A 4P FRAMEWORK FOR STRENGTHENING MSMEs IN INDIA

by

Shrenik Shah

DISSERTATION

Presented to the Swiss School of Business and Management Geneva

In Partial Fulfillment

Of the Requirements

For the Degree

DOCTOR OF BUSINESS ADMINISTRATION

SWISS SCHOOL OF BUSINESS AND MANAGEMENT GENEVA

<MONTH OF GRADUATION, YEAR>

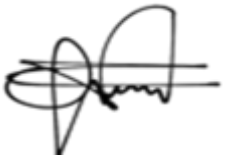
A 4P FRAMEWORK FOR STRENGTHENING

MSMEs IN INDIA

by

Shrenik Shah

APPROVED BY



Dissertation Chair

RECEIVED

Renee Goldstein Osmic

SSBM Representative

ABSTRACT

A 4P FRAMEWORK FOR STRENGTHENING

MSMEs IN INDIA

Shrenik Shah

2026

Micro, Small and Medium Enterprises (MSMEs) are central to the Indian economy, contributing substantially to employment, exports, and innovation. Despite sustained policy support and digital-transformation programmes, Indian MSMEs continue to face persistent performance constraints. Prior research has examined these challenges largely in isolation, leaving a need for an integrated framework that explains how multiple organisational capabilities jointly shape MSME performance.

This study addresses that gap by proposing and empirically examining the 4P Framework, an 4P Maturity (higher-order formative construct) model comprising People Maturity, Process Maturity, Product Capability, and Psychological Capability. Drawing on the Resource-Based View, Dynamic Capabilities Theory, Social Exchange Theory, and Upper Echelons Theory, the four dimensions are conceptualised as formative components of a higher-order construct, 4P Maturity, which is hypothesised to influence MSME performance.

A quantitative-dominant convergent mixed-methods design, grounded in pragmatism, was adopted. In the quantitative strand, a structured survey of 336 Indian MSME owner-managers across manufacturing, services, and trading was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The qualitative strand comprised embedded case studies of three MSMEs, supported by the PULSE 4P™ Business Health Index as a diagnostic instrument.

The results provide preliminary empirical support for the integrated framework. Process Maturity ($\beta = 0.218$, $p < .001$), Psychological Capability ($\beta = 0.216$, $p < .001$), and People Maturity ($\beta = 0.196$, $p = .001$) contributed significantly to 4P Maturity, whereas the contribution of Product Capability was positive but not statistically significant at the 5% level ($\beta = 0.116$, $p = .066$). 4P Maturity was positively associated with MSME Performance ($\beta = 0.617$, $p < .001$), explaining 38.1% of its variance. Qualitative findings indicated that capability development in MSMEs is highly interdependent, with Psychological Capability functioning as a meta-capability.

The findings should be interpreted with caution: the measurement model exhibited below-threshold AVE values and discriminant-validity concerns, and the achieved sample fell below the size estimated for the weakest structural path. Within these limits, the study contributes an integrated, capability-based account of MSME performance, operationalises Psychological Capability as a measurable organisational construct, and offers the PULSE 4P™ diagnostic as a structured capability-assessment approach for owner-managers, consultants, and policymakers.

Keywords: MSMEs, 4P Framework, People Maturity, Process Maturity, Product Capability, Psychological Capability, 4P Maturity, MSME Performance, PLS-SEM, India.

TABLE OF CONTENTS

LIST OF TABLES ..... *xiii*

LIST OF FIGURES ..... *xv*

CHAPTER 1: INTRODUCTION *1*

1.1 Opening Context: The Global and the Indian MSME Landscape **1**

1.2 The MSME Performance Gap: Empirical Evidence and Structural Diagnosis **2**

1.3 Fragmentation of Current MSME Research **5**

1.4 Research Problem Statement **7**

1.5 The 4P Framework: An Integrated Response to a Fragmented Literature **8**

1.6 Research Questions and Objectives **14**

1.7 Theoretical Framework: Overview **16**

1.8 Research Context: The Indian MSME Ecosystem in 2024–25 ..... **18**

1.8.1 Scale and Economic Significance 18

1.8.2 The Startup Ecosystem and its Implications for MSMEs 19

1.8.3 Post-Pandemic Recovery and Structural Resilience 21

1.9 Significance and Contributions of the Study **21**

1.9.1 Theoretical Contribution 1: An Integrated Capability Framework for MSME Performance 22

1.9.2 Theoretical Contribution 2: The Psychological Capability Construct 23

1.9.3 Empirical Contribution 1: Initial Empirical Evidence for the 4P Framework 23

1.9.4 Empirical Contribution 2: Case Study Evidence on Interdependencies and Mechanisms 24

1.9.5 Practical and Policy Contribution: The PULSE 4P™ Diagnostic 24

1.10 Scope and Delimitations **25**

1.11 Structure of the Thesis **26**

1.12 Chapter Summary **28**

CHAPTER 2: LITERATURE REVIEW *31*

2.1 Introduction **31**

2.2 Theoretical Foundation **35**

2.2.1 Resource-Based View (RBV) **35**

2.2.2 Dynamic Capabilities Theory **37**

2.2.3 Social Exchange Theory **38**

2.2.4 Upper Echelons Theory **40**

2.3. MSME Performance **43**

2.3.1 Defining MSME Performance **43**

2.3.2 Determinants of MSME Performance: Conceptual Synthesis **45**

2.4. People Maturity **49**
2.4.1 Conceptualising the People Maturity **49**
2.4.2 Human Resource Formalisation and MSME Performance **52**
2.4.3 Training, Skill Development, and MSME Performance **53**
2.4.4 Leadership Capability and MSME Performance **55**
2.4.5 Synthesis of the People Maturity **56**
2.4.6 Research Gap **58**
2.4.7 Hypothesis Development **59**
2.5. Process Construct **59**
2.5.1 Conceptualising the Process Construct **59**
2.5.2 Operational Performance and MSME Performance **61**
2.5.3 Financial Management Practices and MSME Performance **62**
2.5.4 Technology Adoption and MSME Performance **64**
2.5.5 Synthesis of the Process Construct **65**
2.5.6 Research Gap **66**
2.5.7 Hypothesis Development **66**
2.6. Product Capability **67**
2.6.1 Conceptualising the Product Capability **67**
2.6.2 Innovation Capability and MSME Performance **68**
2.6.3 Market Positioning and MSME Performance **69**
2.6.4 Quality, Differentiation, and MSME Performance **70**
2.6.5 Synthesis of the Product Capability **71**
2.6.6 Research Gap **72**
2.6.7 Hypothesis Development **73**
2.7. Psychological Capability **73**
2.7.1 Conceptualising the Psychological Capability **73**
2.7.2 Risk Orientation and MSME Performance **75**
2.7.3 Decision-Making Capability and MSME Performance **76**
2.7.4 Adaptability and MSME Performance **77**
2.7.5 Synthesis of the Psychological Capability **78**
2.7.6 Research Gap **79**
2.7.7 Hypothesis Development **79**
2.8. Integrated Model Discussion **80**
2.8.1 Interdependence of the 4P Constructs **80**
2.8.2 Overall 4P Maturity and MSME Performance **82**

2.8.3 Theoretical and Conceptual Contribution of the Integrated Model **84**
2.8.4 Hypothesis Development: Integrated Effect **85**
2.9. Conceptual Model Summary **86**
2.10. Hypothesis Table (H1–H5) **90**
Table 2.2: Measurement of Constructs, Dimensions, and Scale Design 94
CHAPTER 3: RESEARCH METHODOