It is worth noting Firm E's strong pursuit of making products accessible to consumers through research and development. There is a common thread linking pharmaceutical start-ups in India which have gained a reputation for pushing unknown boundaries to create breakthroughs and novel solutions that are affordable and accessible to the Indian public (Mazumdar-Shaw 2018; Greene 2007). This strongly corroborates the

sentiments of firms in the pharmaceutical industry in their motivation to provide cost-effective solutions as part of novel solutions created through organizational ingenuity.

## 5.2 Theme 2: Challenges or external environment compelling firms to attain organizational ingenuity

This section aims to answer the following research question:

- How do STORM conditions of emerging economy compel SMEs towards the path of organizational ingenuity?

The following sections present findings on the challenges or external environment compelling firms to attain organizational ingenuity, shown by the case study data. The external environment compelling SMEs in India to pursue organizational ingenuity is based on STORM conditions. This thesis extends each condition perspective to address additional subcategories to help understand each external condition better.

### 5.2.1 Social condition

Studies by Li and Ding (2013), Bradley et al. (2012), and Hall, Matos, and Martin (2014) determined socio-cultural environment characteristics to play a dominant role for innovation in an emerging economy context. Socio-cultural factors are known to influence the pace of innovation (Goel and Saunoris 2021) and this includes factors such as institutions, high level of uncertainty in the market, inequality in income distribution, poverty rate, and cultural dimensions (Rujirawanich, Addison, and Smallman 2011; Tian et al. 2018). In addition, there are social characteristics such as norms, beliefs, and rules that are known to influence innovation (Algezau and Filieri 2010; Adler and Kwon 2002). Culture can potentially influence an organisation's innovation processes both positively and negatively (Naranjo-Valencia, Jimenez-Jimenez, and Sanz-Valle 2017).

*Figure 7: Responses Related to Social Condition*

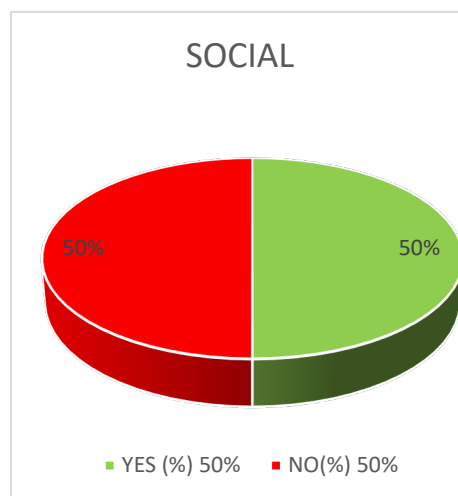


Table 25: Subfactors of Social Condition

<b>1. Social condition</b>	
1.1	Purchasing power
1.2	Informal institutions
1.2.1	Local norms, cultural practice, or religion
1.2.2	Language
1.3	Local market trend
1.4	Local system and infrastructure
1.5	Market awareness
1.5.1	Lack of understanding of available modern solutions due to limited level of education

In this thesis, the multifaceted social condition is one of the many factors that forces firms to attain organizational ingenuity. Interview data revealed that half of the firms interviewed identified social condition as a force for organizational ingenuity. Interviewees from all different industries—manufacturing, IT, and pharmaceutical—noted social condition to not be a factor or pressure towards organizational ingenuity. Overall, responses were balanced between agrees and disagrees as to whether social condition was a contributing factor forcing firms to attain organizational ingenuity. Figure 7 illustrates the percentage of responses associated with social condition in this study. Interview data revealed 50 per cent of interviewees confirmed social conditions as contributory factors for SMEs to pursue organizational ingenuity. Social conditions were interpreted through five dimensions that included: (1) purchasing power; (2) informal institutions; (3) local market trend; (4) local system and infrastructure; and (5) market awareness, as presented in Table 25.

### ***Purchasing power***

Findings of Gilboa and Mitchell (2020) suggest national culture and economic capacity, such as purchasing power, can influence shoppers' behaviour. India's disposable income is low, with GDP per capita approximately US\$1,927 in 2020 (World Bank 2020). Firm A stated that the level of disposable income of a country influenced customer demand and consequently affected Firm A's business operation. Interviewee CA2 from the automotive industry stated that the different purchasing power of different countries prompted Firm A to innovate according to customers' demands. The level of purchasing power influences firms' approach to the design and manufacture of products. According to Interviewee CA2, selling their products to less-developed countries where funding might not be easily accessible would require constant valuation of products' price points. However, for some other parts of India, an increase in purchasing power could be an opportunity for Firm A.

Nepal and Bangladesh...these countries are actually growing...the purchasing power is growing...these countries are all willing to buy cars now...so more cars...more business for us since our entire business is catering to this segment of business....  
(Deputy Manager, Interviewee CA1, 2019)

For this reason, Firm A was under perpetual pressure from the local condition to creatively leverage existing resources and capabilities to attain organizational ingenuity and create cost-effective novel solutions. As a result, the firm experienced unceasing expectation to effectively work on improving existing processes, creating affordable and innovative solutions to continuously appeal to the local market. With the increasing purchasing power in India, there was a trend of local people being motivated to buy vehicles, and this could potentially foster an environment of opportunity to improve Firm A's positioning in the industry. Studies from Antonelli and Gehringer (2017) and Putterman and Weil (2010) stated that factors such as income inequality can indeed impact innovation.

Pharmaceutical company Firm E indicated that the limited amount of capital within the Indian market forced the firm into product development focusing on cost reduction. Lack of readily available funding in the industry and by the government is one of the factors limiting firms to only consider a low-priced range of products.

We consider the new product development trend in the Indian market to be capital limited...we can spend lots of money for development and hope that it will get recovered and sells in the domestic market...but this is not the case...we have limited buyers with the money to buy expensive products...payment is one issue which I can tell you [is] a barrier to innovation...we innovate products so that people can buy....  
(Senior Manager, Interviewee CE2, 2019)

This instance provides a perspective on how Firm E was obliged to adapt processes and product development to remain attractive in the local market. With such obligations, Firm E was compelled to create novel solutions for organizational ingenuity.

### ***Local norms, cultural practice, or religion***

In another example of social condition, local norms, cultural practice, or religion are noted as aspects influencing firms to pursue organizational ingenuity. Cultural values as part of economic and social development are known to have a significant influence on innovation process and performance (Ghazinoory, Bitaab, and Lohrasbi 2014).

A Firm B participant stated society dynamic to be one of the factors contributing to social condition that compels firms to create novel solutions.

...with social, example that I can think of when it comes to social challenges can include dynamic of the communities such as social norms in a social context that may affect the company's decision-making process.... (General Manager, Interviewee CB1, 2019)

A participant from Firm B noted that demand for the products was influenced by the social norm of a particular location.

So, I think if you look at what we offer, in a society like you know...most of the people might be going after only this particular...training or particular course, I mean, this is the case I mean of how much it does impact you, and you will have to adapt with your social conditions right.... (General Manager, Interviewee CB1,2019)

In this instance, Firm B adapted solutions offered to match customer demand, based on the local norms. The same example from Firm K revealed factors, including cultural norms and religions, influenced the firm's processes and organisational strategy leading to the firm being compelled to find creative solutions. According to Firm K, societal norms are a sufficient factor that could hinder a company from growing in the industry:

...there are regulations...which comes from the society...and whatever the rules, regulations, process, and procedures...it cannot be accepted in each and every country, because each country has their own culture....and religions and cultural norms of the country...[which] might help us in moving ahead or in some cases might not help us to move ahead.... (General Manager, Interviewee CK2, 2019)

Furthermore, the General Manager added how such variances contributed to an added cost of the company's offerings. For an education solutions provider such as Firm K, such differences can be recognised in the decision-making process which potentially leads firms to leverage existing resources and capabilities for competitive advantage. As an example, Firm K participants stated that some countries might not be tolerant of providing education to female students due to the added cost of separating female and male students in class. In this situation, gender segregation rooted in a specific culture created additional social challenges for Firm K in creating affordable solutions. Firm K needed to consider how they could offer affordable education solutions to cater to the market's local social context.

### ***Language***

In addition to local norms, language barriers are part of social condition that can add on to the challenging market environment and push firms toward achieving organizational ingenuity. As stated by Firm K participants, language barriers could significantly hinder the company's

development in providing education solutions. In this instance, different local languages forced Firm K to adapt solutions that could be customised according to the local language.

We still have so many countries which still do have issues with respect to language...some of the developing countries...they have the language barriers...they still cannot accept that English is required to provide equal of their countries with respect to education.... (Senior Manager, Interviewee CK1, 2019)

A comparable example from Firm B's secondary data in 2019 saw the firm create solutions that could be adapted to various language settings in their product offerings to accommodate the local demand. Firm B took the opportunity to enhance the value of existing training solutions by including an integrated system that allowed different language settings. In this example, the value of the existing products was enhanced to accommodate nuances in the local social context.

### ***Local market trend***

In another example, Interviewee CB2 stated that social context can influence the market trends in the education industry. According to the secondary data in 2019–20, Firm B extended the firm's training solutions by introducing certified short courses that could be completed as quickly as 38 hours, in addition to the standard course with a duration of 36 months. The dynamic social context in India, such as high poverty level, forced Firm B to be inclusive in its product offerings and, therefore, carefully consider the length of courses. The following is a comment from the Senior Manager of Firm B:

...people might be going after only this particular...you know, training or particular course...which we will have to adapt.... (Senior Manager, Interviewee CB2, 2019)

Interviewee CB2 further added that identifying the current market trend and customer demand led to the company creatively integrating and adapting existing resources to create new product offerings. These patterns of behaviours are consistent with the key essence of organizational ingenuity and CBV strategy. The social condition of the emerging economy compels firms to adapt accordingly. In the case of Firm B, this can be from external forces such as the social condition of an emerging economy that led the firm to leverage existing resources and capabilities to sustain competitive advantage. In this example, Firm B creatively responded to the social context of India by seeking different approaches that could enhance the current value of its product offerings, fitting to the affordability of the local market.

For Firm K in the education industry, the local market trend may have included resistance from locals for new or upgraded solutions in the education market. According to the General

Manager, for some areas in India, newly launched solutions offered by the firm could be difficult to implement as locals were not as open to new approaches.

People are more opposed to changes.... I've seen few geographies...states where people are not open to new implemented solutions...we have to consider the conventional way...it is very difficult to bring change...but we'll start from somewhere at least.... (General Manager, Interviewee CK2, 2019)

In this instance, organizational ingenuity must be extended with consideration of the local community's level of acceptance for modern solutions; companies may struggle rolling out newly upgraded solutions for certain markets.

### ***Local system and infrastructure***

Another aspect of social context was demonstrated by Firm B leveraging the poor infrastructure and educational system existing within the social context of India as a propelling mechanism to organizational ingenuity. As stated by Firm B Senior Manager of Business Development:

The education system in India is pretty bad...in a very bad shape...we exist because of the poor infrastructure and educational system.... (Senior Manager, Interviewee CB2, 2019)

Firm B identified India's social condition within the education industry as an opportunity to forge unique paths to create ingenious solutions. In this context, Firm B leveraged the social condition of India to offer education solutions that applied best to the local social condition. Firm B recognised the opportunity presented by the challenging social condition to focus on the target market from low to middle income class. Secondary data from 2019 showed Firm B was an inclusive purveyor of training solutions and proactively presented solutions through knowledge of the market trend.

Our target segment is somebody from lower–middle class...those kind of people...and our education solution is to improve education system and provide education to people regardless of their backgrounds. (General Manager, Interviewee CB1, 2019)

Firm B participants stated that the continuous demand for innovation in their industry required firms to create ingenious solutions in order to survive. Firm B's 2019–20 annual report identified the key industry trends with the promise of closely integrating its solutions within those trends. Some other opportunities foreseen in the annual report included technologies identified in cloud computing solutions, hybrid delivery methods elicited by COVID-19, national education policy, and product offerings that could provide faster turnaround. In 2020, Firm B's



website put forward blended learning and flipped classroom models as options, in response to the emerging demand for virtual learning due to the pandemic.

### **Awareness**

In a different industry, the Vice-President of Firm G stated that the customers' lack of awareness and education in respect to their product offerings was an excellent example of challenging social condition in the market. The lack of understanding of automation and digitalisation of the IT industry had been a hindrance to the company's success. Firm G first struggled as an IT company due to lack of understanding of the IT solutions provided, especially within the pharmaceutical industry. As indicated in the literature, inequality in education access or overall access to proper education is one of the examples related to social condition (Bradley et al. 2012). As stated by the Vice-President of Firm G:

There were some challenges because the product was new and if you look at the pharma industry as a whole...in India or also the world, if you look at digitalisation that has happened in pharma industry...pharma industry being the bottom of this pyramid...they are slowly coming to terms and they are understanding the true value of what we offer in terms of all the solutions that we have created for them.... (Vice-President, Interviewee CG1, 2019)

Firm G Vice-President further added:

...they need to understand the value of digitalisation right...there was a lot of barriers, there's still a lot of pushbacks from companies...if you were to look at the complete ecosystem of the healthcare industry today...there is a slow shift.... (Vice-President, Interviewee CG1, 2019)

The unknown associated with technology, due to lack of understanding of solutions, can hinder the way firms perform in a market. The pushback experienced by Firm G can be linked to the level of exposure and local awareness of the solutions available in the market. Limited understanding of the modernity in solutions provided can be a factor in the loss of appeal in the market.

The same example was given by Firm L interviewees stated the issue with clients' lack of awareness for the possibility for efficiency in solutions available is a challenge that compel Firm L pursue organizational ingenuity.

We're collaborating with farmers in the area and sometimes this can be challenging, these are the challenges as you know connecting with them or collaborating with them for our automation project...to make them understand all the new technology is difficult

as they may not understand it...the need for it.... (Project Manager, Interviewee CL2, 2019)

Lack of awareness by local farmers for efficiency possible in solutions offered by Firm L can be difficult for Firm L to convince local farmers. The lack of exposure among customers in the prospect for efficiency through available solutions are stated to be the challenge that pushes Firm L for organizational ingenuity.

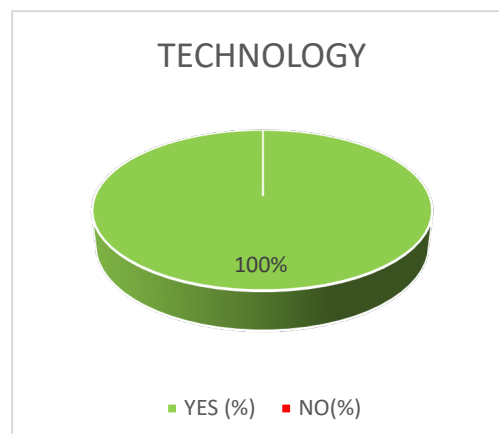
### 5.2.2 Technology condition

Table 26: Subfactors of Technology Condition

2. Technology condition	
2.1	Technology disruption
2.1.1	New technology trend
2.2	Gap in technology
2.3	Technology access
2.3.1	Technology for convenience
2.3.2	Technology for productivity

Technology condition is identified as the next external challenge compelling firms to create novel solutions. Limited access to advanced technology drives firms to organizational ingenuity (Chittoor et al. 2009; Verwaal 2017; Luo, Sun, and Wang 2011; Gunasekaran et al. 2001). In this context, firms facing a challenging emerging market condition are obliged to look beyond their existing technology condition to ensure success. Interview data revealed that all firms identified technology condition to be a factor that compels firms to pursue organizational ingenuity to overcome the challenging environment of an emerging economy. All participants identified technological condition as an important influence pushing firms to be creative and to craft innovative solutions amidst the institutionally challenging environment of India. This is illustrated in Figure 8. Technological conditions are interpreted via three dimensions, as presented in table 26.

Figure 8: Responses Related to Technology Condition



### ***Disruption in technology***

Drawing on a study by Chan et al. (2019), technology disruption specifies the level of SMEs' agility in adapting to such challenges. Technology disruption in the industry changes the industry's dynamic, forcing firms to look for creative solutions to sustain competitive advantage. The emergence of electric vehicles has significantly shifted the dynamic of the automotive industry (Koroth, Mazurek, and Pater 2019). Firm A struggled with the entrance of electric vehicles into the industry as the company was established within the traditional vehicle segment.

Interviewee CA1 stated:

The launch of electric vehicle...there will be less requirement of servicing of cars and all...because in those cars, there will be less of diesel components...servicing will not be here, so these are the barriers which will affect our organisation later. We have to come up with a range of products that will cater to [the] likes of electric vehicles.... (Deputy Manager, Interviewee CA1, 2019)

For Firm G, technology disruption in various industries had been an opportunity for the firm to compose augmented solutions for their product offerings. For example, according to the investor presentation in 2020, Firm G had utilised technology disruption in the industry to bridge the data gap in its product offerings to create more effective solutions. Similarly, the electric vehicle car manufacturer's use of disruptive technology for a niche focus on electric vehicles earned the company a first-mover advantage in the industry (Hardman, Steinberger-Wilckens, and Van Der Horst 2013).

Participants from Firm B both identified technology as an important influence on product offerings that ultimately led to the firm's success.

Interviewee CB1 indicated:

Technology is a very important factor when deciding what you're offering...we conduct a lot of research and strategies...in terms of what courses to introduce and what courses that are not in the market [which] is also influenced by the new technologies...because with Google, 5G...we already saw the disruption and today, everybody is online and so many businesses perish because of that...so you will have to, you know...new technologies.... (General Manager, Interviewee CB1, 2019)

In this instance, Firm B was adapting to the industry's challenging technology condition which consequently led to the firm's focus on their available resources and capabilities to create novel solutions. Positive technology condition allows firms to identify and expand on market

opportunities (Mahajan 2020). Technology condition for firms in an emerging economy can easily be the point that makes or breaks their performance.

### ***Bridging the market gap***

Firm C from the IT industry identified technology to be the major dynamic which led them to identify a market gap and enable organizational ingenuity. The firm used readily available resources and a combination of capabilities to generate creative solutions. Firm C identified an opportunity in terms of local cloud services as India was only utilising cloud services from overseas through major players such as Amazon, Google, Alibaba, and Microsoft.

India is using cloud services across the nation from overseas only...there are major players like Amazon Web Services, Google Cloud, Alibaba, Microsoft...these are the dominant players who are into...things like info services...so we had no choice but to create in-house solution.... (Head of Regional Sales, Interviewee CC2, 2019)

The same occurred for Firm A as the company came up with different product offerings that were not available locally in India. Participants from Firm A revealed that the anticipation of shift in customer demand towards electric vehicles in the automotive industry pressured the firm to start looking for other possible avenues to remain relevant:

So we have equipment for replacing oil, then during alignment, there is servicing of the engine, so all these parts need to be changed or replaced or to be serviced...and business is surviving...but because of the launch of electric vehicles...there will be hardly 15 or 16 serviceable parts...it will be a big issue for us as we cannot come up with a category that caters to this segment...it is threat to our business.... (Deputy Manager, Interviewee CA1, 2019)

The shift in customer demand within the automotive industry forced Firm A to diversify by utilising creative thinking processes and to attain organizational ingenuity using readily available resources and capabilities.

### ***Technology for convenience and productivity***

For Firm B, technology was a complex element but also a critical medium for the company to create ingenious solutions. Firm B struggled in their attempt to offer inclusive solutions, which forced the firm to compose creative solutions for ease of access. Going online in India for the education sector has proven to be challenging as at least 320 million students were affected with no internet access for online learning in 2020 (Sunil 2020). A participant from Firm B noted that limited internet access in India was a challenge to the firm when offering solutions for online platforms:

Easy availability of internet...getting online is a challenge in India...there is a poor internet and for this, we create solutions available offline as well.... (General Manager, Interviewee CB1, 2019)

In this instance, we see how the lack of readily available technology in the market, such as internet access, forced Firm B to reuse available resources and create an entirely different cost-effective solution to remain relevant in the industry. The ability to adapt and overcome such challenges was key to Firm A remaining competitive in the industry.

Interviewee CK2 stated that their firm had identified movement towards digitalisation within the education training solutions industry that forced the firm to respond accordingly. The acceleration of digital transformation has significantly disrupted the education industry in India (Kaplan 2022; Saxena 2020). Firm K identified the movement to digital transformation prior to the pandemic, which further sped up digitalisation in the education industry:

We can see we are moving towards digitalisation across the globe...so, unless we keep on innovating and moving in a faster pace with the developments that are happening in the industry...you will lose your pace.... (General Manager, Interviewee CK2, 2019)

Improving efficiency and productivity through technology is another compelling factor pushing firms for organizational ingenuity. For companies in the pharmaceutical industry, such as Firm I, surviving the complex environment of emerging market involves the expectation of modifying existing technology for improved productivity. Modifying technology is a popular approach among SMEs for innovation (Henttonen and Lehtimäki 2017; Das and Zheng 2008; Krishnaswamy, Mathirajan, and Subrahmanya 2014). Technology modification was utilised by Firm I to increase the level of productivity and compensate for the lack of access to appropriate technology essential for manufacturing activities.

The Manager of Firm I stated:

We modified manufacturing equipment...so, that is the point they can come up with some idea...some better idea together and the idea is to increase productivity.... (Manager, Interviewee CI1, 2019)

Firm I's investor presentation from the 2021 financial year identified how Firm I excelled through investment in in-house manufacturing and backward integrated facilities that led the firm to gain competitive advantage in cost. However, Firm F from the pharmaceutical industry highlighted lack of funding available to contribute to the lack of access to advanced technology. For Firm F, as stated in the 2019 investor presentation, creative solutions to

overcome restricted technology access would require maintaining and upgrading machinery to stay ahead of the curve in the industry while adhering to necessary regulatory approvals.

### 5.2.3 Organisational condition

Organisational condition defines firms' tendency for entrepreneurial behaviours (Lumpkin and Dess 1996; Covin and Lumpkin 2011; Gupta and Batra 2016; Lee and Peterson 2000; Avlonitis and Salavou 2007) and developing niche focus or specialisation for competitive advantage, (Tang and Tang 2012; Luo, Sun, and Wang 2011; Singh, Garg, and Deshmukh 2005, 2009) especially among SMEs in emerging economies (Semrau, Ambos, and Kraus 2016; Hossain and Al Asheq 2019; Isichei, Agbaeze, and Odiba 2020). The lack of institutional supports and external challenges in emerging economies forces firms to develop organisational condition for survival. Because of organisational condition, firms are motivated to pursue organisational learning and innovation (Sirén et al. 2017). Organisational conditions are interpreted via the following dimensions as presented in Table 27: Entrepreneurial orientation or behaviours addressing sub-dimensions that include risk-taking, developing specialisation, and corporate-level strategy of diversification. Evidence revealed that Firms A, D, E, G, and I were among firms acknowledging organisational condition to be a force influencing firms to pursue creative solutions, as illustrated in Figure 9.

Table 27: Subfactors of Organisational Condition

3. Organisational condition
3.1 Entrepreneurial orientation or behaviours
3.1.1 Risk-taking
3.1.2 Developing specialisation or niche in the industry
3.1.3 Corporate-level strategy of diversification

Figure 9: Responses Related to Organisational Condition



### ***Entrepreneurial orientation and niche focus***

Findings from several studies reveal positive linkages between entrepreneurial orientation and overall firm performance (Gupta and Batra 2016; Engelen et al. 2015). Studies by Lee, Lim, and Pathak (2011) and Covin and Lumpkin (2011) revealed entrepreneurial orientation as preference towards innovations, autonomous decision-making processes, fierceness in competition, and inclination for risk-taking. Many scholars of entrepreneurship acknowledge institutional support to promote firms' entrepreneurial orientation (Li and Atuahene-Gima 2001; Yiu and Lau 2008; Stephan, Uhlaner, and Stride 2015). Firm G is one example from the firms interviewed in this study that identified as first-generation entrepreneurs and identified entrepreneurial orientation as the firm's motivation in decision-making processes. Firm G established its prominent position in the Indian IT industry by solely focusing on creating an integrated digital platform specifically for the healthcare industry. Firm G has taken a significant risk tapping into the otherwise untapped market of integrated digital platforms for the Indian healthcare industry.

Interviewee CG1 indicated the following:

We started off as a data company with the two founders right from the pharma industry...having domain expertise and technology...we created some product solutions for the automation or digitalisation in the pharma industry.... (Vice-President Development, Interviewee CG1, 2019)

In this instance, we identify how Firm G attained organizational ingenuity initiated by entrepreneurial behaviours of risk-taking and the firm's inclination towards developing specialisation or addressing a niche in the industry. Significant risk was taken by the founders of Firm G with only a pharmaceutical background to enter an IT-focused industry. Firm G's risk-taking behaviour exemplifies entrepreneurial orientation enforced by organisational condition. Risk-taking behaviour is among the many attributes fostering entrepreneurial orientation in SMEs (Brettel, Chomik, and Flatten 2015; Dai et al. 2014).

Firms' orientation to develop specialisation and a niche focus is another element distinguishing organisational condition and compelling firms to develop creative solutions (Tang and Tang 2012). SMEs influenced by organisational condition are pushed to develop specialisation or a niche focus in their industry. Findings from Mantok et al. (2019) revealed entrepreneurial orientation to be the antecedent for organisational learning and positive business performance. In this instance, entrepreneurial orientation can lead to firms creating their own niches to establish a competitive edge (Tang and Hull 2012). Firm G's 2020 annual report revealed their mission to specialise in providing seamless in-house IT solutions to empower a diverse range of markets. Firm G leveraged readily available resources and existing

capabilities to capitalise on a market niche that subsequently led to the firm becoming among the fastest growing SMEs in India.

Interviewee CG2 added:

...digitalisation especially in the pharmaceutical companies and how they can use that as a platform to enhance their business to get targeted customers.... (General Manager, Interviewee CG2, 2019)

Firm B also opted for specialisation through a specific focus on IT training in the education industry. An entrepreneurial approach prompts firms to align core competencies to develop a new product and service mix and, hence, implement a specialisation strategy (Wilson, Perepelkin, and Zhang 2020). Both firms G and B are observed using all generic resources and capabilities to focus on attaining organizational ingenuity as a response to the organisational condition of India. As a result, this has allowed Firms B and G to develop specialisation in their respective industries, serving specific market niches.

From another perspective on organisational condition, entrepreneurial orientation is known to prompt risk-taking, driven, and quick-witted behaviour among firm-level responses to gain first-mover advantage, create new offerings, and implement diversification strategies (Wilson, Perepelkin, and Zhang 2020; Lumpkin and Dess 1996). Participants from Firm A stated that the company had switched its strategy position from one single focus in the industry to diversification:

In the last couple of years, we have tried to grow our organisation in a way that we can do all type of businesses. (Deputy Manager, Interviewee CA1, 2019)

The company had yet to approach part of its long-term strategy to explore other segments of the industry. Unlike Firm G, Firm A had delved into a variety of segments through a diversification strategy prompted by entrepreneurial orientation, as a response to the dynamic market condition of India. A study by Avlonitis and Salavou (2007) proves the relationship between entrepreneurial orientation and a firm's environment to implement diversification strategies.

#### 5.2.4 Regulatory and political conditions

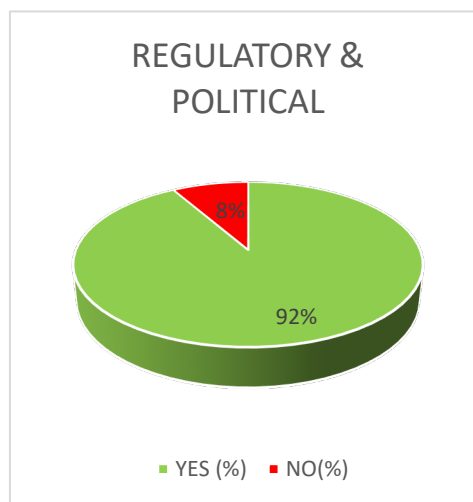
Table 28: Subfactors of Regulatory Condition

<b>4. Regulatory condition</b>
4.1 Industry-based regulatory requirements
4.2 Political influence
4.2.1 Political uncertainty
4.2.2 Bureaucracy



The central argument of institutional theory emphasises the strong influence of regulatory regimes on organisations (Meyer and Lu 2005; Li and Ding 2013). Studies are known to argue how political ties can both improve and damage firms' overall performance (Zhou et al. 2014; Hadani and Schuler 2013). Unique regulatory and political features in an emerging economy such as India can force firms to attain organisational ingenuity. Flawed legal systems and lack of enforcement of laws and regulations creates an uncertain environment in an emerging economy such as India (Boisot and Child 1996; Peng et al. 2020). Firms are challenged by regulatory and political conditions, fostering an uncertain environment in the market that can potentially increase transaction cost and increase the level of business risk. In this instance, firms are forced by regulatory and political conditions to develop or create novel solutions to overcome a challenging environment in an emerging economy such as India. The majority of firms investigated in this study stated regulatory and political conditions to be conditional concerns forcing firms to pursue organizational ingenuity. Regulatory and political conditions are interpreted based on the two dimensions of (1) industry-based regulatory requirements and (2) political influence, as presented in Table 28. Firms A, C, D, E, F, G, H, I, J, K, and L all identified regulatory and political condition as forces compelling firms to attain organizational ingenuity, as illustrated in Figure 10.

*Figure 10: Responses Related to Regulatory and Political Condition*



***Industry-based regulatory requirements***

Firm G demonstrated that the regulatory condition is not only important as it affects the industry, but because it can also influence the target market's industry which was, for Firm G, the pharmaceutical industry. Companies operating in industries such as pharmaceutical or education are more influenced by regulatory condition in comparison to other industries. For example, pharmaceutical-based companies are obliged to comply with numerous legal

compliance to ensure safety and efficacy of the drugs sold by the company. The increasingly stringent regulations and nontariff barriers imposed on generic drugs in developed countries (Festa et al. 2021) are among the many threats compelling pharmaceutical companies such as Firms E, F, G, and I to pursue organizational ingenuity. Firms E, F, and I from the pharmaceutical industry explicitly expressed the influence of legal measures as licensed pharmaceutical manufacturers.

A participant from Firm E stated that close monitoring and strict regulatory guidelines imposed in the industry were a constant issue for the firm. Transparency and data integrity were among important regimes followed by pharmaceutical-based companies such as Firm E:

We have to make sure that we meet regulatory guidelines strictly...they are very strict with data integrity and whatever that ensure us following procedures...we're following with 100 per cent accuracy...we don't hide any data for all data related to the output...it has to be well documented...you don't hide that information as it can be a major problem...issue in Indian pharma industry.... (Manager, Interviewee CE1, 2019)

The same sentiment was expressed by Firm G as an IT industry-based company, but in a unique position of specialising in IT solutions for the pharmaceutical industry. Accordingly, Firm G was obliged to carefully consider the pharmaceutical industry's requirements when designing solutions.

Interviewee CG1 stated:

...the industry is affected by [the] Government's regulations...and that is something that we have to keep in mind when we create a solution...when the regulations are in our favour, we try to come up with products that are innovative.... (Vice-President, Interviewee CG1, 2019)

In this example, we see that novel solutions crafted by Firm G were greatly influenced by the regulatory condition, given that the target market for Firm G was within a highly regulated industry. The aggressive regulatory condition of the target market encouraged Firm G to ingeniously conform, therefore suggesting a causal connection to organizational ingenuity. Interviewee CG2 gave a similar example when asked about external challenges and said that the strict regulation of the pharmaceutical industry pushed the company to think outside the box.

Different regulatory systems for Firm K in the education industry demanded the firm's pursuit of organizational ingenuity to stay relevant in the industry. Regulatory condition for Firm K was exacerbated every time Firm K expanded business operation to different countries:

Regulatory condition from country to country keeps on changing...and it is so unique to itself that it is a challenge.... (Senior Manager, Interviewee CK1, 2019)

This circumstance was reiterated by a Firm L participant as the firm was obliged to assess the target market's regulatory context before beginning product development. Strategic decision-making processes were executed according to the agriculture-based regulations for Firm L's product development.

The Project Manager of Firm L stated:

We see what the agricultural requirements are...we see what we have...we see whether we are able to achieve the target at a particular period of time before we develop products. (Project Manager, Interviewee CL2, 2019)

### ***Political influence***

Skill development programs tendered by the Indian Government at hyper-subsidised rates presented as a challenging political condition for Firm B. For this reason, Firm B needed to creatively respond to such condition by leveraging the firm's existing resources and creating product offerings that were compatible and as affordable as those of its biggest rival. Both participants from Firm B echoed this sentiment and agreed that it was such force from the political condition that compelled Firm B to achieve organizational ingenuity.

Firm L revealed political condition to be one of the major challenges compelling firms to pursue organizational ingenuity. Unstable political condition can potentially impede firms' progress in innovation and organisational development (Luo 2002). In this study, political instability is argued to be the factor contributing to regulatory and political condition that ultimately forces firms to adapt and create novel solutions.

Interviewee CL2 said:

Some other areas like political event or political volatility...we have some big things to offer...to do more...but these are causing some problem in the development, and you know, one of the major challenges that affect development.... (Project Manager, Interviewee CL2, 2019)

Lack of transparency and a high level of corruption can be contributing factors for firms operating in an emerging economy such as India to progress and grow positively in an industry. Mohammad and Husted (2021) argued that government corruption in a country such as India can significantly influence both process and product innovation. A high level of corruption fosters an environment that undermines IP protection from innovation, ultimately

leading to a decreased level of return on investment. The General Manager from Firm K also echoed the same sentiment, stating:

Political environment or bureaucracy plays a very important role...and bureaucracy can sometimes be a challenge or a bonus...but it can be a force in your new developments.... (General Manager, Interviewee CK2, 2019)

Furthermore, a Firm K participant stated that any political or bureaucratic influence could be one of the factors determining the future direction of the organisation.

Going forward...political and bureaucratic factors...these are the factors that determine the direction of the organisation...provisioning performance of the organisation and if you are working with a good relationship...with politicians and the bureaucrats, then you are one step to actively seeking upward direction growth...you don't have to be negative when there are government changes or when your connection is not there...and there has been that situation...but we adapt.... (General Manager, Interviewee CK2, 2019)

In this instance, Firm K noted the importance of political ties to be a contributing factor to the firm's progress in the industry.

### **5.2.5 Market condition**

Market condition is the final condition determined to be an influencing factor pushing firms to attain organizational ingenuity. Seventy-five per cent of participants confirmed market condition as a contributing factor pushing SMEs towards organizational ingenuity as illustrate in Figure 11 below. Emerging markets such as India are promising economic grounds that can grow swiftly but can be extremely fragmented, leading to a preference for serving the low to middle class target market (Luo 2002; Luo, Sun, and Wang 2011; Hashim and Wafa 2002; Krishnan and Prashantham 2019). In this study, specific market characteristics defining the emerging economy, such as institutional influence, uncertain market environment, industry trend, and market volatility are proposed to be the circumstances compelling firms to engage in organizational ingenuity. Institutional voids are among the characteristics of an emerging economy challenging and constraining organisational performance (Harrison et al. 2018). Market conditions are addressed via the following dimensions: (1) limited awareness of the market; (2) intense level of competition including foreign competitors; (3) locational advantage; and (4) imitation risk. Table 29 presents a summary of dimensions addressed under market conditions.

Figure 11 Responses Related to Market Condition

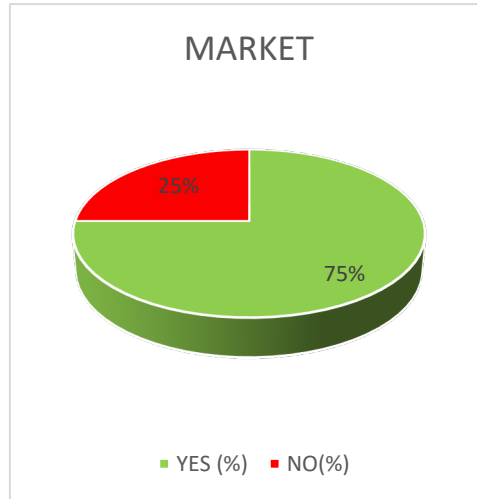


Table 29 Subfactors of Market Condition

5. Market condition
5.1 Limited awareness
5.2 Intense level of competition—entrance of foreign competitors
5.3 Locational advantage
5.3.1 First-mover advantage
5.3.2 Cost advantage
5.4 Imitation
5.4.1 Copycats
5.4.2 Risk of intellectual property rights theft

**Limited awareness**

Firm G stated that consumers’ limited awareness of available solutions fosters an uncertain market condition that can be a potential threat to firms’ performance. For Firm F, the challenge was to make consumers aware of the modern solutions available in the industry that would potentially appeal to the consumers.

We are constantly working on making the users aware of the new functions and features that are now part of the application or a platform...we may keep adding features, technologies like artificial intelligence, but unless the customer knows how to use them...understand them...they may not know the value of the solutions...and this is a challenge to us.... (Vice-President Development, Interviewee CG1, 2019)

A Firm L participant revealed that the competitive market condition could be further confronted with potential consumers’ lack of knowledge related to the industry.

Interviewee CL2 stated:

...there is no expert in the industry and because they didn't know that this new kind of technology solutions exist in India.... (Project Manager, Interviewee CL2, 2019)

In this instance, the lack of knowledge or awareness related to the product offerings contributed to the uncertain context of the emerging economy environment. This further enhanced the challenging environment in which Firm L was operating which, in turn, led the firm towards organizational ingenuity. As a result, Firm L's 2020 investor presentation revealed that the firm's focus shifted towards offering solutions focused on simplicity. The company redefined innovation towards simplicity and minimalism to appeal to the market.

### ***Foreign competitors***

With the emergence of strong industry competitors from China, Firm A decided to explore another cost-effective alternative to remain competitive. Chinese competitors had the advantage in the industry in terms of cost as they made their products locally and took advantage of the in-house cost-effective solutions. This has been noted by Firm A to be one of the challenging phases in the company's history. The high uncertainty of the industry condition forced Firm A to explore available resources and capabilities and create novel solutions for survival. In this circumstance, Firm A employed frugal tactics and quick fixes in response to the uncertain condition initiated by Chinese competitors.

Firm A firstly relied on outsourcing or overseas markets for their production, but the company decided to localise, gaining first-mover advantage and benefiting from the low cost of production in India.

We have decided to go with manufacturing...we started manufacturing in India and nobody is manufacturing in India...and now we are the only manufacturer of the industry in eastern India.... (Territory Manager Sales, Interviewee CA2, 2019)

### ***Imitation***

Exposure to a high level of foreign competition is stated to be the motivation for imitation in emerging economies (Nuruzzaman, Singh, and Pattnaik 2019). Imitation is identified to be one of the sub-factors that contributes to the uncertainty of the market condition. Highly uncertain environments have shown an inclination towards imitation that ultimately challenges businesses to pursue creative solutions (Afshar Jahanshahi and Brem 2020). Volatility in market conditions fosters an uncertain environment of market condition (Gaba and Terlaak 2013) especially for SMEs operating in an already challenging emerging market (Sun et al. 2021). Participants revealed that the threat of copycat firms emerging in the industry had forced companies in India to take a creative approach. For Firm A, imitation in design was occurring as the firm achieved success from new product designs.

Interviewee CA1 stated the following:

When we came up with [a] hydraulic lift, nobody in India was manufacturing hydraulic lift[s], not even China was manufacturing hydraulic lift[s], but when we started manufacturing [a] hydraulic lift, people have started copying our design. Some of the companies were getting the products from China or outside of the market. So that is a barrier for us and we need to work to come up for better design using what we have. (Deputy Manager, Interviewee CA1, 2019)

IP theft and imitation are prominent issues occurring in the pharmaceutical industry (Shiva 2001; Goldberg 2010; Grace 2004). The lack of enforcement of IP protection causes potential issues (Bouet 2015) such as leakage of important secret data in the pharmaceutical industry. For example, Interviewee CE1 stated the following:

There is a chance of leakage of our patented data...that's the main barrier. You have to ensure that the people with access are not going to disclose our data to the competitors...because right now with [a] leak, innovation is very tough. And if any of our competitors has get any information from that, they might change their strategy, they will launch the product before us, and this [will] definitely create really high pressure on the organisation. (Manager, Interviewee CE1, 2019)

### **5.3 Theme 3: Capabilities and outcomes**

This section will uncover the aspects of capabilities required for firms to weather STORM conditions proposed in Chapter 2 of this thesis. Compositional capabilities are extended as part of organizational ingenuity through a CBV theory lens. As suggested in studies such as Luo and Bu (2018) and Luo and Child (2015), companies capitalising on their compositional capabilities help fortify unique competitive advantage over global competition. The branch of compositional capabilities from a CBV strategy provides a complementary understanding of how firms achieve positive outcomes by attaining organizational ingenuity to compensate for their weaknesses and overcome evolving external challenges within an emerging economy context. Compositional capabilities identified in this study include combinative, hardship-surviving, absorptive, intelligence, networking, and dynamic (CHAIN-D). All participants were encouraged to identify and elaborate on the unique ability of their respective firms to compensate for competence deficiencies and the weak institutional environment of the emerging economy for SMEs. The following section will answer the following research question as determined in Chapter 2:

- How does the concept of organizational ingenuity lead to outcomes such as innovations and business success?

### 5.3.1 Combinative capability

Combinative capabilities are stated to be the first compositional capabilities with which firms are equipped to pursue outstanding outcomes in a challenging market environment. Among the 12 case studies, 58 per cent distinguished combinative capabilities as relevant for firms to weather STORM conditions. At least one firm from each industry related to combinative capabilities as an ability required for generating creative solutions to overcome a challenging emerging economy environment. As noted in the literature review, combinative capabilities are defined as a firm’s mechanism of leveraging existing available generic resources, by disintegrating or combining resources, to create augmented products and services with cost efficiency (Luo, Sun, and Wang 2011; Luo and Child 2015). In this study, both physical and intangible resources—such as knowledge and management know-how—are considered essential for SMEs under combinative capabilities (Zonooz et al. 2011; Sun et al. 2021). Analysis of the interview data found key features of combinative capabilities that include (1) in-house solutions and (2) economies of scope, as presented in Table 30. In addition, Figure 12 highlights the 58 per cent of the interviewees who positively related to combinative capabilities. Findings from interview data confirmed combinative capabilities were needed by Firms A, C, D, G, I, J, and K.

Figure 12: Responses Related to Combinative Capability

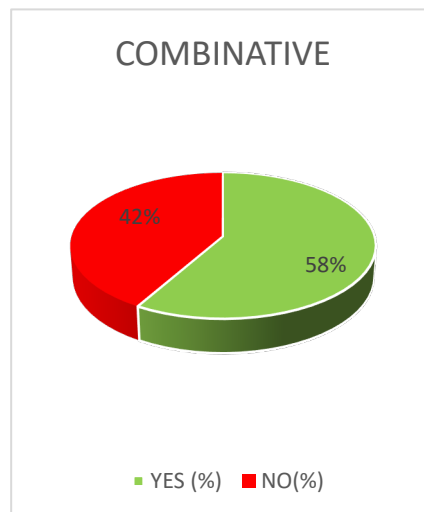


Table 30: Subcategories of Combinative Capability

1. Combinative capabilities	
1.1	In-house solutions
1.2	Economies of scope
1.2.1	Expansion in product range
1.2.2	Product localisation
1.2.3	Augmented solutions using same set of resources



Firm C leveraged its combinative capabilities with the decision to provide its own cloud services for the Indian market. With the existing resources, Firm C took the valuable approach of looking inside the organisation and crafting an improved solution to offer at a lower cost. In fact, Firm C participants stated that the creation of in-house cloud services for the Indian market allowed the organisation to produce augmented products at a lower cost in comparison with other major players in the industry:

...if you are getting XYZ configuration from Amazon...it will be a few 100 dollars...you can get a better configuration from our company...in the price of 20 to 40 dollars....  
(Head of Regional Sales, Interviewee CC2, 2019)

According to Firm C's website, the firm was able to leverage the current industry climate and was able to offer a 60 to 84 per cent discounted price for cloud services compared to other major players in the industry.

Findings discovered that, with combinative capability, some firms leveraged current resources to create variety in their product range. In this respect, firms can be seen extending the value of their products by offering an extended range of features, quality, and functions. For example, Firm A took advantage of existing resources to create different versions of its product offerings in the automotive industry. According to participants from Firm A, existing manufacturing facilities were utilised to develop two different outputs from the same resources. In this case, Firm A had the advantage of expanding their range of products without increasing cost.

The Deputy Manager of Marketing from Firm A stated the following:

We are manufacturing the same setup in our factories, two factories in Coimbatore, so we are developing two products which are hydraulic lift...we are using the same resources but just the product is completely different.... (Deputy Manager, Interviewee CA1, 2019)

In this regard, Firm A was observed to leverage combinative capabilities for economies of scope that ultimately created a novel outcome through organizational ingenuity. Firm A achieved organizational ingenuity with the aid of combinative capability. The company offset the challenges of limited resources by attaining cost savings by producing a variety of goods using the same set of resources, hence, achieving economies of scope.

The same occurred for Firm K which exploited its current available resources to generate a different version of its product offerings, focusing on localisation. Firm K redeveloped and customised their product offerings to meet the local demand. This was a simple conversion of language to localise the product offerings.

...in a few countries, we have recovered content, we have developed it, and we have gone localisation [sic], so that the existing barrier of language, we are pleased to be able to tackle it.... (Senior Manager, Interviewee CK1, 2019)

According to Firm K's website, there was a wide range of education solutions provided to cater to local demands, from customised solutions for a specific industry to a variety of preferred languages. In this instance, Firm K attained organizational ingenuity with the support of combinative capabilities by modifying available solutions tailored to local preference.

Firm B proved to utilise combinative capabilities to compensate for the disadvantage of lack of resources and offer a better service. According to participants from Firm B, available technology was enhanced to extend customer service, offsetting the concerns of lack of resources to manage customer enquiries. In this instance, a simple chatbot technology that Firm B could easily implement on their website added to the value of customer service for the company:

We got chatbot on our website...I mean, it's a very basic thing, to be honest. But you know, something of that sort is also I mean, could take care a lot of resource challenges. So we introduced a couple of these different parameters.... (General Manager, Interviewee CB1, 2019)

The effect of insufficient resources prompted Firm B to recombine existing available internal and external resources and create quick solutions to offset the disadvantage of limited resources. Evidence from Firm B's website confirmed that it was equipped with a chatbot function to automate simple tasks such as responding to clients' frequently asked questions or redirecting users to the right webpage. Interviewee CB1 stated that the chatbot function was one of the many initiatives that were cost effective as they were not radically increasing the company's overheads. In this instance, Firm B took advantage of internal resources and created a support system using existing resources to develop optimal customer service.

Combinative capabilities not only support firms to deliver an enhanced version of the output but there are examples where companies capitalised on combinative capabilities in value chain activities to pursue organizational ingenuity. For example, Interviewee CI1 stated that the company utilised combinative capabilities by manipulating existing manufacturing equipment to avoid the costs of new product development or purchasing costly new equipment. Firm I avoided the expense of purchasing a new machine to support the production of new products by modifying current manufacturing equipment. In this example, we see how firm I exploited existing resources—in this case the firm's manufacturing equipment—to produce new products, rather than purchasing new production equipment. The secondary data from 2020 revealed Firm I's competitive positioning in custom synthesis ability for

manufacturing. This ability of Firm I presented the company with an opportunity to customise bespoke solutions with cost efficiency as a competitive advantage.

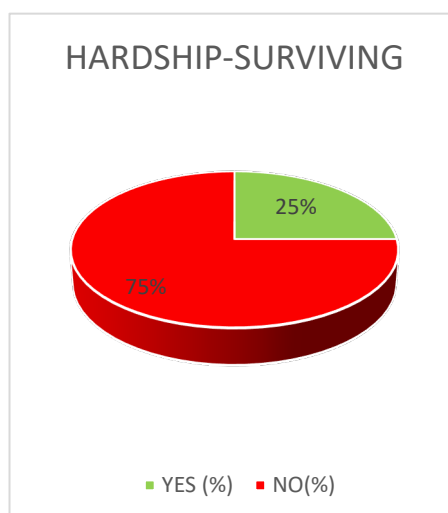
### 5.3.2 Hardship-surviving capability

Hardship-surviving capability highlights a firm’s adeptness in coping with the hardship and uncertainty presented in a weak institutional market of an emerging economy (Luo and Tung 2018). Strong hardship-surviving capability can help firms overcome enhanced challenges as SMEs operating in an emerging economy environment. Firms equipped with survival skills experience assurance when challenged in difficult environments (Koronis and Ponis 2018). Hardship-surviving capability was identified by participants from three firms interviewed in this study. Findings from interviews revealed that only Firms A, B, and K put forward hardship-surviving capability as relevant to attaining organizational ingenuity. The key findings on hardship-surviving capabilities are presented in Table 31 and include: (1) reactive response; (2) economic downturn; and (3) lack of institutional support within the industry. Only 25 per cent of the respondents confirmed hardship-surviving capabilities as a capability developed when attaining organizational ingenuity, as presented in Figure 13.

Table 31: Subcategories of Hardship-surviving capability

2. Hardship-surviving capabilities
2.1 Reactive response
2.1.1 Economic downturn
2.1.2 Lack of institutional support in the industry
2.1.2.1 Limited governmental supports in an industry
2.1.2.2 Limited funding

Figure 13: Responses Related to Hardship-Surviving



Firm K stated that the pace of industry growth in India can be a factor contributing to the setback of the education industry. The declining pace of higher education in India triggered Firm K to foster hardship-surviving capability and achieve organizational ingenuity to remain relevant in the industry:

You cannot go ahead with respect to business development as the direction is not the same in the country. For example, India is moving in a positive direction with respect to the economy, but this might not be in the same context for the development of the education industry...they may move at a slower pace...they may move in reverse direction...and we may be strong in the market but there is a time that we are in a complete standstill. So, we have to tackle this aspect with respect to the condition...it could be economic condition from time to time...it could be everything and we have to tackle it accordingly.... (Senior Manager, Interviewee CK1, 2019)

In this statement, the importance of a market-supporting environment was recognised as vital for success; without it, the company would need to foster hardship-surviving capability to pursue organizational ingenuity. Emerging economies such as India suffer in their decreasing level of access to public funding and uncertain policy associated with the higher education industry (Panigrahi 2019; Deshpande 2016). Therefore, hardship-surviving capabilities are developed as firms pursue organizational ingenuity.

For Firm A, hardship-surviving capability was different in the sense that it was only triggered when external pressures compelled the firm to come up with creative solutions to endure the challenging environment of the emerging economy.

Interviewee CA1 revealed the following:

The Government is putting some regulations on the automotive equipment manufacturers like Maruti and Honda to come up with electrical vehicles, so we will also be forced to come with service centres which cater to service centres of electrical vehicles, and this is a particular segment to survive in the industry. (Deputy Manager, Interviewee CA1, 2019)

Another indication of hardship-surviving capability—without revealing any confidential information noted by participants from Firm H—was the period when the company was overcoming the troubling time during the 2007 global financial crisis. Findings from Subbarao (2008), Kumar and Vashisht (2009), and Prasad and Reddy (2009) revealed the severity of the global financial crisis for the Indian economy. Interviewee CH1 stated that overcoming the global financial crisis of 2007 was a validation of Firm H's hardship-surviving capability. The same example was given by Firm B participants as the interviews focused on hardship-

surviving capability. The General Manager from Firm B stated the downfall of stocks or the market crash could significantly influence the company’s performance. It was in this event that the company was proven to capitalise on hardship-surviving capability to sustain business in the market.

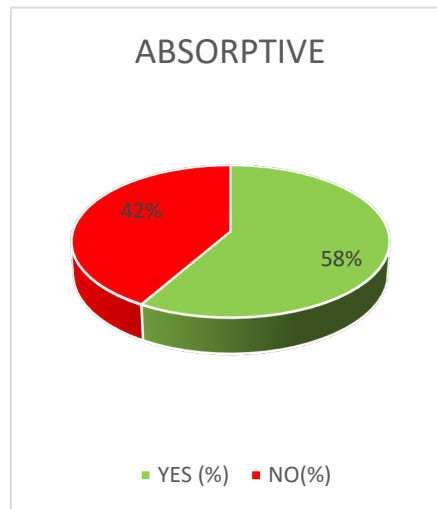
**5.3.3 Absorptive capability**

Absorptive capability is the third element of CHAIN-D capabilities identified as critical to weather STORM conditions. Studies such as Forés and Camisón (2016), Liu, Hu, and Kang (2021), and Wang and Han (2011) showed positive linkages between absorptive capability and innovative performance. As noted in the literature review, absorptive capability can be defined as the process of acknowledging, integrating, processing new knowledge, enhancing productivity level, fostering innovation ability, and gaining competitive advantage with knowledge transformation (Liu, Hu, and Kang 2021). Absorptive capability is unique in the sense that it emphasises the importance for firms to process knowledge and transform it to be valuable for firms. Absorptive capability is different from combinative capability in the sense that it recognises the value of knowledge as a resource, in addition to tangible or physical resources. Knowledge acquired is not valuable until firms utilise and process it to their advantage (Valentim, Lisboa, and Franco 2016). More than half of the respondents confirmed absorptive capabilities as an essential capability to develop when attaining organizational ingenuity, as presented in Figure 14. Table 32 illustrates some key findings of absorptive capability which include the following: (1) research and development; (2) exploitation of market gaps; and (3) building industry-specific knowledge. Firms A, B, C, D, E, H, and K confirmed absorptive capability as a vital element when attaining organizational ingenuity.

*Table 32: Subfactors of Absorptive Capability*

<b>3. Absorptive capability</b>
3.1 Research and development
3.1.1 Knowledge building
3.2 Exploitation of market gaps
3.3 Building industry specific knowledge

Figure 14: Responses Related to Absorptive Capability



The first example from Firm B emphasised the utilisation of absorptive capability to efficiently apply new knowledge to create better product offerings. Firm B activated absorptive capability through knowledge gained from knowledge building sessions

...we do a lot of knowledge building...coming back from training from South Korea, we adopt and absorb [knowledge].... (General Manager, Interviewee CB1, 2019)

From here on, Firm B worked on processing the knowledge gained from knowledge building sessions as part of the research and development process and transformed it into valuable information to create competitive advantage.

Firm C utilised absorptive capability through research and development focusing on reducing the cost of the solutions. In this instance, knowledge gained from research and development was solely focusing on reducing the cost of creating solutions for consumers. Knowledge acquired through absorptive capability was adapted for Firm C to create novel solutions to reduce the final output cost.

We work on providing the solution where is the main cultivation which we work on lowering the cost, how we can provide solutions...so instead of working on the native services, we provide which amount of cost we can reduce, we work on the open solutions...but more R and D is required.... (Head of Regional Sales, Interviewee CC2, 2019)

Participating pharmaceutical companies, such as Firm E, adapted knowledge acquired from clinical trials when creating prescription drugs, not only to develop new products but to adapt knowledge to meet the legal requirements imposed on the pharmaceutical industry in India.

The ability to learn and process knowledge and to understand the minimum legal requirements imposed in a heavily regulated pharmaceutical industry helped Firm E in its innovation process. In this instance, absorptive capability supported Firm E to access knowledge that was valuable to the firm to comply with mandatory pharmaceutical industry regulations.

We are considering lots of knowledge in clinical...not only trying to develop a new product...but we are doing innovation but focusing on regulated market.... (Senior Manager, Interviewee CE2, 2019)

Interestingly, absorptive capability for Firm H was leveraged to identify the gaps in the market among their competition. The following statement was given by a participant from Firm H when asked about absorptive capability:

And so, we go for gaps in competition...so, we have to be able to grasp that we have to be competitive as technology is not available...we have to be able to read the market and offer true competitive advantage activities.... (General Manager, Interviewee CH1, 2019)

For Firm H, understanding the market well gave the advantage of identifying gaps in the market. It is important to note that identifying a market gap would be worthless without Firm H's proven absorptive capability to process and transform such information to gain a competitive advantage. Absorptive capability supported Firm H in its organisational learning process and putting that into practice to create novel solutions. Absorptive capability is a vital organisational learning process for firms to evaluate, accumulate, and apply new knowledge to practice (Senivongse, Bennet, and Mariano 2019; Cohen and Levinthal 1990). Findings from Kim (1998), Lane, Salk, and Lyles (2001), Kim (2004), and Lichtenthaler (2009) stated effective organisational learning process to be based on a high level of absorptive capability.

#### **5.3.4 Intelligence capability**

Intelligence capability is the fourth capability identified under CHAIN-D capabilities. This is defined as a unique process of thinking to gain competitive advantages of cost, speed, or channel in decision-making processes by distinguishing, gathering, processing, and decoding market information to the firms' advantage (Luo, Sun, and Wang 2011). Information such as industry intelligence, market information, technology-related information, and regulations are utilised in firms' decision-making processes, leading to competitive advantage. Studies such as Quinton et al. (2018) illustrated how SMEs are guided by learning processes to take advantage of opportunities in the digital economy. Grunert and Norden (2012) found SMEs gain bargaining power from market information. Boohene, Gyimah, and Osei (2020) emphasised the moderating role of emotional intelligence on SMEs' performance. Ali, Miah, and Khan (2017) highlighted business intelligence as the guiding mechanism to improve

SMEs' decision-making processes, leading to positive outcomes such as achieving competitive advantages. Intelligence capability is unique as it defines firms' capability to comprehend market trends and improve decision-making processes. Only 25 per cent of the respondents found intelligence capabilities not to be critical for firms to attain organisational ingenuity. Findings of the cross-case analysis discovered the following key findings which are also presented in Table 33: (1) economies of scale; (2) technology expertise; (3) strong business acumen that is related to a specific industry; and (4) constructive feedback from different stakeholders. Firms A, C, D, E, F, H, I, J, and K all confirmed intelligence capability to be an essential capability supporting firms to achieve organizational ingenuity, as illustrated in Figure 15.

Figure 15: Responses Related to Intelligence Capability

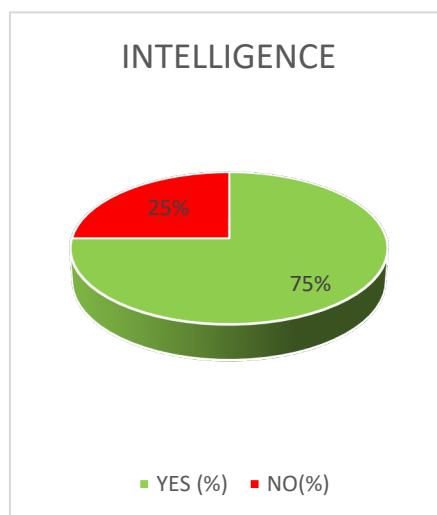


Table 33: Subfactors of Intelligence Capability

4. Intelligence capabilities
4.1 Economies of scale
4.2 Technology expertise
4.3 Strong business acumen related to a specific industry
4.3.1 Specific regulatory requirements in the industry
4.3.2 Industry-related knowledge
4.4 Feedback from consumers, suppliers, and industry experts

Firm A utilised its intelligence capability to gain competitive advantage in cost using existing resources available to the organisation. With its technology expertise and strong knowledge of the industry, Firm A gained competitive advantage by creating valuable product features at a low cost. Intelligence capability made it possible for Firm A to achieve organizational ingenuity and, with this realisation, the company creatively conjugated the creative thinking process, enhancing the value of existing output. This is an example of how firms craft novel



solutions without increasing the cost of production because of constrained environments, such as limited resources. In this context, Firm A utilised intelligence capability with strong acumen in technology and the automotive industry in India to gain competitive advantage in cost.

Interviewee CA1 added:

We haven't increased our cost at least...but innovated to new set of washers, available at higher cost but with better features and using the same setup...we have tried to keep our costs to minimal and this is done by innovation thinking. (Deputy Manager, Interviewee CA1, 2019)

In addition to the most obvious restrictions such as cost, other restrictions such as regulatory pressure enforced Firm A to evolve its process thinking which could ultimately lead to gaining competitive advantage. In this instance, market restrictions on water consumption led to Firm A activating intelligence capability as part of their decision-making process and creating novel solutions to overcome known legal restrictions. Restrictions on water consumption for Firm A demanded that the company pursued organizational ingenuity and this was made possible with intelligence capability. The restriction triggered from social pressure and regulatory requirements effectuated Firm A's mindset to create a product with the competitive advantage of cost:

We were almost forced to innovate in order to conserve the water usage. The same water used to wash is being reused...to reduce the pollution...we had to come up with a product which can give clean water and can save water. So from 270 litres of water per car, we have come down to 80 to 100 litres per car. (Deputy Manager, Interviewee CA1, 2019)

Whatever water is coming out from washing the car, you know after washing the car, we will be keeping the same water, for again using, for which around 80 per cent usable and 20 per cent will be thrown out. (Deputy Manager, Interviewee CA1, 2019)

From the 2019 investor presentation, we can see the same products were key products promoted by the company to appeal to markets such as Bangladesh due to their appeal in environmental conservation.

Firm C has taken the information regarding customer feedback to improve on the quality of its final outputs:

We hear from customers...what our customers say about the product, we develop our networks and technology based on what the customers are saying...and that is how

are stronger...the quality is different as we are hearing what the customers are saying.... (Vice-President, Interviewee CC1, 2019)

Information gained from customer feedback allowed Firm C to identify opportunities to improve on the quality of the products offered in the market. Firm C's efforts in improvisation were well supported by intelligence capability which ultimately allowed Firm C to achieve organizational ingenuity.

Firm H's use of intelligence capability was prompted by the need to avoid or reduce cost in product development:

...in order to avoid new cost...in order to avoid cost in new product development...we come up with new features in existing products and this allow us to minimise the cost of new product...we observed, like you know, how we can add new features that result in extra value added in services and avoid the cost of new product altogether.... (General Manager, Interviewee CH1, 2019)

In this instance, Firm H utilised intelligence capability through observation of the market and transforming such information to reduce cost and improve the company's products and services. A strong understanding of the market led Firm H to attain organizational ingenuity with the support of intelligence capability, using existing and available resources. Evidence from Firm H's website highlighted the company's effort and commitment to improve on efficiency and productivity in their manufacturing process. In addition, other evidence from the 2019 annual report highlighted Firm H's success in expanding the product range offered in the market by having a strong understanding of the market and the ability to process information available to improve on, and extend the value of, existing products.

Both Firm K participants noted intelligence capability to be an essential aspect that aided the firm to achieve success. According to Firm K's participants, knowledge of the market trends and requirements were important information guiding Firm K's decision-making process.

Unless, we have the experience, as well as the intelligence with respect to these markets and tackle them.... The market in respect to the requirements...this is business intelligence...and without them...we will not be able to decide correctly.... (Senior Manager Business Development, Interviewee CK1, 2019)

Intelligence capability led Firm K to respond adequately to the changing market of the education industry in India.

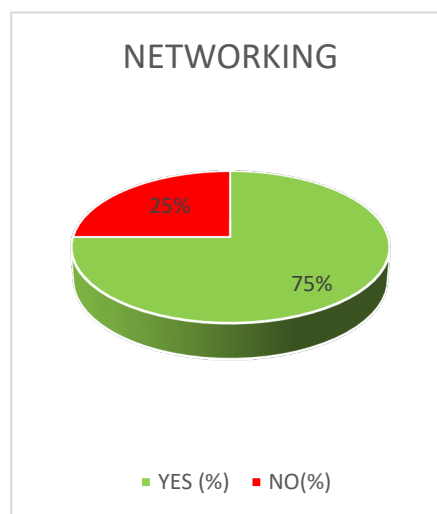
### **5.3.5 Networking capability**

Networking capability is the fifth component identified in CHAIN-D capabilities. This is a capability that considers the importance of external networks in the pursuit of overcoming and

tackling uncertainty and challenges in the emerging market. Numerous literatures have suggested that strategic resources are impossible to develop on their own but must be externally obtained (Arasti, Mokhtarzadeh, and Jafarpanah 2021; Tsai 2009; Lavie 2006; Das and Teng 2000). Networking capability is defined as the ability to create, develop, and exploit business connections for the benefit of the company (Mitrega et al. 2012; Arasti, Mokhtarzadeh, and Jafarpanah 2021). The essence of networking capability is based on firms' level of competency in networking activities that can lead to valuable benefits to organisations.

Research by Blyler and Coff (2003) reveals how social networks contribute to firms' ability to manipulate resources, especially as firms are faced with limited access to resources. Positive social ties grant firms the knowledge to overcome limited access to resources, especially for SMEs operating in an emerging economy. Results from studies such as Hilmersson and Hilmersson (2021), Carlos M (2011), and Gronum, Verreyne, and Kastle (2012) indicated strong ties between the role of networks in SMEs and business success, such as overall performance and innovation.

*Figure 16: Responses Related to Networking Capabilities*



A study by Bai, Holmström Lind, and Johanson (2016) argued that the positive influence of networking capability supports firms to gain international business knowledge that is essential for strong innovation performance. Leveraging networking capability provides firms with the opportunity to integrate knowledge and expand on existing resources whilst overcoming limitations of the market. Based on the data gathered from the interviews, Firms A, B, D, E, F, I, J, K, and L all strongly related to networking capability as essential to attaining organizational ingenuity, as illustrated in Figure 16. A total of 75 per cent of all respondents corroborated that networking capability was a capability required to attain organizational ingenuity. Table 34 presents the key findings related to networking capabilities which include (1) strategic alliances

and partnerships, (2) maintaining political connections, and (3) inter-organisational relationships.

*Table 34: Subfactors of Networking Capability*

<b>5. Networking capabilities</b>
5.1 Strategic alliances and partnerships
5.1.2 Positive reputation in the industry
5.2 Maintaining political connections
5.3 Inter-organisational relationships
5.3.1 Industry lingo
5.3.2 Upcoming industry trends such as latest developments, technology, etc.

Firm G's 2019 investor presentation highlighted the company's reputation in the industry through its enhanced networking capability, achieved by strategic alliances with leading companies such as Make Block, Intel, Microsoft, and many other key industry players. In this instance, strategic alliances opened the possibility for Firm G to gain and utilise inter-organisational knowledge to the company's advantage. In addition to strategic alliances, the company's secondary data highlighted its new strategic partnership with a new client that ultimately allowed Firm G to have an extensive network of doctors in its portfolio. Companies benefit from positive inter-organisational relationships with an opportunity of gaining knowledge from partners (Barringer and Harrison 2000). In the case of Firm G, leveraging networking capability allowed the opportunity for the firm to gain knowledge such as the latest technology development, current or upcoming industry trends, cost-effective solutions, and many others. Successful application of networking capability led to Firm G creating unique solutions from available resources and capabilities.

The General Manager of Firm K revealed that the company took advantage of political connections and maintaining a good relationship with the Indian Government.

Politically also, you need to be connected...suppose if there is a change in the government...you need to have a good relationship with the previous government and certainly the new government as it can bring in [positive effects] for your company....  
(General Manager, Interviewee CK2, 2019)

This example argues how good relationships with government can be a factor contributing to the company's success. In this instance, we see how Firm K relied on its good networking capability to positively influence the firm's success. Firm K's social capital led the firm's overall direction in terms of output and competitive advantage.

### 5.3.6 Dynamic capabilities

The final capability identified to be essential for firms' pathways towards organizational ingenuity is dynamic capabilities. This study has extended from CHAIN to CHAIN-D which includes the importance of firms' ability to respond to dynamic change in the business environment. Dynamic capabilities are defined as a firm's ability to adapt to strategic organisational routines and processes and achieve a new reconfiguration of resources to meet the market change (Eisenhardt and Martin 2000; Teece 2009; Teece, Pisano, and Shuen 1997). It is a unique ability that allows firms the prospect of surviving sudden change in the market. Firms complemented with dynamic capabilities are proficient in transforming inherent features of resources they possess and adapting organisational routines when challenged with unanticipated changes in the market. A study by Weaven et al. (2021) emphasised the positive influence of dynamic capabilities to SMEs' survival when facing obstacles. Wang, Senaratne, and Rafiq (2015) put forward an interesting perspective on dynamic capabilities being manifested with the combination of absorptive and transformative capability by IT SMEs when facing dynamic change in the market. Kurtz and Varvakis (2016) highlighted dynamic capabilities as essential for organisational resilience in unstable environments and when achieving sustainable competitive advantage. Dynamic capabilities are of added value to firms as they forge the path to create novel solutions through turbulent market environments. Findings from the interview data revealed 58 per cent of participants confirmed dynamic capabilities as essential to develop as firms attain organizational ingenuity. Key findings in relation to dynamic capabilities include (1) new niches in the market and (2) the ability to overcome dynamic change of the market, triggered by market disruption and intense competition, as presented in table 35. Interview data revealed Firms A, B, C, E, G, J, and K ascertained dynamic capabilities as necessary to achieve organizational ingenuity, as illustrated in Figure 17.

*Figure 17: Responses Related to Dynamic Capabilities*

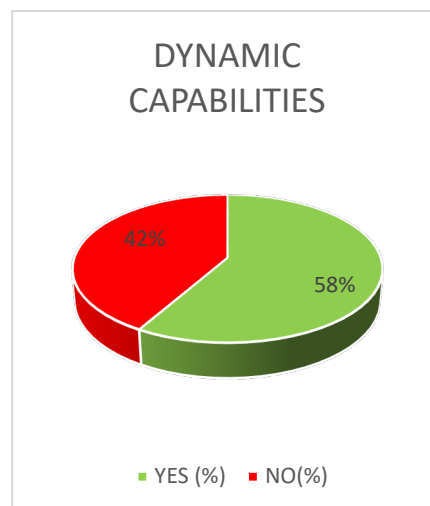


Table 35: Subfactors of Dynamic Capabilities

<b>6. Dynamic capabilities</b>
6.1 New niche in the market
6.1.1 Differentiation
6.1.2 Vertically integrated solution
6.2 Ability to overcome dynamic change of the market
6.2.1 Market disruption
6.2.2 Intense competition

Firm C interviewees stated that the company struggled as a start-up due to heavy competition among major players within the IT industry. The company was competing against major players in the industry, forcing Firm C to construct innovative solutions to survive. The data revealed how Firm C overcame such challenges through the ability to craft creative solutions within a challenging institutional environment and using limited resources with the support of the necessary capabilities. Teece, Pisano, and Shuen (1997) defined dynamic capabilities as a company's ability to adapt strategic routines and reconfigure available resources in response to the dynamic change of the market.

The following quote from Firm C's Vice-President illustrates how, with dynamic capabilities, the firm overcame its challenging phase:

...India is using cloud services across the nation from overseas only, there are major players like Amazon, Google, Alibaba, Microsoft...these are the dominant players of the cloud services...so we had no in-house info services, but at that point of time, we had five managements...took a decision that we should have our own cloud services for India market.... (Vice-President, Interviewee CC2, 2019)

Intense competition and the dynamic market of the IT industry forced Firm C to respond accordingly. A combination of entrepreneurial leadership, perception beyond traditional business operation, and a new focus on developing new products and services by leveraging strong dynamic capabilities is required in a complex and ambiguous environment (Teece 2017; Schoemaker, Heaton, and Teece 2018; Teece 2018). This example revealed how Firm C resorted to reconfiguring resources and processes to at least be on a par with direct competition in the industry.

Firm G emerged as the dominant player in the IT solutions industry through its vertically integrated solutions for the pharmaceutical and healthcare industries. In addition to the pharmaceutical and healthcare industries, Firm G also took the initiative to identify the market potential in providing integrated technology for the education system, specifically robotic kits and software programming. In this instance, Firm G demonstrated strong dynamic capabilities,

using existing resources to attain organizational ingenuity and leading the company to gain first-mover advantage.

In the expectation of a market shift towards electric vehicles, Firm A committed its available resources and capabilities to diversify in the market.

When we came up with [a] hydraulic lift, nobody in India was manufacturing hydraulic lift[s], not even China.... (Deputy Manager, Interviewee CA1, 2019)

In addition to the hydraulic lift, Firm A was also revealed to be in the process of developing a new innovative solution, known as a roadway washer, specifically for cleaning the road or urban street. This demonstrates Firm A's proactive measures through dynamic capabilities to create an ingenious solution to sustain competitive advantage. As a result, we see that Firm A supplemented with dynamic capabilities to attain organizational ingenuity as a response to changing consumer preferences in the industry. Findings in this section revealed Firm A's ability to obtain competitive advantage in the market by coming up with a new product option not yet available locally and proactively reconfiguring the firm's resources in anticipation of the dynamic change in the market.

Another example of Firm A's dynamic capability was their response to disruptive trends in the automotive industry, such as emergence of electric vehicles. To remain relevant in the industry, Firm A established a new niche in the market that allowed the company to offer differentiation in their product offerings.

We are working on project...which can be supplied to roadways...because every street has close to 50 depots...so, we are looking into 26 to 27 streets...so, the pressure is there...so this becomes part of our long-term strategy. (Deputy Manager, Interviewee CA1, 2019)

To keep up with the trend in the industry, Firm A took the initiative to develop a long-term strategy that allowed the company to stay relevant for a long time. This is very well due to the emerging trend of electric vehicle that could potentially threaten Firm A in the long run.

### **5.3.7 Outcomes**

Successful achievement of organizational ingenuity in combination with CBV is proposed to bring out the best in the organisation. Firms capitalising on compositional strategy, capabilities, and processes when overcoming external challenges—known as STORM conditions—with organizational ingenuity can be observed accomplishing numerous successful outcomes. The objective of organizational ingenuity through a CBV theory lens is to understand the role of both relatively new concepts when facing challenging conditions of an emerging economy. All firms in the study provided a few examples of outcomes achieved by firms, made possible with

the support of organizational ingenuity and CBV strategy. The key outcomes identified from the cross-case analysis are as follows: (1) sustainable competitive advantage; (2) augmented solutions through efficiency and quality; (3) sustainable growth; (4) improved consumer and employee experience; (5) awards and accolades; and (6) other positive outcomes such as patents and a positive reputation among clients and within the industry.

For Firm A, organizational ingenuity not only ensured successful product and process innovation but also supported the firm to gain sustainable competitive advantage in the industry.

We, of course, achieve innovative ideas and we have appropriate supports for this... we are steady in the market...but with organizational ingenuity we were definitely going to be fit in the market in a long time...we need to be looking for the future and this is something that we can achieve with ingenuity.... (Territory Sales Manager, Interviewee CA2, 2019)

Organizational ingenuity helped Firm B and Firm K understand the full perspective of the education industry. Firm B also stated an additional outcome of organizational ingenuity to help the firm achieve market efficiency, whereas Firm K identified an increase in quality solutions were made possible with organizational ingenuity.

It fully means that we get the perspective a full perspective of the industry...and there are multiple things to understand, and the consumers need...and organizational ingenuity helps in being innovative as an ability and supporting our organisation to be open to possibility.... (General Manager, Interviewee CB1, 2019)

Our training methodology which has changed because of organizational ingenuity has now become online...and then secondly, there are different benchmarks now that are important to us because we understand the industry...we know the industry.... (Senior Manager Business Development, Interviewee CK2, 2019)

Whenever we talk about innovation...the result will be there...this is the innovation... but in our case...the outcome of ingenuity is nothing but placement quality, student placements, which is unique in the industry.... (Senior Manager, Interviewee CK1, 2019)

Pharmaceutical Firms E, F, and I all expressed product quality and successful research and development to be outcomes of organizational ingenuity.



We were able to improve the quality and the database of our research and development...and that is a good motivation to our company.... (Manager, Interviewee CI1, 2019)

We have 13 different technologies which are based on organizational ingenuity...and this help us in developing our product...it creates a platform of which is important in research.... (Senior Manager, Interviewee CE2, 2019)

Firm F expressed organizational ingenuity to be a critical component to the organisation as it supported the company's growth in the long run.

Innovation is supporting our company...that is one thing...but the most important reason to develop creativity is you know...for growth of the company...the creativity can be a small idea, but it can help us achieve so much.... (Quality Assurance Manager, Interviewee CF2, 2019)

Firm C of the IT industry also identified growth in the industry as an outcome of organizational ingenuity whilst Firm D indicated enhanced customers' and employees' experiences as other positive outcomes of organizational ingenuity.

It is better to my organisation...the growth of my company as we started very small...we understand that now with organizational ingenuity it showed upon us things that help us understand the point of innovation and it [is] all coming together in a big picture.... (Head of Regional Sales, Interviewee CC2, 2019)

Innovation is one of the biggest ways that you know you are growing as an organisation.... (Head of Regional Sales, Interviewee CC2, 2019)

It's definitely supporting growth, excelling in terms of new customers and in terms of prospects...it is great at creating good employee experience, great customer experience.... (Customer Service Manager, Interviewee CD2, 2019)

Firm L indicated organizational ingenuity to be important as it was the pillar of the organisation. In fact, Firm L claimed that the support of organizational ingenuity helped the firm earn prominent industry awards and positive revenue

Organizational ingenuity is supporting us...our organisation...as innovation is the pillar of our company.... (Project Manager, Interviewee CL2, 2019)

Evidence from Firm L's website revealed the firm was received awards for its achievement and contribution to IT solutions in the Indian geospatial space.

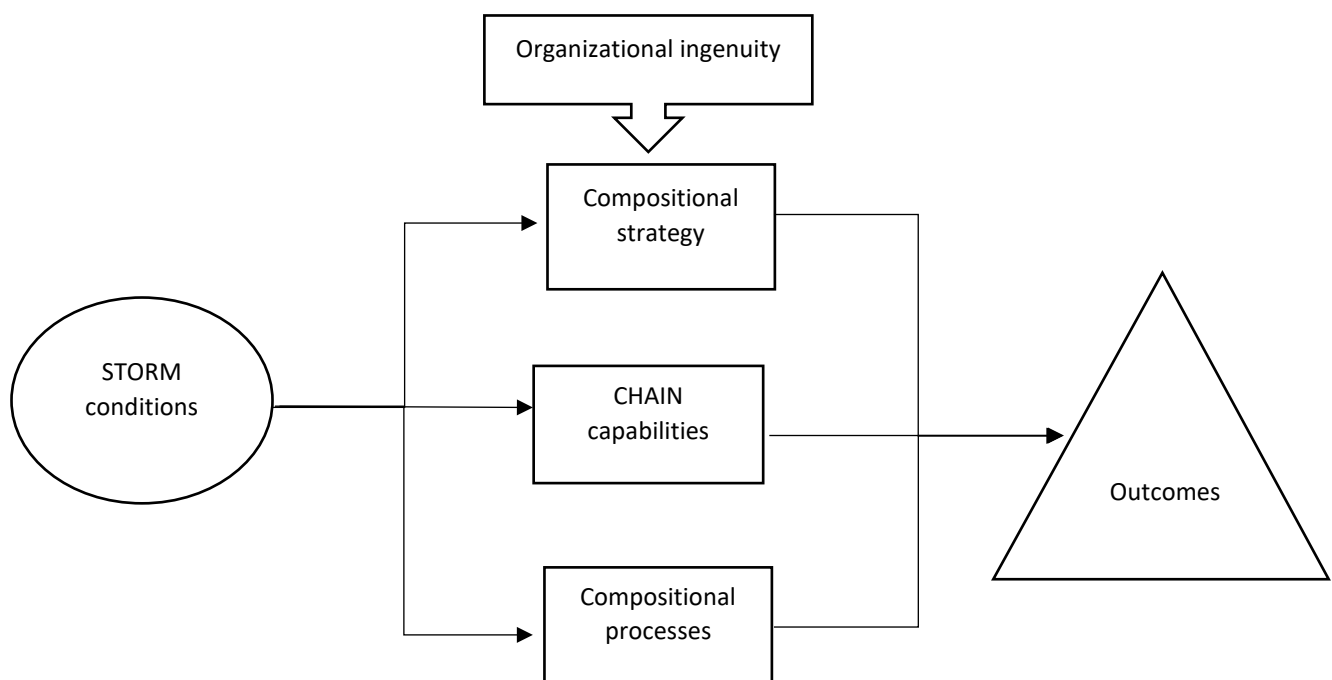
## Chapter 6: Discussion

### 6.1 Introduction

The findings from both within-case and cross-case analysis presented in the previous chapters are discussed in this chapter. This chapter aims to discuss the findings of this thesis. The main focus of this chapter is to compare and contrast the original framework and how it has been refined to incorporate new considerations from the data analysis detailed in previous chapters.

The original framework, as shown in Figure 18, presents the foundation framework established from the literature review.

*Figure 18: Conceptual Framework*



## 6.2 Discussion of findings

### 6.2.1 Organizational ingenuity and CBV theory

Table 36: Overview of Organizational Ingenuity and CBV

<b>Organizational ingenuity</b>
<b>Organizational ingenuity and CBV</b>
1.1 Motivation to become a market leader
1.2 Ability to overcome challenges
1.3 Acts of improvisation
1.4 Finding an edge to gain a competitive advantage

This study was motivated to further extend the understanding of organizational ingenuity in response to Lampel, Honig, and Drori's (2014) call to investigate how firms evolve and manage ingenuity. In this thesis, organizational ingenuity is presented through a CBV theory lens to compensate for inevitable disadvantages occurring in a volatile emerging market environment. This thesis presents organizational ingenuity as the way firms overcome barriers, such as limited resources and challenging institutional environments, with the aid of compositional strategy or CBV. The CBV theory lens serves as a foundation for SMEs to attain organizational ingenuity. Understanding the distinctive setting of an emerging economy, and how SMEs respond to such a state, is vital to providing insights for SMEs operating in a challenging emerging economy. To date, there have been no insights into SMEs attaining organizational ingenuity through a CBV strategy when overcoming the hypercompetitive environment of India. Therefore, this thesis advances knowledge of organizational ingenuity to recognise CBV alongside the creative composition of generic resources when overcoming the challenging environment of an emerging economy, such as India.

The findings highlight the importance of organizational ingenuity in the complex Indian market with a lack of institutional supports, uncertain market environment, and hypercompetitive market. The challenging emerging economy context motivates SMEs to develop creativity in business operation (Zutshi et al. 2021). Furthermore, a CBV is complementary to organizational ingenuity in supporting challenged SMEs to develop creative solutions using available generic resources and capabilities. The use of generic resources to overcome the challenging institutional environment in an emerging economy demonstrates a compositional process that defines the path to organizational ingenuity through a CBV strategy. The CBV explicates a new understanding of how SMEs attain organizational ingenuity to survive in a challenging emerging economy environment. Notably, the conceptual framework of organizational ingenuity incorporates the components of compositional strategy, capabilities, and processes.

The refined framework illustrated in Figure 19 extends the original theoretical framework to further dissect sub-patterns of organizational ingenuity. The findings of this thesis, as presented in Table 36, unfold four sub-themes of organizational ingenuity. These include: motivation to become a market leader; ability to overcome challenges; acts of improvisation; and finding an edge to gain a competitive advantage. These sub-themes are linked as key important factors forcing SMEs operating in a challenging business environment of an emerging economy such as India to attain organizational ingenuity. The discovery of these four sub-themes supports the main research question proposed in this study which is to *understand how SMEs constrained with resources and specific environment of an emerging economy achieve organizational ingenuity*. In addition, the four sub-themes of organizational ingenuity also reiterate *the organizational ingenuity as integral component for SMEs operating in an emerging economy*, as queried in the research question of this thesis.

The findings show that firms respond to the effects of the challenging context of emerging economies such as India by realising organizational ingenuity. Firstly, firms attain organizational ingenuity with the motivation not only to survive and sustain in the market, but to become the market leader. Findings reveal that organizational ingenuity is driven in firms with the motivation to dominate the market and industry. Organizational ingenuity with a CBV theory lens is critical to firms as it recognises the deliberate act of creative composition of generic resources and capabilities with the motivation to become a market leader. In this instance, organizational ingenuity is utilised by firms with the purpose of becoming a market leader.

For example, the upward trend in performance of the generic pharmaceutical industry is proven to reflect positively on the industry's status in India, as compared to the rest of the world (Joseph 2015). Post-radical change of India's regulatory environment transformed the Indian pharmaceutical industry landscape into one of the leading industries in the country (Kale and Little 2007; Athreye, Kale, and Ramani 2009). The same can be said for Indian SMEs in the IT industry, as demonstrated by the findings of this thesis. The IT industry in India represents the top innovation percentage in the country, based on the number of IP registrations (Wang, Huang, and Wu 2012; Anand 2022).

In this context, the deficiency of formal institutional supports is a major force for achieving organizational ingenuity, as demonstrated by findings on SMEs in India. This instance supported the view that organizational ingenuity is the mechanism through which firms can become market leaders. Findings reveal that the sole purpose of firms in the market is not just to exist and survive, but to achieve greater objectives, such as dominating the industry. Studies such as Cui, Meyer, and Hu (2014) and Krishnan and Jha (2011) indicated that

emerging economy firms' strategic intent is to catch up with the world market leaders. SMEs are increasingly seeking ways to emerge from the shadow of the world's market leaders.

Findings of this thesis reveal how Indian industries, such as pharmaceutical, IT, manufacturing, and education, are among those which have demonstrated strong intention to be market leaders. Findings reveal that Indian SMEs approach organizational ingenuity by matching the competitive pace of the industry. Furthermore, organizational ingenuity is revealed in findings as a mechanism that supports SMEs in resolving issues related to product or process limitation. Organizational ingenuity plays an important role in the evolutionary growth of SMEs in an emerging economy to establish a strong global position. Findings further note that the motivation to become the market leader also helps firms gain first-mover advantage as a competitive advantage. This thesis underlines the significance of organizational ingenuity as a mechanism for firms operating in an emerging economy context.

Secondly, findings indicate that organizational ingenuity is vital to overcome challenges in an emerging economy such as India. Emerging economies such as India are known to experience diverse challenging characteristics and to experience resource deficits (Kotabe, Jiang, and Murray 2017). Studies such as Peng and Heath (1996), Kumaraswamy et al. (2012), and Aulakh and Kotabe (2008) strengthened the view that firms in emerging economies undertake radical strategies as an adaptive response to the loss of strong government protection and market-supporting conditions. This thesis extends the view of organizational ingenuity as being critical to SMEs when conquering the challenging context of the emerging economy environment.

Organizational ingenuity is necessary, especially for vulnerable SMEs manoeuvring the ups and downs of the emerging economy environment. Findings clearly indicate the positive role of organizational ingenuity for vulnerable SMEs in an emerging economy. Findings indicate that SMEs consider organizational ingenuity through a CBV lens as an integral business component, emphasised by the creative composition of resources and capabilities for success.

Organizational ingenuity in this instance supports SMEs in an emerging economy, such as India, to engage original thought processes that lead to a creative view of business operation. For example, SMEs in the education industry indicated that the lack of governmental supports in the education system pushes SMEs to proactively identify gaps in the market. SMEs in the pharmaceutical industry expressed similar perspectives on organizational ingenuity, citing resource limitation and pressures for cost efficiency as key contributors to pursuing organizational ingenuity. While prior studies of organizational ingenuity focus primarily on the capacity for creative solutions within structural constraints, findings from this thesis further

emphasise the important role of organizational ingenuity for SMEs to overcome such challenging structural constraints.

Current understanding only defines organizational ingenuity as a creative implementation of available resources to cope with institutional constraints and a challenging business environment (Banerjee 2014; Kannan-Narasimhan 2014; Lampel, Honig, and Drori 2011, 2014; Walker, Schlosser, and Deephouse 2014; Rosso 2014). However, this thesis extends organizational ingenuity as an integral component for firms to overcome institutional constraints and the challenging business context of India. A study by McCarthy and Puffer (2016) appeared to reiterate the opportunities that may arise in an environment lacking institutional market support. Organizational ingenuity introduces a new perspective for SMEs to recognise opportunities, in contrast to the typical expectation of failure in the challenging environment of an emerging economy. Findings on SMEs from various industries including, but not limited to, those in this study (education, pharmaceutical, and manufacturing) highlight the opportunities presented by complications associated with operating in an emerging economy. For example, findings on SMEs in the education industry highlight organizational ingenuity to be the process allowing these firms to identify available opportunities for continuous growth in the market. In such instances, findings reveal that organizational ingenuity is critical for SMEs to create novel solutions when conquering a lack of institutional supports and the competitive market of India. SMEs recognise opportunities presented within constraints for successful achievement of organizational ingenuity. Based on these findings, organizational ingenuity is demonstrated to be vital as SMEs face the dynamic market of an emerging economy.

Organizational ingenuity is further enhanced with a third sub-theme that highlights the link between improvisation and organizational ingenuity. Findings reveal that organizational ingenuity is an integral component supporting firms to improve on existing solutions or processes. It can be noted that organizational ingenuity aids firms in improving available resources, solutions, and processes to overcome the hypercompetitive environment of an emerging economy. Organizational ingenuity reveals firms' true potential by providing a new understanding of how they can work within existing circumstances to overcome India's challenging business environment. For example, findings reveal that firms adapt to the turbulent environment of India with a commitment to in-house production to improve on value chain activities. In this instance, organizational ingenuity is not just about crafting novel solutions from available resources and capabilities; it also recognises the added features contributing to organizational ingenuity, such as improvisation. Firms respond to existing competitive and limited institutional supports through improvisation. For example, findings highlight firms' improvisation through creative composition of available resources and

capabilities by improving on existing business processes in response to external forces, such as emergence of foreign competitors in the industry. In this instance, firms respond to external forces, such as foreign competitors, by creatively improving upon existing processes using available resources and unique capabilities.

Finally, the enhanced framework presented in Figure 19 is particularly valuable in providing new insights into organizational ingenuity to uncover firms' competitive edge. In this regard, organizational ingenuity is leveraged as the mechanism to help firms identify their distinctive competitive advantage to sustain in a challenging business environment. Findings reveal that organizational ingenuity supports firms in discovering their niche focus in the market as well as point of differentiation in the industry. In addition, organizational ingenuity is the bridge to identifying market gaps and gaining competitive advantage. Findings reveal firms' creative solutions as they respond to customer feedback and existing solutions available in the market. The findings of this section positively support the first research question on the importance of organizational ingenuity as an integral component for SMEs operating in an emerging economy. A CBV strategy is well supported as the missing mechanism to alleviate resource constraints for SMEs operating in the demanding market environment of an emerging economy. The additional four sub-themes of organizational ingenuity, based on the study findings, contribute to the nuances of organizational ingenuity that had yet to be explored in current literature.

### 6.2.2: Frugal Innovation in Organizational Ingenuity and CBV

*Table 37: Overview of Frugal Innovation in Organizational Ingenuity and CBV*

<b>Frugal innovation in organizational ingenuity and CBV</b>
1.1 Cost efficiency through value chain activities
1.2 Improved design in product packaging
1.3 Cost leadership through vertical integration

This section discusses the findings with reference to the relationship between frugal innovation and organizational ingenuity through a CBV lens. The summary of findings in reference to the relationship between frugal innovation and organizational ingenuity is presented in Table 37. Organizational ingenuity implies the formulation and implementation of creative solutions using available resources and capabilities when constrained within a challenging business environment. However, this thesis extends insights into organizational ingenuity as part of optimising cost in business operation. The pressures of limited resources in an emerging economy context demands that firms optimise cost efficiency in business activities and final outputs (Li 2018). Therefore, this thesis determines the overlapping qualities of frugal innovation in organizational ingenuity and a CBV lens.

Firstly, findings reveal that frugal innovation is achieved with organizational ingenuity through compositional strategy, processes, and capabilities by achieving cost efficiency in value chain activities. Zeng and Williamson (2007) argued that many firms in emerging economies can deliver cost effective innovation. O'Reilly III and Tushman (2013) and Luo and Rui (2009) indicated that emerging economy firms are usually ambidextrous—pursuing disparate objectives such as customised design and cost-effective mass production. Findings indicate that SMEs seek creative approaches while reducing costs associated with manufacturing activities. This was exemplified by the modification of manufacturing equipment which allowed firms to create various product outputs without increasing production cost. Frugal innovation achieved with organizational ingenuity can be demonstrated here by firms' efforts in utilising and leveraging available resources to produce enhanced solutions. The lack of unique resources pressures firms to leverage existing resources through creative thinking processes.

Secondly, findings indicate an example of creative implementation in product packaging design as an approach to cope with limited resources. Notably, organizational ingenuity and a CBV strategy supports firms in leveraging available resources for cost optimisation in design of product packaging. Findings suggest that focusing on improving design of final products to reduce costs helps firms to increase profit margins. In this instance, firms not only look for opportunities to reduce cost in manufacturing activities but also identify cost-saving potential in modifying product design. Analysis shows that firms facing a multitude of challenges within an emerging economy are compelled to exercise frugality. For example, a simple upgrade on product packaging design helped one firm in the study achieve cost savings.

Finally, findings highlight cost leadership strategy as an approach for firms to achieve cost-effective and novel solutions in a constrained emerging business environment. Findings from case studies reveal that cost leadership strategy was implemented through vertical integration. For example, some firms' incentives were to integrate vertically into research to engage in cost-reducing solutions. Firms' efforts in vertical integration allowed better coordination in both production and distribution processes which ultimately helped them achieve cost savings. Investment in vertical integration is proven to support firms in reducing uncertainty in the market and observing systematic approaches to innovation (Liu 2016; Armour and Teece 1980; Lahiri and Narayanan 2013).

Yielding to cost leadership strategies indicates firms' objectives to achieve competitive advantage. Firms respond to the constrained environment of an emerging economy by developing entrepreneurial orientation to ensure survival in the market. Studies on organizational ingenuity have yet to incorporate frugal innovation as an important part of the concept. However, this thesis highlights the intersecting attributes prominent in organizational



ingenuity through a CBV lens when faced with a constrained market environment. Organizational ingenuity through a CBV strategy recognises the unique potential of generic resources and capabilities as part of creating cost-effective solutions. Findings in this section support the research question aiming to understand how firms create cost-effective, ingenious solutions in the constrained and challenged environments of an emerging economy.

### **6.2.3 STORM conditions**

As stated in Chapter 2 of this thesis, there are factors or forces that compel SMEs operating in an emerging economy towards organizational ingenuity. The presence of an institutional void is further heightened in an emerging economy environment when compared to developed or advanced economies (Khanna and Palepu 2010; Luo and Tung 2007; Peng 2007). The distinctive institutional context of an emerging economy requires firms to strategise differently than in mature economies (Bruton, Dess, and Janney 2007). This study explores how SMEs in the emerging economy of India are led by those challenges to pursue organizational ingenuity. This thesis proposes that these external forces or challenges are antecedents to organizational ingenuity. By pinpointing the antecedents of organizational ingenuity, this study provides insights into firms' trigger points towards organizational ingenuity. This thesis argues that organizational ingenuity, complemented by compositional strategy, allows SMEs in India to overcome such challenges and survive in a very complex business environment. Literature review suggests social, technology, organisational, regulatory, and market conditions as factors forcing Indian SMEs to pursue organizational ingenuity. The findings of the thesis indicate that each of the STORM conditions should be expanded into further in-depth detail or subcategories to understand how each of these challenges push firms to pursue organizational ingenuity. Table 38 shows each subcategory discovered under STORM conditions. These subcategories were developed using data from semi-structured interviews conducted among SMEs from various industries in India. The current framework indicates the basic challenges or forces that ultimately push firms to attain organizational ingenuity.

Table 38: Overview of STORM Conditions

<b>External conditions (STORM)</b>
<b>1. Social condition</b>
<ul style="list-style-type: none"> <li>1.1 Purchasing power</li> <li>1.2 Informal institutions               <ul style="list-style-type: none"> <li>1.2.1 Local norms, cultural practices, or religion</li> <li>1.2.2 Language</li> </ul> </li> <li>1.3 Local market trend</li> <li>1.4 Local system and infrastructure</li> <li>1.5 Market awareness               <ul style="list-style-type: none"> <li>1.5.1 Lack of understanding of available modern solutions due to limited education</li> </ul> </li> </ul>
<b>2. Technology condition</b>
<ul style="list-style-type: none"> <li>2.1 Technology disruption               <ul style="list-style-type: none"> <li>2.1.1 New technology trend</li> </ul> </li> <li>2.2 Gaps in technology</li> <li>2.3 Technology access               <ul style="list-style-type: none"> <li>2.3.1 Technology for convenience</li> <li>2.3.2 Technology for productivity</li> </ul> </li> </ul>
<b>3. Organisational condition</b>
<ul style="list-style-type: none"> <li>3.1 Entrepreneurial orientation or behaviours               <ul style="list-style-type: none"> <li>3.1.1 Risk-taking</li> <li>3.1.2 Developing specialisation or niche in the industry</li> <li>3.1.3 Corporate-level strategy of diversification</li> </ul> </li> </ul>
<b>4. Regulatory condition</b>
<ul style="list-style-type: none"> <li>4.1 Industry-based regulatory requirements</li> <li>4.2 Political influence               <ul style="list-style-type: none"> <li>4.2.1 Political uncertainty</li> <li>4.2.2 Bureaucracy</li> </ul> </li> </ul>
<b>5. Market condition</b>
<ul style="list-style-type: none"> <li>5.1 Limited awareness</li> <li>5.2 Intense level of competition—entrance of foreign competitors</li> <li>5.3 Locational advantage               <ul style="list-style-type: none"> <li>5.3.1 First-mover advantage</li> <li>5.3.2 Cost advantage</li> </ul> </li> <li>5.4 Imitation               <ul style="list-style-type: none"> <li>5.4.1 Copycats</li> <li>5.4.2 Risk of intellectual property rights theft</li> </ul> </li> </ul>

### ***Social condition***

The first component in the empirical framework for firms to achieve organizational ingenuity is identified as social condition. In this thesis, the challenging social structure in India is considered as one of the factors that contributes to firms pursuing organizational ingenuity. As stated in the literature review, social condition in this study is defined as a gap and division of socio-economic development of a country. The complexity of economic structure and institutional environment of an economy represents the significant distinction between developed economies and emerging economies (Luo 2001). The root causes of inequality in emerging economies include limited access to education, regional divides between urban and rural areas, career progression, income inequality, and many other concerning factors (OECD 2011). Social condition outlines the potential social context that can add pressure to the already challenging business environment of India, forcing SMEs to creatively manoeuvre such challenges to survive. The nuances of social structural characteristics are recognised as important in understanding how a specific social context can empower firms to attain organizational ingenuity. Findings from interviews reveal supplementary characteristics of social condition that trigger Indian SMEs to pursue organizational ingenuity. Findings outline five characteristics of social condition: (1) purchasing power; (2) informal institutions; (3) local market trend; (4) local system and infrastructure; and (5) market awareness.

Firstly, findings indicate purchasing power is among contributing factors under social condition that force firms to develop novel solutions. Findings show that firms are under perpetual pressure to adapt to different levels of purchasing power in the countries in which they operate. The level of purchasing power plays an indirect role in fostering an environment that forces firms to continuously innovate and come up with creative solutions as a response to local conditions. Examples from findings reveal firms are compelled to develop novel solutions that meet the different levels of purchasing power. In this instance, firms are forced to craft innovative solutions with different price points and variations due to the characteristics of purchasing power under social condition. One example from findings indicated purchasing power made a firm explore a different approach to cost reduction that ultimately led to offering a low-priced range of products. Another good example noted different levels of purchasing power; specifically, low-level purchasing power of a market led to firms pursuing organizational ingenuity in product development to adapt to the specific market.

The second characteristic of social condition is identified to be informal institutions. Findings reveal that aspects such as local norms, culture, and religious practices to be sub-characteristics defining informal institutions. Data analysis indicates that firms are affected by certain social dynamics such as social and cultural norms. Studies such as Xia and Liu (2021) and Deng et al. (2022) emphasised the effects of cultural and social values on organisation

learning capacity which, in turn, affect innovation-related activities. This thesis discovers that local cultural norms affect firms' decision-making processes by influencing facets of product offerings or solutions offered in the market. Findings reveal that firms are compelled to create novel solutions in response to specific limitations imposed by social dynamic characteristics. In another example from the findings, different religious practice forced a firm in the education industry to review and seek alternatives in training solutions to adapt according to local demand. In addition, language barriers are also identified as a characteristic under social condition which can lead to firms pursuing novel solutions in the challenging environment of an emerging economy. In this instance, firms are compelled to develop creative solutions using available resources as a response to the social dynamics of cultural norms and religious practices.

Local market trend is discovered to be the third component characterising social condition. Findings reveal that specific local market trends, triggered by a specific social dynamic, lead to firms adapting to find creative solutions. For example, firms in the education industry adapt short courses offered in a specific area according to emerging local trends. Findings also reveal that, in other locations, a newly developed syllabus might not be as welcome or accepted and, therefore, organizational ingenuity is pursued to explore alternatives that would appeal to the local market. Local market trend in this context is an aspect of social condition that demands firms to explore creative solutions using available resources and capabilities to adapt according to the local market trend.

The fourth component of social condition is discovered to be accessibility of local systems and availability of infrastructure. Findings indicate that firms are challenged with poor infrastructure which, in turn, propels firms toward organizational ingenuity. Furthermore, a lack of supporting infrastructure acts as leverage for firms to explore potential gaps in the market. Findings note that availability of infrastructure and systems can significantly influence the operation of a firm. An example from a case study in the education industry illustrated that the poor education system in India compels organisations to focus on product development for a specific target market. All available resources and capabilities are committed to finding creative solutions that meet the expectations of a target market.

The final component that characterises social condition is identified to be market awareness. Findings reveal that the lack of understanding of available modern solutions is a challenge for firms to sustain operation in the demanding market environment in India. The effects of market awareness constrain firms' competitive positioning in the market. Thus, a lack of awareness of a specific market constrains firms' potential for innovation. Findings reveal that the market is significantly apprehensive about new and advanced solutions due to lack of awareness of

such available solutions. Firms are affected in such a social condition due to the market's lack of understanding of the value of potential solutions offered by the company. Existing studies on organizational ingenuity have noted structural and institutional constraints force firms to pursue organizational ingenuity (Banerjee 2014; Cunha et al. 2014; Kannan-Narasimhan 2014; Lampel, Honig, and Drori 2011, 2014; Siqueira et al. 2015; Walker, Schlosser, and Deephouse 2014). This thesis contributes to the understanding of organizational ingenuity by introducing new characteristics specific to social condition that are applicable as forces pushing firms to attain organizational ingenuity.

### ***Technology condition***

Firms in developed economies identify access to technology as one of the main contributors to innovation (Luo, Sun, and Wang 2011). However, it is noted that there is a stark contrast between developed and emerging economies when it comes to access to advanced technology, with emerging economies enduring a lack of access to advanced technology. Firms facing challenging technology condition ultimately obtain critical new knowledge from both internal and external sources (Grigoriou and Rothaermel 2017). No available studies of organizational ingenuity have acknowledged technology condition as one of the critical factors pushing firms to attain organizational ingenuity. This thesis expands on the existing theoretical framework by adding technology condition as a factor that compels firms to create novel solutions using available resources and capabilities.

This thesis identifies three characteristics defining technology condition: (1) technology disruption; (2) technology gap; and (3) access to technology. Continuous disruption in technology is a significant threat that necessitates active management of existing generic resources, including technology resources, to ensure appropriate adaptation to market demand (Bruton, Dess, and Janney 2007; Munir 2003). Findings indicate that disruption in technology is among the reasons for shifts in an industry's dynamic. For example, technology disruption in the automotive industry, such as the emergence of electric vehicles, has significantly shifted the industry (Ferràs-Hernández, Tarrats-Pons, and Arimany-Serrat 2017). Firms are obliged to respond to rapidly evolving technology condition to sustain operation in the market. Findings indicate that technology condition, such as technology disruption, compels firms to seek creative solutions that are suitable for an evolving market.

The second component of technology condition is identified as a gap in technology which also compels firms to pursue organizational ingenuity. Based on findings, firms pursue organizational ingenuity with the motivation to bridge market gaps related to technology. Firms engage in organizational ingenuity as they identify potential in specific technology gaps in the market. For example, firms investigated in the IT industry recognised the absence of local cloud services in India as an opportunity. In this situation, firms take innovative leaps to fill

specific technology gaps to compete with major competitors. Using organizational ingenuity, firms collectively gather available resources and exploit existing capabilities to explore further technological possibilities. Such exploration allows firms to achieve a sustainable competitive advantage in the market.

The final component of technology condition is identified as access to technology. Findings indicate that the level of technology access influences firms' productivity and performance. Studies such as Tsai and Wang (2008) and Hung and Tang (2008) clearly indicated how firms' performance is influenced by access to technology. Findings indicate the negative effects of business performance due to limited access to advanced technology in a specific location. For example, findings reveal that businesses' decision-making processes are adapted and compromised due to a lack of technology access. Firms are pressured to repurpose available resources and exploit capabilities to compensate for the lack of technology access in a specific market. Firms are also compelled to attain organizational ingenuity with limited access to technology to increase the level of operational efficiency. This sometimes includes modification of existing technology to compensate for the lack of access to advanced technology.

### ***Organisational condition***

Anticipation of the challenging emerging market condition of India drives devotion to entrepreneurial behaviours that encourage firms to be more innovative, risk-taking, and creative (Pérez-Luño, Saporito, and Gopalakrishnan 2012; Li, Huang, and Tsai 2009). Entrepreneurial orientation or behaviours are determined to be components defining organisational condition. Entrepreneurial orientation in this context emphasises firms' need to cater to the local context of India; this may include firms focusing on specific niches or specialisations through organizational ingenuity. As explained in the literature review, entrepreneurial orientation is a critical trait attributed to organisational condition, facilitating unique knowledge creation from existing resources and the challenging context of an emerging economy.

Organisational condition is defined as a force contributing towards firms' motivation to exploit the combination of existing generic resources and capabilities for the creation of novel solutions. In this thesis, organisational condition characteristics include (1) risk-taking behaviours, (2) developing a niche focus, and (3) diversification strategies. The role of entrepreneurial orientation of organisational condition is perceived as an influence that pushes firms to attain organizational ingenuity. Firms develop entrepreneurial behaviours such as an inclination towards risk-taking, developing specialisation in the industry, and implementing diversification strategies to gain competitive advantage.

Findings indicate that entrepreneurial orientation of SMEs is initiated to overcome the constraints of an emerging economy. Studies such as Ferreira et al. (2021) and Gruber-Muecke and Hofer (2015) are among many confirming the influence of entrepreneurial orientation on the performance of SMEs. Research by Xiao et al. (2022) provided a holistic understanding of firms' proclivity for entrepreneurial orientation in emerging economies. Findings from this thesis indicate risk-taking behaviour orients firms to enter a new market or expand on existing markets.

Additionally, findings indicate that entrepreneurial orientation, as a specific dimension of developing a niche focus, is activated as firms overcome the constrained environment of an emerging economy. Firms deviate from their existing focus and explore different market potential which, in turn, helps them stay relevant in the industry. The emerging economy context compels firms to develop a specific organisational condition encouraging entrepreneurial orientation which, in turn, drives them to attain organizational ingenuity. Thus, organisational condition facilitates firms to pursue organizational ingenuity.

Finally, diversification strategy is recognised under organisational condition. Based on thesis findings, firms diversify their entrepreneurial behaviour as a response to the existing market condition. The nature of an emerging economy, which includes constrained environment characteristics, necessitates firms to implement diversification strategies for competitive advantage. Findings reveal that firms fully commit available resources as a firm-level response when implementing diversification strategies. In this instance, entrepreneurial orientation helps firms attain organizational ingenuity as a response to a demanding emerging economy environment through diversification strategies. Firms in the study noted that diversification strategy is among the proactive approaches to initiating long-term plans to remain competitive in the industry.

### ***Regulatory and political condition***

The regulatory condition of a country plays a vital role in providing stability for firms (Li and Kozhikode 2008). Formal institutions, such as property rights, regulation, transparency, and accountability in an emerging economy context such as India are not well enforced and defined. These conditions lead firms to heavily rely on an informal institutional framework for structured business operations (Estrin and Prevezer 2011). In this thesis, it is discovered that facets of regulatory and political conditions include (1) industry-based regulatory requirements and (2) political influence.

Findings show firms are forced to exploit available resources and leverage existing capabilities as a response to industry-specific regulations. For example, the heavily regulated pharmaceutical industry influences firms' operations in areas such as registration of patents,

ingredients, distribution formats, and drug formulations. Firms are compelled to craft creative solutions to comply with legal requirements and regulations. A case study example revealed the importance of organizational ingenuity as firms were compelled to cut costs for rudimentary requirements in the manufacturing process to offset the added cost associated with adapting to legal requirements of the pharmaceutical industry. A similar example from the education industry emphasised that firms need to adapt training solutions offered in the market to comply with local industry requirements. Firms in the automotive industry indicated that various facets of environmental regulations significantly impacted the firms' overall operation. Firms put greater effort into innovation and improving product performance due to environmental regulations enforced in India (Chakraborty and Chatterjee 2017; Bharadwaj 2018; Herman and Xiang 2020). For example, this thesis found that a water consumption limit law introduced in India forced one firm in the automotive manufacturing industry to create an automated car wash with a water efficiency feature.

Political influence is another characteristic contributing to regulatory and political conditions. Political influence is determined to be one of the factors that force firms to attain organizational ingenuity. Findings illustrate how political influence forces firms to seek creative approaches to reduce the cost of solutions. For example, the competitive positioning of firms in the education industry is threatened by the local government offering subsidised training solutions in the market. The local government offered subsidised training solutions as an election promise. According to Altbach (1993) the Indian education system is overwhelmed by the influence of political factors in the industry to the point that decisions such as academic staff appointments, curriculum, and student admissions are politically motivated. Other political influence can be observed through firms needing to adapt business operations to bypass political instability incidents such as lack of transparency and corruption. Political instability in India can potentially increase agency cost of business transactions and impact day-to-day economic pursuits (Bussell 2018; Heston and Kumar 2008). In this instance, firms are compelled to craft novel solutions using available resources as they adapt to an uncertain emerging economy environment.

### ***Market condition***

Volatile market condition is another identified force that can push firms to pursue organizational ingenuity. The market uncertainty of an emerging economy empowers SMEs to look beyond the traditional approach and strive for excellence through innovative pathways. The growth potential of emerging markets such as India remains among the large number of low-income consumers in rural regions (Samuel Craig and Douglas 2011). Major income fragmentation in India results in different consumer demands and purchasing power, especially among low-income consumers, which influences firms' organizational condition.



The level of uncertainty in a volatile emerging economy market is a threatening setting for firms. In other words, such an unpredictable market condition can trigger firms' creative thinking processes by fusing available generic resources and internal capabilities to pursue unique growth pathways. Findings reveal that there are four nuances fostering volatile market condition which include (1) limited awareness of the market, (2) intense level of competition, (3) locational, first-mover, and cost advantages, and (4) risk of imitation.

The first contributing factor under market condition is identified as lack of market awareness. Findings reveal that firms are threatened by the lack of awareness of stakeholders, such as consumers, which is a contributing factor to market condition. Firms that continuously innovate are threatened by the concerns of consumers not recognising the value of innovative added features. The lack of consumer knowledge related to an industry can, in turn, lead to consumers preferring traditional or former practices and products. Thus, firms are unable to appeal to the market with solutions that are innovative and cost efficient in production. In this instance, firms are compelled by market condition to identify creative solutions focusing on simplicity and minimalism.

Emergence of competitors, both local and foreign, is another contributing factor identified under the volatile market condition of emerging market. Findings reveal that the entrance of foreign competitors has threatened already vulnerable local firms operating in a challenging emerging economy. Based on findings, firms respond to such threats of market condition by implementing frugal tactics and quick-fix solutions. In this instance, firms may localise or reshore manufacturing activities for rapid turnaround in production, rather than outsourcing. Firms respond to the entrance of foreign competitors in a competitive market through the locational advantage of moving production locally.

Finally, imitation threat is a condition that fosters an uncertain market condition compelling firms to pursue organizational ingenuity in response. The increasing threats of copycats in an emerging economy forces firms to seek creative alternatives to remain relevant in the market. Findings reveal that firms in emerging economies are threatened with imitation when they successfully launch a new product design. In this instance, firms are obliged to continuously pursue creative solutions to remain relevant and maintain competitive positioning in the industry. In another example, findings also indicate that IP theft is a constant threat, especially in the pharmaceutical industry. The lack of market protection within pharmaceutical industry in India means that the laws will not be able to effectively protect firms from IP theft (Mansfield and Mundial 1994). Firms in the pharmaceutical industry stated that constant pressure from the risk of IP theft means that firms are continuously seeking solutions that prevent the issue of data leakage during information sharing.

## 6.2.4 CHAIN-D Capabilities

Table 39: Overview of CHAIN-D Capabilities

<b>CHAIN-D capabilities</b>
<b>1. Combinative Capabilities</b>
<ul style="list-style-type: none"> <li>1.1 In-house solutions</li> <li>1.2 Economies of scope               <ul style="list-style-type: none"> <li>1.2.1 Expansion in product range</li> <li>1.2.2 Product localisation</li> <li>1.2.3 Augmented solutions using same set of resources</li> </ul> </li> </ul>
<b>2. Hardship-surviving capabilities</b>
<ul style="list-style-type: none"> <li>2.1 Reactive response               <ul style="list-style-type: none"> <li>2.1.1 Economic downturn</li> <li>2.1.2 Lack of institutional support in the industry                   <ul style="list-style-type: none"> <li>2.1.2.1 Limited governmental supports in an industry</li> <li>2.1.2.2 Limited funding</li> </ul> </li> </ul> </li> </ul>
<b>3. Absorptive capabilities</b>
<ul style="list-style-type: none"> <li>3.1 Research and development               <ul style="list-style-type: none"> <li>3.1.1 Knowledge building</li> </ul> </li> <li>3.2 Exploitation of market gaps</li> <li>3.3 Building industry-specific knowledge</li> </ul>
<b>4. Intelligence Capabilities</b>
<ul style="list-style-type: none"> <li>4.1 Economies of scale</li> <li>4.2 Technology expertise</li> <li>4.3 Strong business acumen related to the specific industry               <ul style="list-style-type: none"> <li>4.3.1 Specific regulatory requirements in the industry</li> <li>4.3.2 Industry-related knowledge</li> </ul> </li> <li>4.4 Feedback from consumers, suppliers, and industry experts</li> </ul>
<b>5. Networking Capabilities</b>
<ul style="list-style-type: none"> <li>5.1 Strategic alliances and partnerships               <ul style="list-style-type: none"> <li>5.1.2 Positive reputation in the industry</li> </ul> </li> <li>5.2 Maintaining political connections</li> <li>5.3 Inter-organisational relationships               <ul style="list-style-type: none"> <li>5.3.1 Industry lingo</li> <li>5.3.2 Upcoming industry trends such as latest developments, technology etc.</li> </ul> </li> </ul>
<b>6. Dynamic Capabilities</b>
<ul style="list-style-type: none"> <li>6.1 New niche in the market               <ul style="list-style-type: none"> <li>6.1.1 Differentiation</li> <li>6.1.2 Vertically integrated solutions</li> </ul> </li> <li>6.2 Ability to overcome dynamic change in the market               <ul style="list-style-type: none"> <li>6.2.1 Market disruption</li> <li>6.2.2 Intense competition</li> </ul> </li> </ul>

The second component in the empirical framework for organizational ingenuity is capabilities, as presented in Table 39. As noted in Chapter 2, organizational ingenuity is defined as imaginative problem solving using limited resources within a demanding market environment. A CBV strategy represents a firm's ability to utilise generic resources through creative composition for competitive advantage. According to findings, organizational ingenuity through a CBV strategy is achievable for firms through the combination of utilising generic resources and leveraging existing capabilities. In this thesis, six capabilities are identified as critical for firms to create imaginative problem-solving solutions. These are the CHAIN-D capabilities of (1) combinative capability, (2) hardship-surviving capability, (3) absorptive capability, (4) intelligence capability, (5) networking capability, and (6) dynamic capabilities.

While STORM conditions focus on *what* triggers or pushes firms to attain organizational ingenuity, CHAIN-D capabilities elaborate on *how* firms attain organizational ingenuity through a CBV strategy. The findings on these capabilities support the thesis research question that queried how organizational ingenuity led to outcomes such as innovation and successful business outcomes. This thesis contributes to existing literature by uncovering the missing factors of how firms exploit available generic resources to create novel solutions within institutional and structurally constrained environments. With these six capabilities, it can now be understood how firms—specifically SMEs—cope with the challenging business environment of an emerging economy. The existing literature has addressed *ability to create innovative solutions* as a generic ability with no specific focus on how this creates the possibility for innovative solutions.

This study confirms the above findings and contributes to providing insights into how firms exploit and utilise generic resources to create novel solutions in a challenging emerging economy environment. In addition, this thesis elaborates on additional sub-factors under each capability to help understand practices implemented by firms to create novel solutions. Findings suggest that SMEs can compensate for the lack of a market-supporting environment of emerging economy with the aid of CHAIN-D capabilities. In other words, organizational ingenuity through a CBV lens is supported by CHAIN-D capabilities. The overall findings on capabilities are illustrated in Table 39.

### ***Combinative capabilities***

The turbulent market condition of an emerging economy causes firms to assess the challenging business environment and refine to better respond and adapt to such a context (Sheng 2017). In this instance, firms are responding and adapting to the external environment as well as positioning internal processes of the organisation to sustain and survive. Such combinative capabilities look into refining internal resources and processes to respond to a turbulent environment. As stated in the literature review, firms' combinative capability is

channelled by their unique ability to reintegrate existing and external resources to create augmented products and services at a lower cost. Firms facing a turbulent emerging market environment may better respond to such a challenging condition by leveraging combinative capabilities. Findings reveal that there are two sub-factors defining combinative capability: (1) in-house solutions and (2) economies of scope.

The present study confirms that the above sub-factors contribute to the additional definitions of combinative capability. Combinative capability is the ability to deconstruct and combine available generic resources for cost-effective, improved products and services (Luo, Sun, and Wang 2011; Luo and Child 2015). Firstly, findings of the current study reveal firms' approaches to in-house solutions exemplify their combinative capability. The commitment to an in-house approach corroborates the firms' ability to leverage existing available resources. In-house development provides opportunities for firms to manage quality control and reduce cost (Berggren and Bengtsson 2004). Based on findings, the leveraging of combinative capability through in-house solutions for organizational ingenuity allows firms to reconfigure and adapt solutions according to the local market. In fact, findings reveal that solutions developed in-house are comparably lower cost than those of major industry players.

Findings also noted that firms leveraging combinative capabilities pursue economies of scope for organizational ingenuity. Findings indicate that firms are able to explore different opportunities using the same set of resources through economies of scope. Firms positioned in an emerging economy are compelled to utilise readily available resources and, through combinative capabilities, resources can be transformed to create different values of products and services. In addition, findings reveal that firms operating in a challenging emerging economy with limited resources develop combinative capabilities to compensate for the inevitable disadvantage associated with operating in such a market.

### ***Hardship-surviving capabilities***

The second capabilities investigated for this thesis are hardship-surviving capabilities. Interestingly, these are the least recognised capabilities in comparison to others introduced in this study. However, a few insights from participants resonated with hardship-surviving capabilities. As stated in the literature review, there are converging scholars' views that strong formal institution variables are missing in emerging economies (Batra et al. 2015; Narayanan and Fahey 2005; Hoskisson et al. 2000). The peculiar emerging economy environment further aggravates local firms as the economy is lacking in resources and market-supporting institutions (Wan 2005; Peng, Lee, and Wang 2005). The overall challenging context of an emerging economy necessitates firms to engage hardship-surviving capabilities. This thesis defines hardship-surviving capability as the ability to conquer the uncertainty of the institutional context and volatile environment of an emerging economy. Findings indicate that firms develop

hardship-surviving capabilities through the following sub-factors: (1) reactive response; (2) economic downturn; and (3) lack of institutional support within the industry.

Firstly, findings reveal that firms utilise hardship-surviving capability as a reactive response, rather than a continuous act, during business operation. The lack of institutional supports and limited resources are among many factors triggering firms to switch to hardship-surviving capability. Findings reveal that firms activate hardship-surviving capability as a reactive response when challenged in the market. In this context, hardship-surviving capability is a trait that firms develop with organizational ingenuity for survival. For example, participants indicated that the overhaul of regulatory requirements threatened firms' competitive positioning which triggered hardship-surviving capability. Scholars such as Heston and Kumar (2008) have stated that institutional flaws challenge firms in maximising their economic potential.

According to Gummesson (2014) and Hausman and Johnston (2014), innovation and entrepreneurship are essential when firms are facing economic downturn. Findings reveal that the failing economic environment due to the global recession pressured firms to develop hardship-surviving capability to generate ingenious solutions. Creative endeavours incorporating hardship-surviving capability allow firms to prioritise available resources when staving off economic difficulties. Evidence shows that hardship-surviving capability is only prominent when firms are in a weakened economy such as a financial crisis. Innovative activities that require new technologies, upgraded solutions, and better process implementations are usually halted in a financial crisis as firms are more focused on managing financial meltdown. In this context, ingenious solutions are developed with the sole purpose of overcoming financial crisis.

Finally, findings indicate that limited market-supporting environments foster firms' development of hardship-surviving capability. For example, findings reveal that the lack of institutional supports in certain industries is the main contributor for firms to activate hardship-surviving capability when attaining organizational ingenuity. Based on findings, the education industry is among the many industries affected by lack of institutional support, triggering firms to develop hardship-surviving capability. The mainstream of India's education system is challenged by inadequate market-supporting factors such as lack of technical infrastructure, challenges in obtaining licenses for institutional-supported technologies, and strong government intervention in the education system (Altbach 1993; Joshi, Vinay, and Bhaskar 2020; Sharma and Sharma 2015). Limited market-supporting factors mean firms activate hardship-surviving capability to create innovative solutions allowing them to remain competitive in the industry.

### ***Absorptive capabilities***

Absorptive capability is defined as the ability to recognise new information or knowledge and integrate it for a greater purpose within business operation (Cohen and Levinthal 1990; Tsai 2001). In this thesis, absorptive capability supports firms to develop better decision-making processes as they adapt and assimilate new information or knowledge as part of the organisational learning process. The knowledge gained within a constrained environment due to institutional and structural constraints is unique as the context of an emerging economy means knowledge obtained is a rare commodity (Bruton, Dess, and Janney 2007). Findings reveal absorptive capability as an organisation's deliberate process of learning. No current literature has noted the relationship between absorptive capability and organizational ingenuity. In this thesis, absorptive capability is further dissected to include different aspects of the following: (1) research and development; (2) exploitation of the market gaps; and (3) development of industry-specific knowledge, as illustrated in Table 39. It is with absorptive capability that firms can achieve organizational ingenuity and weather STORM conditions.

Firstly, findings reveal that research and development foster a knowledge building environment within firms. From here, firms can explore alternatives for organizational ingenuity to survive in the challenging environment of an emerging economy. Findings note that knowledge gained from absorptive capability cultivates cost-cutting, quality, and ingenious solutions which, in turn, help firms gain competitive advantage. Studies such as Peeters, Massini, and Lewin (2014) and Lichtenthaler and Lichtenthaler (2009) demonstrated absorptive capability as the many sources of innovation. The challenging context of the emerging economy presents an opportunity for learning processes within Indian SMEs. Findings reveal absorptive capability allows SMEs to identify and leverage the knowledge gained to their advantage in the industry. In this thesis, absorptive capability has aided firms to attain organizational ingenuity through the knowledge building process.

This result can be further explained by absorptive capability providing firms with valuable insights to identify market gaps. Findings reveal that organisational learning processes lead to firms gaining an in-depth understanding of the existing market which, in turn, helps firms identify a market gap to their advantage. Findings indicate that the distinction of an emerging economy environment, in comparison to advanced economies, illustrates that SMEs adopt learning strategies as a firm-level adaptive response. According to Bilgili, Kedia, and Bilgili (2016), emerging economy firms utilise absorptive capability by making small improvements to offset the lack of institutional supports in the market. In this thesis, findings indicate that firms identifying market gaps are now focusing all resources on bridging gaps in the market to emerge surpass their competitors. Absorptive capability supports SMEs' creative thinking processes by reducing their reliance on external knowledge and shifting their focus towards

generating knowledge internally. Furthermore, current study findings indicate that knowledge building within an industry leads firms to achieve industry-related innovation.

Finally, the ability to recognise industry-specific information is identified as a sub-factor developed under absorptive capability. In this instance, findings note that SMEs' strong understanding of the industry directly contributes to their ability to conceive creative solutions. Based on findings, SMEs in the pharmaceutical industry focus on developing ingenious solutions with insights gained from strong understanding of the market requirements. A participating SME from the automotive industry dedicated a creative thinking process specifically based on the understanding of market requirements such as environmental regulation, market trends, and customer demands. Available resources were mainly dedicated to creating novel solutions based on the knowledge gained from the market.

### ***Intelligence capabilities***

Intelligence capability is identified as another mechanism supporting SMEs to achieve organizational ingenuity through a CBV strategy. As mentioned in the literature review of this study, intelligence capability focuses on how firms improvise based on their current knowledge. The key difference between combinative and intelligence capabilities is that combinative capability is associated with the way firms manage existing resources while intelligence capability is associated specifically with knowledge. Intelligence capability is a process of thinking which leverages existing knowledge of the industry or market to gain competitive advantages of cost, speed, or distribution channel (Luo, Sun, and Wang 2011). The unique consolidation of intelligence capability and other capabilities in response to the challenging conditions of an emerging economy leads to the understanding of organizational ingenuity achieved through a CBV strategy. This study contributes to the understanding of how firms synthesise knowledge using this capability to craft ingenious solutions and create competitive advantages in cost, speed, or channel when responding to challenging market environment.

In this thesis, intelligence capabilities contribute to the understanding of organizational ingenuity with the sub-factors of (1) economies of scale, (2) technology expertise, (3) strong business acumen related to specific industry, and (4) knowledge gained from feedback from consumers, suppliers, and industry experts. Findings reveal that firms develop intelligence capabilities as a mechanism to pursue organizational ingenuity which, in turn, helps firms to gain competitive advantage. Based on findings, firms firstly utilise intelligence capabilities to gain economies of scale. The knowledge that firms possess is exploited to reduce the cost of business operation that ultimately leads to economies of scale. Under intelligence capability, firms are not just recognising market-related knowledge, but the ability to synthesise that knowledge to be valuable to them. For example, evidence indicates that firms improve

manufacturing processes and facilities to gain economies of scale through market observation. In this instance, firms recognise that the high demand for a specific product compels them to improve on manufacturing facilities to gain economies of scale.

Furthermore, technology expertise provides the possibility for firms to maximise technological potential for cost-effective and innovative solutions. Findings indicate that firms utilise intelligence capabilities to gain competitive cost advantage and create innovative solutions with organizational ingenuity. In this instance, strong intelligence capability through technology expertise emphasises SMEs' efforts to engage organizational ingenuity using existing resources. For example, evidence demonstrates SMEs utilising their technology expertise to modify available manufacturing equipment, rather than investing in new equipment, to create new products. Intelligence capability is developed through technology expertise to support SMEs in attaining organizational ingenuity. Technology expertise in this context supports SMEs' creative thinking processes to reduce cost when developing innovative solutions.

Industry-specific business acumen also supports firms in their decision-making processes. Findings indicate that firms leverage strong business acumen to their advantage, such as creating solutions that are adapted according to industry requirements. In addition, firms also develop intelligence capabilities to meet gaps existing within an industry. With an enhanced understanding of the industry or market, firms are equipped with knowledge of the market trends and requirements. Findings reveal that, for some firms, intelligence capabilities are vital to better understand the market and support businesses' decision-making processes. Study findings yield a consistent message on business intelligence developed from consumers' and suppliers' feedback as well as insights from industry peers. Findings reveal that firms respond to limited resources and constraints of the emerging economy with the support of intelligence capability to understand the market and context of the industry and attain organizational ingenuity. For some firms, this means a process of designing and adapting product and service outputs based on information gained from industry feedback.

### ***Networking capabilities***

Networking capability is recognised as an organisational capability oriented towards creating and managing business connections and relationships to remain competitive within an industry (Mitrega et al. 2012). Social capital of collaboration and cooperation enables external resource access which, in turn, helps firms to reduce transaction costs (Nahapiet and Ghoshal 1998; Chang et al. 2017; Yli-Renko, Autio, and Sapienza 2001). Findings of this study indicate that networking capabilities are indeed associated with an increase in knowledge acquisition and enable access to resources. Based on the findings of this study, networking capabilities are developed to help firms attain organizational ingenuity through the following sub-factors:



(1) strategic alliances and partnerships; (2) political connections; and (3) management of inter-organisational relationships.

This study provides an opportunity to understand how firms weather STORM conditions with networking capabilities, which has been noticeably absent from available studies on organizational ingenuity. Firstly, findings reveal networking capabilities are developed through strategic alliances and partnerships as firms weather the constraining environment of an emerging economy. Studies such as Inkpen (1998), Grant and Baden-Fuller (2004), and Van Gils and Zwart (2004) all supported the knowledge acquisition process through a strategic alliance approach. In this study, findings reveal strategic alliances and partnerships with major industry players enable firms to access inter-organisational knowledge of the industry. In fact, it is through strategic alliances that firms can explore additional opportunities as they gain positive reputations within an industry.

Political connection is another contributing aspect of networking capabilities which supports firms to attain organizational ingenuity and weather STORM conditions. Findings note that, in the case of operating in India, good relationships with current political or government bodies helps firms gain a positive reputation within the industry. In fact, positive relationships or maintaining political connections, in the case of SMEs operating in India, can significantly influence success. Findings reveal that a positive relationship with the current government can mean opportunities to lobby for subsidies that can help firms reduce overall expenditure.

Maintaining a good reputation and relationships within an industry can provide an advantage to firms in regard to networking capabilities. Findings reveal that, through inter-organisational relationships, firms share insider knowledge using industry lingo which, in turn, can help firms gain competitive advantage. Furthermore, findings also emphasise that preserving a good reputation within an industry enables access to the latest developments, such as technology or upcoming industry trends, that firms can utilise to their advantage.

### ***Dynamic capabilities***

Dynamic capabilities are an approach defined as the combination of both ability and processes, leading to the creation of a valuable outcome (Barreto 2010). As proposed in the literature review, dynamic capabilities contribute to firms' unique pathways to organizational ingenuity. Dynamic capabilities play a specific role in matching the dynamic change of the market which contributes to a firm's ability to achieve organizational ingenuity with the support of a CBV theory (Eisenhardt and Martin 2000; Teece 2009; Teece, Pisano, and Shuen 1997). Findings reveal that this ability enables firms to respond to sudden changes in the market through novel composition of generic resources and capabilities. Based on findings, firms

develop dynamic capabilities to attain organizational ingenuity through the following sub-factors: (1) new niches in the market and (2) ability to overcome dynamic change in the market.

Findings reveal that dynamic capabilities are developed by firms to target new niches in the market. A new niche in the market is further expanded to include both a differentiation strategy and a vertical integrated solution. Studies such as Fainshmidt et al. (2019) have confirmed the unique influence of dynamic capabilities for firms to gain competitive advantage with the combination of differentiation and low-cost strategies. Furthermore, studies such as Song, Lee, and Khanna (2016) elaborated on the connection between dynamic capabilities to support multinational enterprises and vertical integration by being agile and flexible in an industry. Bogers et al. (2019) confirmed that success of open innovation is made possible with a vertical integration approach and a firm's dynamic capabilities. Findings of this thesis are consistently connected with the overlapping quality of dynamic capabilities supporting firms to attain organizational ingenuity and, in this context, developing new niches in the market.

Based on findings, firms respond to the hypercompetitive emerging economy environment through quick decisions to focus on a niche segment market with a differentiation strategy. However, firms in emerging economies are known for their superior organisational resilience and adaptability (Guillén and García-Canal 2009). The proven skill to quickly respond to a market change among firms in an emerging economy can be identified as a unique advantage (Luo and Rui 2009). For example, evidence reveals threats from foreign competitors increase the proclivity for firms to develop a specific focus in their industry. In this instance, the threat of foreign competitors triggers market change; hence, SMEs develop dynamic capabilities to attain organizational ingenuity through CBV. This approach helps some firms remain proactive in a market in comparison to their industry rivals. Firms' ability to respond to dynamic change in the market is also considered under dynamic capabilities, based on the findings of this study. This study finds consistent breakthrough with dynamic capabilities which support firms adapting to dynamic change in the market. Based on findings, firms develop dynamic capabilities to attain organizational ingenuity when responding to sudden changes in the market, such as the recent global supply chain disruptions and the negative effects of the pandemic.

### **6.2.5 Compositional process**

Compositional process is recognised as the final component of a CBV theory. CBV is argued to be achievable through compositional process as a response to dynamic market change by (1) combination of low-cost and additional product features, (2) enhanced product value, and (3) convenience to customers (Luo and Child 2015). Compositional process under CBV is indicated as a process of implementing and organising resources to exploit market opportunities (Luo and Child 2015; Ananthram, Luo, and Peng 2022). The application of a

CBV theory lens to understand the concept of organizational ingenuity signifies the need to explore specific processes implemented to achieve organizational ingenuity. The aim of this thesis is to understand the specific process that firms implement when leveraging capabilities and bundling available resources as a strategy.

The proposed conceptual framework argues compositional process is a final component in addition to strategy and capabilities for SMEs to achieve organizational ingenuity. However, findings reveal that compositional process is an orchestrated combination of strategy and capabilities for SMEs to attain organizational ingenuity. In other words, the compositional process approach is not a separate component but is induced through creative composition of strategy and capabilities as firms attain organizational ingenuity. The process of implementing strategy and leveraging specific capabilities to achieve organizational ingenuity requires SMEs to be familiar with the local environment and potential market opportunities. The compositional process of CBV defines the interdependent relationship between strategy and capabilities integrated within organizational ingenuity.

Findings of this thesis indicate that compositional process goes beyond harmonising and readapting available resources but extends to an approach taken by SMEs when attaining organizational ingenuity. The processes implemented by SMEs are noted to be inimitable and unique according to the challenges that the firms are facing. Evidence supports the view of compositional process as a synergistic approach to utilising generic resources, complemented by capabilities, as a strategy under CBV. Compositional process is the CBV component that illustrates the necessary path for SMEs to achieve organizational ingenuity and supports SMEs to survive in the challenging environment of an emerging economy. Evidence finds SMEs impacted by specific challenges integrate specific strategies and capabilities as a process to achieve organizational ingenuity, as presented in Table 40.

While there is no singular process demonstrated by the responses in Table 40, it is important to note that there are overlapping similarities in the way that SMEs orchestrate strategy and capabilities to overcome challenges in an emerging economy. Firm A demonstrated compositional process by promptly responding to the market (an example of a capability) and creating customer-oriented products (as a strategy) in the firm's creative thinking process. The compositional process for Firm G focused on utilising both limited resources and capabilities to tackle challenges in the market. Firm J emphasised compositional process as a transformational approach to convert ordinary resources using a specific strategy to gain market advantage. Firms E, J, K, and L achieved organizational ingenuity in response to the identified requirements of their respective industries by utilising available resources and capabilities.

From this evidence, it can be noted that all firms participating in this study indicated the creative combination of strategy and capabilities as a process that SMEs implement when attaining organizational ingenuity. Compositional process from CBV has merits as an intermediary path for SMEs to grow sustainably. It is important to highlight compositional process as a deliberate process that SMEs implement through the combination of available resources and capabilities as a strategy to attain organizational ingenuity. The current findings of compositional process, weaving into the combination of strategy and capabilities when attaining organizational ingenuity, is illustrated in the new theoretical framework presented in Figure 19.

*Table 40: Responses Related to Compositional Process*

<b>Responses related to compositional process/processes to achieve organizational ingenuity</b>	<b>Industry</b>
<i>We have [an] R and D department...so based on the customer's feedbacks, based on the struggles...we innovate... we pass on those ideas to the R and D team which you know...do the brainstorming and find solutions...we have a good R and D team and good R and D budget...we try to take customer's voice and OEM ideas and innovate in our products.... (Deputy Manager, Interviewee CA1, 2019)</i>	Automotive industry
<i>Whatever the input we get from customers, or whatever inputs we get from competitors regarding the solutions...we work around the alternate solution...and then we give those solutions [back] to the customers. (Vice-President, Interviewee CC1, 2019)</i>	IT industry
<i>As we discussed earlier into our words...such as STORM conditions, we have to make real product review...on what kind of business we're working</i>	Pharmaceutical industry

<p><i>in the industry...what will be the market capitalisation after... whatever year, in five years or ten years... we are moving ahead and we look into all the outputs we are getting from a particular project and what we can do to make it more profitable...every year we analyse things...we have to make decision on what will be the right direction when we are in financial crunch or other challenges.... (Manager, Interviewee CE1, 2019)</i></p>	
<p><i>The process starts with what to know and a lead designer starts with what kind of challenges we're having...and what kind of capabilities we have...anyway, based on the capabilities and the limited resources that we have...we are tackling the visible challenges...it's difficult but we come up with original ideas that we do...we make some changes...and as you know challenges are coming every day and the only thing that we have to do is be flexible and see how we can overcome challenges.... (General Manager, Interviewee CG2, 2019)</i></p>	IT industry
<p><i>...as an example, I have mentioned that there is a competition from Chinese tyres... the company is trying to be competitive by giving a very competitive product to the market...so that the low end price product from China is not able to take away the market share from our company...so we look into strategy and work on a competitive strategy to the company's advantage based on what we have.... (Senior Manager, Interviewee CJ2, 2019)</i></p>	Manufacturing industry
<p><i>So, what we try to do is we identify requirements when we make products...we also look at quality...the trainers who provide the training ...we look at our strength and whatever investments needs to be made with respect to the</i></p>	Education industry

<p><i>infrastructure...and this goes back to [customer] satisfaction as they get value for their money (Senior Manager, Interviewee CK1, 2019)</i></p>	
<p><i>We look at what the agricultural requirements...whether we are able to achieve that target or towards that requirement at a particular period of time...for example, there are challenges to overcome...now, we are deciding on what's best and we analyse the situation, the requirements and we look at some expert advice and we see what we can do to meet manage those.... (Project Manager, Interviewee CL2, 2019)</i></p>	<p>IT industry</p>

### **6.3 Conclusion and refined theoretical framework**

With the ‘what’ forces or conditions identified to be the push for SMEs to pursue organizational ingenuity, this study unfolds specific mechanisms in firms when responding to constrained environments. The ‘what’ forces are confirmed based on the findings discussed under STORM conditions. STORM conditions are determined to be the forces compelling SMEs to attain organizational ingenuity through a CBV strategy. In addition to the ‘what’ questions, this thesis also expands the literature on ‘how’ companies respond to a constrained market environment with limited resources. In this thesis, findings confirm that unique capabilities are the variables that complement compositional strategy in the pursuit of organizational ingenuity. Findings reveal that CHAIN-D capabilities (combinative, hardship-surviving, absorptive, intelligence, networking, and dynamic) are identified as the enablers to achieve organizational ingenuity. CHAIN-D capabilities are attributes that are vital for firms to create ingenious solutions in the continuous journey of overcoming challenges in the emerging economy. In addition, this study puts forward compositional process as an orchestrated approach that SMEs implement in the combination of strategy and capabilities to achieve organizational ingenuity. Within the Discussion sections, the contribution of the existing study is well supported and demonstrated by comparing and contrasting findings with the existing literature. Additionally, the contribution of the existing study is also demonstrated in the refined theoretical framework, as shown in Figure 19.

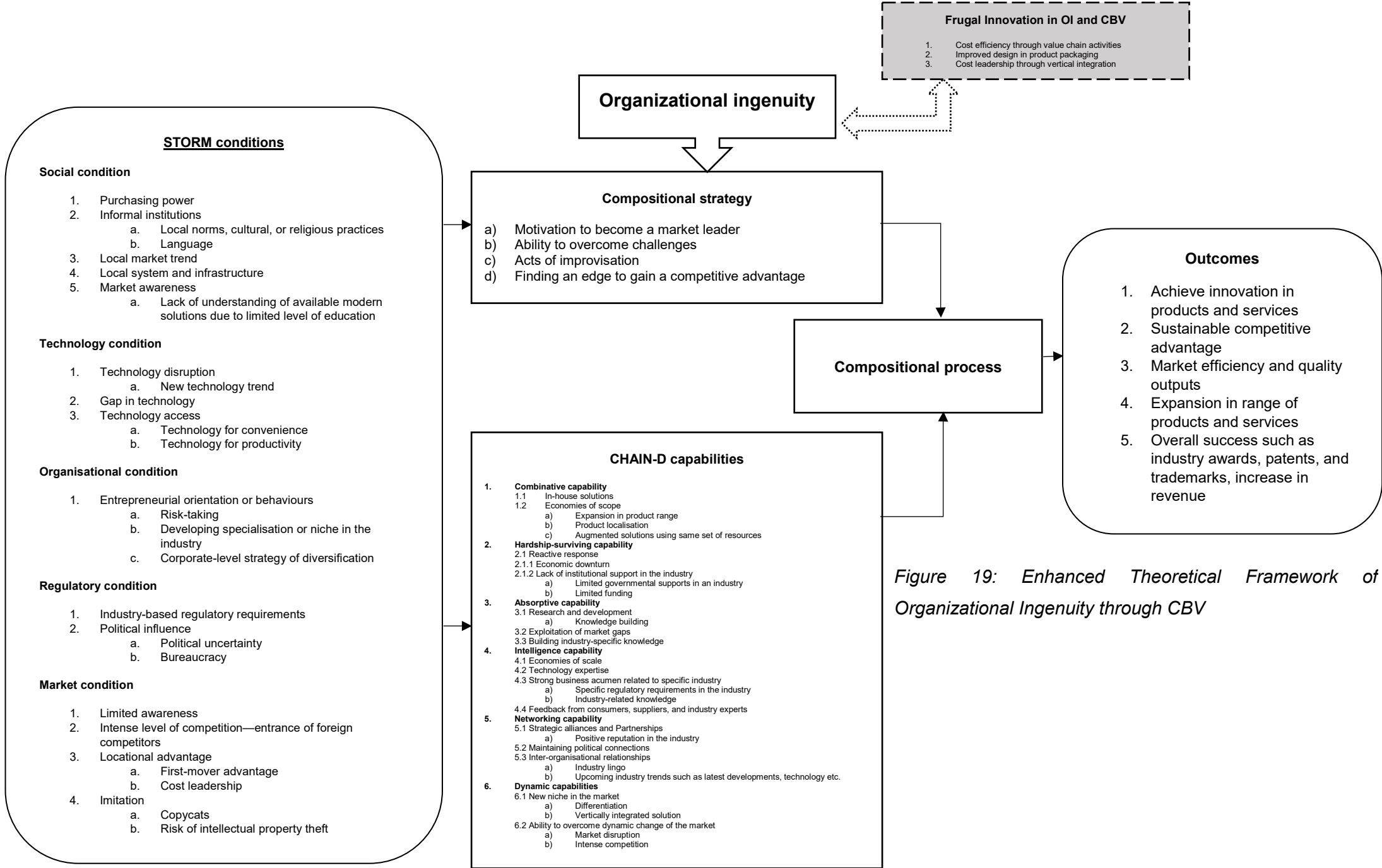


Figure 19: Enhanced Theoretical Framework of Organizational Ingenuity through CBV

## Chapter 7: Conclusion

### 7.1 Chapter overview

This final chapter provides the conclusion of the thesis. This chapter begins by discussing the summary of the study. An overall summary of findings from the research questions are discussed in this chapter. Next, this chapter provides an overview of how the findings make theoretical contributions. In addition, this chapter also highlights methodological contributions of this study. In addition to the theoretical and methodological contributions, this thesis also provides an overview of practical implications. In the final section of this chapter, the limitations of this study are outlined and directions for future research are provided.

### 7.2 Summary of the research

This study firstly aims to unpack the value and perspectives of organizational ingenuity through a CBV theory lens. The study explores the significance for SMEs of developing ingenious solutions using generic resources within the context of the emerging economy in India. A literature review was performed to gain insights into novel solutions within the scope of SMEs operating in an emerging economy. Hence, the literature review conducted in this study provided the pathway for investigating organizational ingenuity through CBV as a theory lens. The insights gained in relation to the pathway to organizational ingenuity through CBV are presented in a conceptual framework. A qualitative approach using exploratory case study was adopted to validate the proposed conceptual framework. Twelve case studies consisted of 24 participants who were interviewed using a semi-structured interview method for data collection. Secondary data was utilised for data triangulation. Both within-case and cross-case analyses were coordinated and later utilised to revise the conceptual framework of organizational ingenuity through a CBV theory lens. The main research questions of this thesis are as follows:

**RQ1:** How do SMEs in emerging economy with constrained resources and challenging environment achieve organizational ingenuity?

- **RSQ1:** How do STORM conditions of emerging economy compel SMEs towards the path of organizational ingenuity?
- **RSQ2:** Is organizational ingenuity an integral component to SMEs operating in emerging economy? Why?
- **RSQ3:** How do SMEs create cost-effective, ingenious solutions in constrained and challenging environments of emerging economy?
- **RSQ4:** How does the concept of organizational ingenuity lead to outcomes such as innovation and business success?



### **7.3 Contribution**

The following section encapsulates the key contributions of the thesis. This section describes both the theoretical and methodological contributions of this thesis. Within the theoretical contributions, this study presents the novel findings of organizational ingenuity using CBV as a theory lens.

#### **7.3.1 Theoretical contributions**

This thesis makes several key theoretical contributions to strategy and management research. The study offers several theoretical contributions that are unique to the strategic management and international business disciplines. This thesis captures theoretical contributions in several areas such as the understanding of emerging economy context, SMEs' development, creative problem solving, organisational and external constraints, and the power of generic resources. The refined framework in Figure 19 represents this thesis's efforts to fill in the gaps of "How do SME firms in emerging economy with constrained resources and environment achieve organizational ingenuity?" and "Is organizational ingenuity an integral component to SME firms in emerging economy? Why?" Introductory study of organizational ingenuity only introduced the concept's main features without any focus on the importance of organizational ingenuity within firms and how organizational ingenuity is specifically achieved by firms in an emerging economy (Lampel, Honig, and Drori 2014).

Existing studies such as (Kannan-Narasimhan 2014) elaborated on material and process ingenuity, but few studies have encapsulated the holistic picture needed to understand organizational ingenuity. This thesis primarily contributes new insights to develop an in-depth understanding of the role of organizational ingenuity for SMEs operating in the challenging context of an emerging economy environment. This study makes a theoretical contribution by illuminating the role and importance of producing novel solutions using generic resources among SMEs in the context of an emerging economy. This suggests that organizational ingenuity is integral for SMEs to sustain success in the challenging environment of an emerging economy. Because the study was based in India, which is considered as one of the emerging economies (Budhwar, Varma, and Kumar 2019; Shamsi et al. 2014; Chari and David 2012; Enderwick 2012), the refined framework indicates the favourable potential of transferability or generalisability across business settings. Secondary data was also utilised for data triangulation to improve the rigour and transferability of this study (Coghlan and Brydon-Miller 2014). This study makes a theoretical contribution by mapping SMEs' pathways towards organizational ingenuity. The use of CBV as a theory lens contributes by providing a theoretical view to enhance the existing concept of organizational ingenuity. It is evident that CBV is a useful theory to enhance understanding of organizational ingenuity. This study commends the potential of CBV as a theory lens to assess the quality of generic resources

utilised by SMEs when creating novel solutions in a challenging emerging economy environment.

Secondly, the refined framework presented in Figure 19 provides an additional element of organizational ingenuity which considers frugal or cost-effective solutions in the constrained environment of an emerging economy. Existing literature on organizational ingenuity has focused on the issue of resource constraint (Kannan-Narasimhan 2014; Lampel, Honig, and Drori 2014) but there has been no discussion on the unique power of generic resources supporting firms to attain organizational ingenuity. Thus, this thesis offers insights to understand how firms create cost-effective and novel solutions in a challenging emerging economy environment. In particular, the consideration of a CBV strategy in organizational ingenuity provides a new understanding of the literature. The overlapping qualities of organizational ingenuity and CBV theory offer a promising insight into the relevant literature. The current framework provides value in terms of how firms achieve frugal innovation with organizational ingenuity and a CBV strategy.

Next, the current framework is valuable in extending the existing literature on organizational ingenuity by enhancing the understanding of how firms are compelled to achieve organizational ingenuity. Few studies have uncovered the specific conditions compelling emerging economy firms to pursue organizational ingenuity. This study provides augmented insights into forces pushing firms towards organizational ingenuity. Current literature focuses primarily on organizational ingenuity as a response to constraints (e Cunha et al. 2014; Banerjee 2014) but studies have yet to provide a perspective on what specific conditions or factors push firms to attain organizational ingenuity. The current framework details conditions of emerging economy forcing SMEs to pursue novel solutions through organizational ingenuity. These conditions provide a useful guide to improve understanding of the factors pushing SMEs towards organizational ingenuity. The study findings propose STORM conditions as the contributing conditions compelling SMEs to engage creative thinking processes and leverage generic resources.

Next, this study offers novel findings on how SMEs compensate for the lacking and constrained environment of an emerging economy through organizational ingenuity. Furthermore, additional insights into how organizational ingenuity leads to positive outcomes, such as innovation, are also elaborated upon in this study. Existing study on CBV strategy has provided insights into compositional capabilities (Luo and Child 2015) but has made no connection with organizational ingenuity. This study offers additional value by identifying the capabilities of firms attaining organizational ingenuity in the highly challenging environment of an emerging economy. CBV strategies, capabilities, and processes are the missing links of

organizational ingenuity highlighted in this study. The addition of capabilities offers new insights in terms of how SMEs implement creative thinking processes to create ingenious solutions using generic resources. Building on CBV as a theory lens to understand the concept of organizational ingenuity, this study introduces the pathway for SMEs to attain organizational ingenuity, the contributing factors compelling SMEs towards organizational ingenuity, the capabilities required to support SMEs to attain organizational ingenuity, and the specific processes that SMEs implement to achieve organizational ingenuity.

### **7.3.2 Methodological contribution**

As indicated in Chapter 3, exploratory and multiple case studies strategy is employed in this study. There is limited research available on organizational ingenuity and the central research question of this study aims to understand how SMEs in emerging economy, with limited resources and a constrained environment, achieve organizational ingenuity. Furthermore, the sub-questions proposed in this study aim to understand why organizational ingenuity is important, or is an integral component, for SMEs in an emerging economy. Qualitative case study methodology including the “how?” and “why?” questions is appropriate when building a new theory (Eisenhardt 1989; Yin 2013). Eisenhardt's (1989) study described the case study research approach to be particularly suitable for new topics.

This study employs within-case analysis before proceeding to cross-case analysis. Within-case analysis provides familiarity with each case study in isolation before extracting patterns or themes across all case studies. Using this method, a rich understanding of the theory is possible through exploratory and multiple case studies strategy. A detailed description of each study provides exemplars of each aspect of the theoretical framework developed on organizational ingenuity. The use of both within- and cross-case analysis validated the theoretical framework developed in this study. The use of a multiple case study approach highlights the connections between organizational ingenuity, CBV, strategy, capabilities, and process. In addition, linkages between these components are illuminated through within-case and cross-case analysis approaches. This study makes a methodological contribution by employing exploratory and multiple case studies research which extends the previous work on organizational ingenuity to include CBV as a theory lens.

The second methodological contribution is using multiple case studies with template analysis. The thematic approach of template analysis helped identify the distinctive themes within data collected in this study. Template analysis is widely used in business and management research (King, Brooks, and Tabari 2018) and by utilising this approach in the understanding of organizational ingenuity, this study makes a methodological contribution. Template analysis is a useful approach to thematically organising and analysing the responses from each case study from the perspective of organizational ingenuity. The use of template analysis enabled

separation of the conditions pushing firms to attain organizational ingenuity, capabilities supporting firms to attain organizational ingenuity, and, most importantly, the insights from each firm on the importance of organizational ingenuity in a challenging emerging economy context. For example, the exploratory multiple case study approach highlighted the different capabilities developed among SMEs in various industries. As such, the novel concept of organizational ingenuity is further expanded, which will be useful for future research. In this study, template analysis was an effective tool to refine the original conceptual framework of organizational ingenuity.

#### **7.4 Managerial implications**

The findings from data analysis offer important insights and managerial implications for the economic powerhouse of SMEs in India and the Indian Government. The insights provided on the conditions enforcing organizational ingenuity in India could assist institutional representatives in decision-making processes and could promote a market-supporting environment in India in the future.

The most significant implication for practice is that organizational ingenuity offers a greater understanding for SMEs in India of how success is possible in the challenging context of an emerging economy. Challenged SMEs are now equipped with the knowledge of what different forces push firms towards novel solutions and how novel solutions are achieved with limited resources in the institutionally challenging environment of India.

This thesis presents four managerial implications for SMEs: (1) a unique roadmap on manoeuvring a limited institutional market environment such as India; (2) valuable insights into the unique power of generic resources employed through a CBV strategy when achieving organizational ingenuity; (3) valuable insights into external factors or conditions pushing firms towards organizational ingenuity; and (4) understanding different capabilities SMEs develop along with organizational ingenuity.

CBV theory provides a new perspective on the understanding of organizational ingenuity in the context of utilising generic resources for creative solutions. A CBV is defined as a firm's unique ability to gain competitive advantage and generate superior outcomes without the advantage of unique resources (Luo and Child 2015). This thesis provides SMEs with new possibilities to combine the powers of organizational ingenuity and CBV theory in the creative composition of generic resources and capabilities for extraordinary results.

Banerjee (2014) and Lampel, Honig, and Drori (2014) argued that for ingenuity to be considered it is important to not only understand how problems arise but to identify the entity defining the issues. This thesis presents STORM conditions as the forces that compel firms in an emerging economy to attain organizational ingenuity. New insights into specific conditions

are discovered in this thesis which will enable firms to understand the influence of both institutional and resource constraints on SMEs.

Apart from compelling conditions, this thesis also uncovers the requisite capabilities to create novel solutions in the challenging environment of an emerging economy. Luo and Child (2015) suggested that a CBV theory elucidates the distinctive ability of firms developing core advantage without a resource advantage, through the creative composition of available resources and capabilities. CHAIN-D capabilities, as presented in this thesis, provide firms with a good understanding of the capabilities required to survive in the challenging environment of an emerging economy. The rich explanations of each capability provided in this thesis are necessary for firms to reference when challenged by the difficult environment of an emerging economy. It is perhaps through lack of understanding of which capabilities are required that firms struggle in emerging economies. However, the valuable insights from this study will enable firms to understand these essential capabilities when creating novel solutions using generic resources.

Institutional environment in an emerging economy is known to be a determinant of local economic conditions (Xiao and Lam 2019; Qiao, Lv, and Zeng 2020). Challenges from the institutional environment of an emerging economy market are known to be one of the major deterrents for SMEs' success. However, SMEs emerge as the economic powerhouse for emerging economy (Muhammad et al. 2010; Kongolo 2010; Harvie 2004; Rahman, Yaacob, and Radzi 2016). This study fills the gap in the understanding of SMEs' key role in wealth creation for emerging economies.

This study has practical implications for understanding the institutional environment's influence on SMEs and SMEs' responses to institutional challenges. The insights into the institutional constraints of an emerging economy provided by this study enables policymakers in emerging economy to create market-supporting institutional environments. There must be governmental commitments in emerging economy countries to create market-supporting policies which are essential for an optimum market environment. This study was conducted through semi-structured interviews among 12 companies from various industries including automotive, education, IT, pharmaceutical, and manufacturing. Therefore, firms in these industries can apply the valuable insights from this study to business practice.

## **7.5 Limitations**

This thesis offers an insightful understanding of SMEs' ability to create novel solutions using generic resources and the composition of capabilities in the challenging environment of an emerging economy. Nevertheless, as with other research, there are certain limitations in this thesis that should be recognised.

Firstly, the findings related to organizational ingenuity are based only on interviews with SMEs in India. This means that the data might only provide a snapshot of SMEs in India. A potential concern is that the findings from this study are limited to SMEs and are not the best representation of larger organisations. In addition, as the study was conducted in India as an emerging economy, the findings can potentially apply only to India. For example, the perception of STORM conditions for an SME operating in another emerging economy country might be different to an SME in India. Therefore, it is worth noting that the empirical framework developed in this study may not apply to other emerging economy countries or be applicable in the context of advanced economies.

The second limitation is that the findings are based on data collected in 2019. There are recent events such as the pandemic, political development, and economic development that may affect the conclusions drawn in this dissertation. Another limitation worth noting is that the findings are based on interviews of mid- to high-level position employees, such as manager and general manager of the companies. The specific target sample for this study means that the findings may only apply to this specific group of employees. However, interviewees were assured at the start of the interviews that their identities would remain anonymous. In addition, the respondents were encouraged to speak candidly without concern about the influence of their position in the company.

The data collected from the employee interviews can potentially be influenced by personal biases and views expressed based on personal experience. The data were collected from employees of the company based on interviewees' individual judgements. As such, these are the type of data that are often subject to social desirability bias. Therefore, data triangulation of the findings was utilised to ensure this concern was minimised as much as possible. The use of secondary data, such as annual reports, meeting minutes, and other evidence related to the company and the Indian business environment, was utilised for data triangulation.

Another limitation of this study is that there were difficulties in accessing data beyond telephone interviews. Interviewees refused to share confidential information required for this thesis to be able to draw specific conclusions. As such, this study sought information that was beyond the scope of the interviews and sourced available secondary data related to the companies. The findings of this thesis may be limited within, and restricted to, similar circumstances of the respective SMEs included in this study.

This study case studies are all located to be in the more developed states of India with better infrastructure and business supporting environment. The perspective of ingenuity amidst resource constraints and institutional weakness can be more robust if the cases are from less developed states of India such as Bihar, Odisha, and Northeastern states of India. The setting

of a more developed states in India can be disadvantageous insight in this study. Future studies of organizational ingenuity should be within the context of a less developed states that can significantly highlights the challenges of emerging economy context.

Finally, a limitation worth recognising in this study is that the findings are data collected only in the automotive, manufacturing, IT, education, and pharmaceutical industries. Therefore, there is a potential concern that the explanations and conclusions drawn from the data gathered are only applicable to the respective industries and are not transferable to other industries. The original plan was to collect data from additional industries in India but, due to lack of resources and access, the data collection was limited to the specified industries.

### **7.6 Future research**

There are several possibilities that should be considered in future research related to this study. Future research on organizational ingenuity could firstly consider the possibility of conducting this study through a combination of quantitative and qualitative methods (mixed methods) instead of only the qualitative study employed in this thesis. Mixed methods research can enhance the validity and reliability of a study (Hoskisson et al. 1999). The empirical framework refined in this thesis was developed based on data gathered from qualitative methodology. Thus, this study suggests further enhancement of this framework with the addition of quantitative research method. The addition of quantitative method can improve the potential of generalising the findings for a different sample (Schreier 2018). This thesis has not delved into any insights that can demonstrate quantifiable findings on the importance of organizational ingenuity for SMEs in emerging economy. Additional research is recommended to examine the integral role of organizational ingenuity, justified with quantitative data.

Another possibility worth considering is for future studies to validate the framework with greater number of cases. Studies such as Boddy (2016), Mason (2010), and Yin (2014) all recognise the number of cases ranging between 6 – 12 case studies to be sufficient for a qualitative case study. However, this study recommends for future studies to pursue greater number of cases to enhance the number of insights available from more number of cases.

This investigation of organizational ingenuity was conducted in India as an emerging economy. Thus, future research is recommended to test the framework in other emerging economy countries. Testing the framework in a different country could help further validate the new theoretical framework which maps the path of organizational ingenuity. This would further enhance the transferability value of this study. In addition, future research should extend beyond emerging economies to test the framework developed in this study in advanced economy countries. Studies indicated the stark contrast of institutional environment between emerging economies and advanced economies (Qiao, Lv, and Zeng 2020; Gaur, Kumar, and

Singh 2014; Potluri and Phani 2020). This is important to recognise as CBV is specific to the settings or conditions of the study. Further research is needed to understand any other external factors or conditions compelling firms to attain organizational ingenuity. As such, different institutional contexts are worth considering for future research on organizational ingenuity.

The present study's goal was to review the role of organizational ingenuity in SMEs of emerging economy. The study findings emphasise the important role of organizational ingenuity for SMEs to overcome constraints of limited resources and a challenging emerging economy environment. Drawing on the specific nature of SMEs, it becomes evident that the study of organizational ingenuity is far from being concluded and should be explored among MNEs. Specifically, this thesis suggests that future studies should enhance existing knowledge of organizational ingenuity among MNEs, or other types of organisations in an emerging economy country other than India, to ensure relevant advancement of the literature.

There is also potential for future investigation into organizational ingenuity to consider other industries apart from manufacturing, IT, pharmaceutical, education, and automotive. While this study provides evidence that is applicable to these industries, there are several important factors related to specific industries that may alter the conclusions drawn from this study. Future research might explore different aspects of different industries that ultimately enhance the understanding of organizational ingenuity. Finally, this study puts forward the suggestion to explore organizational ingenuity through theoretical lenses other than CBV. Future research on organizational ingenuity is encouraged to understand how firms deploy organizational ingenuity using bricolage or resource-based view. The use of different theoretical lenses to understand organizational ingenuity represents a pressing opportunity for new scholarship on this subject.

Overall, the findings of this thesis provide several novel insights related to creative thinking processes and finding ingenious solutions within a challenging emerging economy. The findings of this study add insights that may be useful to relevant stakeholders interested in creativity in emerging economies.





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## APPENDICES

### APPENDIX-1 Section A



Curtin University

#### Participant Information Statement

**TO:** Participants

<b>Plain Language Statement</b>
---------------------------------

**Date:** 26<sup>th</sup> October, 2018

**Full Project Title:** A Composition Based View of Organizational Ingenuity: Empirical Evidence from Emerging Economies in SMEs

**Principal Researcher:** Amalina Ibrahim

**Co-Researcher:** Dr Subra Ananthram

**Co-Researcher:** Dr David Fan

**This information sheet is for you to keep**

This project is being undertaken by Amalina Ibrahim, PHD student of Curtin University, Dr. Subramaniam Ananthram, a Senior Lecturer in International Business and Dr. David Fan, an Associate Professor in International Business at University Western Australia. The research aims to examine how Indian SMEs achieve organizational ingenuity with limited resources and constraints by using the composition-based view theory lens.

You are invited to take part in this study, which will be conducted over the phone and is expected to take approximately 25-35 minutes of your time. Your participation is important for academics to obtain better understanding of how Indian SMEs achieve ingenuity with limited resources and constraints present in emerging economy such as India, and in return, reflect the organisation process in strategic thinking when overcoming with such challenges.

There are no anticipated risks of the proposed research. Although the study would greatly benefit from your participation, your participation in this research is entirely voluntary and we

respect your right to decline. You can also withdraw your participation at any stage of the interview session. In addition, you have right to withdraw data after your interview.

This phone interviews will be audio-recorded. Please be assured your responses will be strictly confidential and anonymous. Electronic data will be password protected and hard copy data will be kept in locked storage. The information we collect in this study will be kept under secure conditions at Curtin University for seven (7) years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals, and potential range of media outlets. You will not be identified in any results that are published or presented.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number HRE2018-0797). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au).

Only the research team will have access to the information collected in this research. Any information we collect will be treated as confidential and used only in this project unless otherwise specified.

If you have any queries in relation to this project or would like to be informed of the research finding, please contact Amalina Ibrahim or Dr. Subramaniam Ananthram or Dr. David Fan:

Amalina Ibrahim	Dr. Subramaniam Ananthram	Dr. David Fan
PHD Student, Curtin Business School  School of Management, Curtin Business School, Curtin University, Kent St, Bentley, WA 6102  Australia  Email: <a href="mailto:amalina.ibrahim@curtin.edu.au">amalina.ibrahim@curtin.edu.au</a>	Senior Lecturer, International Business  School of Management, Curtin Business School, Curtin University, Kent St, Bentley, WA 6102  Australia  Tel: +61 8 9266 1312  Email: <a href="mailto:S.Ananthram@curtin.edu.au">S.Ananthram@curtin.edu.au</a>	Associate Professor, International Business  The University of Western Australia (M261), 35 Stirling Highway, 6009 Perth  Australia  Tel: +61 8 6488 3983  Email: <a href="mailto:david.fan@uwa.edu.au">david.fan@uwa.edu.au</a>

**APPENDIX-1 Section B**  
**PLAIN LANGUAGE STATEMENT AND CONSENT FORM**

**TO:** Participants

<b>Consent Form – Telephone Interview</b>
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**Date:** 26<sup>th</sup> October, 2018

**Full Project Title:** A Composition-Based View of Organizational Ingenuity: Empirical Evidence from Emerging Economies in SMEs

**Principal Researcher:** Amalina Ibrahim

**Co-Researcher:** Dr Subra Ananthram

**Co-Researcher:** Dr David Fan

The Plain Language Statement will be emailed/faxed to the participants before a telephone interview is scheduled.

At the scheduled interview time, the researcher conducting the interview will read the following statements to the survey participant and seek **verbal** consent.

1. I have read and understood the attached Plain Language Statement.
2. I freely agree to participate in this project according to the conditions in the Plain Language Statement.
3. I have been given a copy of the Plain Language Statement to keep.
4. The researcher has agreed not to reveal my identity and personal details, including where information about this project is published, or presented in any public form.

Date ..... (to be noted by the researcher)

## APPENDIX-2

### Information Sheet and Interview Schedule

Approval number: HRE2018-0797

Thank you for agreeing to take part in a study on organizational ingenuity in SMEs. The interview is expected to last 40 minutes. Please note that the participation in the project is completely voluntary and you are free to withdraw from the project at any time. If you choose to participate in the interview, with your permission, we would like to tape record the interview for transcription. The transcript will be emailed to you for checking and approval before we use your comments and views in any research publications that ensue from this project.

The Ethics Committee at Curtin University has approved the study (Approval HRE2018-0797) and as per university policy, the responses from executives would be kept confidential and the results would only be reported in aggregate. No individual executives or organisations will be identified.

Please feel free to contact the researchers: Amalina Ibrahim ([n.ibrahim6@postgrad.curtin.edu.au](mailto:n.ibrahim6@postgrad.curtin.edu.au)) or Dr. Subramaniam Ananthram (S.Ananthram@curtin.edu.au) for any questions or concerns that you may have.

#### Personal Information

Q1. Which industry does your organisation represent?	
Q2. What is your position in your organisation?	
Q3. Can you state the number of employees in your organisation?	
Q4. How many years have you worked in your current position in this company?	
Q5. How many years have you worked in this industry?	
Q6. Your gender: i. Female ii) Male	
Q7. Please indicate your age group below: i. <25 years old ii. 26-30 iii. 31-35 iv. 36-40 v. 46-50 vi. 51-55 vii. 56-60	

viii. >60 years old	
Q8. Please indicate your highest educational level: i. Secondary School Certificate ii. Vocational School Certificate/ Diploma iii. Bachelor Degree iv. Master Degree v. Doctorate	
Q9. Did you obtain any of your degrees overseas? i. Yes ii. No <i>If "Yes", which country:</i>	
Q10. Please indicate your professional qualification.	
Q11. Have you ever worked overseas? i. Yes ii. No <i>If "Yes", which country:</i>	
Q12. If "Yes" in Q11, please state the duration you worked overseas.	
Q13. Please indicate the company's key achievements.	
Q14. Please indicate the no. of patents the company possessed to date.	
Q15. Please indicate the no. of trademarks the company possessed to date.	

## Interview Questions

### PART A - General Questions

1. Please provide a brief history of your organisation (nature of business, scale, scope, number of countries it operates in etc.)
2. Briefly explain how much your organisation values innovation. Explain 'why' or 'why not' using anecdotal evidence/examples.
3. Briefly explain how your organisation achieves innovation. Explain 'how' using anecdotal evidence/examples.
4. Has your organisation experienced the most challenging phase of survival? If yes, how did you overcome it? Use specific examples to illustrate your response.

5. What is your understanding of 'organisational ingenuity' – can you provide a definition and give examples to illustrate the same.
6. We believe that it is important for organisation such as yours to possess Organisational Ingenuity – would you agree or disagree and please state reasons.

#### PART A1 - External Environment

1. What are the main challenges from the external environment (such as political, legal – name them here) that affect your organisation? Illustrate using examples.
2. What are the main barriers to the development and innovation of your industry? Illustrate using examples.
3. What are the main barriers to the development and innovation of your organisation? Illustrate using examples
4. How important are creative/ingenious solutions to tackle the identified challenges and barriers to innovation? How does your organisation develop these creative/ingenious solutions? Illustrate using examples.
5. Do you think that the countr(ies) that your organisation is operating in play an important role in the development of your organisation? Describe your reason.

#### PART B – Challenges/STORM conditions

As per according to our literature review, we have identified several main challenges that compel organisation to attain Organisational Ingenuity. These challenges are known as STORM conditions that include social, technological, organisational, regulatory, and market conditions. The following questions will be focused on these conditions that may or may not influence the organisation's performance.

1. What are the social factors/challenges from the external environment that force your organisation to become ingenuine? Illustrate using examples
2. What are the technological factors/challenges from external environment that force your organisation to become ingenuine? Illustrate using examples
3. What are the organisational factors influenced by external environment that force your organisation to become ingenuine? Illustrate using examples
4. What are the regulatory conditions from the external environment that force your organisation to become ingenuine? Illustrate using examples
5. What are the market conditions/challenges that force your organisation to become ingenuine?

6. Are there any other factors/conditions/challenges from the external environment that force your organisation to become ingenuine? Please illustrate.

#### PART C – Organisational Ingenuity

1. Thank you for identifying the various STORM conditions that force your organisation to develop Organisational Ingenuity. Can you now state how do STORM (and other) conditions stated above compel your organisation to develop organisational ingenuity? Illustrate using examples.

#### Part Cii- Strategy

1. Can you indicate what strategy does your organisation implement to overcome challenges from STORM (and other identified) conditions?
2. Does your organisation ever exploit and integrate open and generic resources to create a competitive advantage?
3. Does your organisation utilise frugal innovation as a strategy?

#### Part Ciii- Processes

1. Can you please describe specific processes that your organisation approach to overcome STORM (and other) conditions? Provide anecdotal evidences/examples.

#### Part Ci- Capabilities

1. Can you identify three-five firm-level capabilities (give couple of examples) that your organisation possess to combat STORM (and other) conditions. Please illustrate examples.
2. In your opinion, is there any other components than strategies, processes and capabilities stated that the firm possess to combat STORM conditions or challenges from external environment. Provide anecdotal evidences/examples.

#### PART D- Outcomes

1. In your opinion, how is organisational ingenuity supporting your organisation?
2. What are the three main outcomes of organisational ingenuity for your organization?

## APPENDIX-3 Orbis Search Strategy

Product name	Orbis		
Update number	180		
Software version	129.00		
Data update	21/02/2019 (n° 180003)		
Username	Curtin University Global-4745		
Export date	26/02/2019		
		Step result	Search result
1.	All active companies and companies with unknown situation	240,145,878	240,145,878
2.	World region/Country/Region in country: Gujarat (India), India, Karnataka (India), Maharashtra (India), National Capital Territory of Delhi (India), Tamil Nadu (India), Telangana (India), Uttar Pradesh (India), West Bengal (India)	2,038,181	1,438,009
3.	All companies with telephone number	102,926,223	9,235
4.	All companies with e-mail address	26,952,062	6,213
5.	Number of employees: Last available year, Last year -1, Last year -2, for at least one of the selected periods, max=500, exclusion of companies with no recent financial data and Public authorities/States/Governments	64,348,374	2,386
6.	NAICS 2017 (Primary codes only): 3254 - Pharmaceutical and Medicine Manufacturing, 326 - Plastics and Rubber Products Manufacturing, 327 - Nonmetallic Mineral Product Manufacturing, 331 - Primary Metal Manufacturing, 332 - Fabricated Metal Product Manufacturing, 333 - Machinery Manufacturing, 334 - Computer and Electronic Product Manufacturing, 334111 - Electronic Computer Manufacturing, 334112 - Computer Storage Device Manufacturing, 334118 - Computer Terminal and Other Computer Peripheral Equipment Manufacturing, 3342 - Communications Equipment Manufacturing, 33422 - Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, 334220 - Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, 33429 - Other Communications Equipment Manufacturing, 334290 - Other Communications Equipment Manufacturing, 334417 - Electronic Connector Manufacturing, 336 - Transportation Equipment Manufacturing, 336411 - Aircraft Manufacturing, 336412 - Aircraft Engine and Engine Parts Manufacturing, 336413 - Other Aircraft Parts and Auxiliary Equipment Manufacturing, 3391 - Medical Equipment and Supplies Manufacturing, 339112 - Surgical and Medical Instrument Manufacturing, 339991 - Gasket, Packing, and Sealing Device Manufacturing, 517 - Telecommunications,	12,802,478	726



**5173 - Wired and Wireless Telecommunications Carriers, 51731 - Wired and Wireless Telecommunications Carriers, 517311 - Wired Telecommunications Carriers, 517312 - Wireless Telecommunications Carriers (except Satellite), 51741 - Satellite Telecommunications, 517410 - Satellite Telecommunications, 5179 - Other Telecommunications, 51791 - Other Telecommunications, 517919 - All Other**

**Telecommunications, 5415 - Computer Systems Design and Related Services, 54151 - Computer Systems Design and Related Services, 541512 - Computer Systems Design Services, 541513 - Computer Facilities Management Services, 5417 - Scientific Research and Development Services, 541713 - Research and Development in Nanotechnology, 541714 - Research and Development in Biotechnology (except Nanobiotechnology), 541715 - Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology), 927 - Space Research and Technology, 9271 - Space Research and Technology, 92711 - Space Research and Technology, 927110 - Space Research and Technology**

**Boolean search : 1 And 2 And 3 And 4 And 5 And 6**

**TOTAL**

**726**

Fiscal year end:31/03

Current search settings:

- priority given to the most recent accounts available
- exclusion of companies with no recent financial data and Public authorities/States/Governments

Definition of the Ultimate Owner:

- minimum percentage that must characterise the path from a subject Company up to its Ultimate owner: 50.01%
- UO can have no shareholder identified or all its shareholders have an unknown percentage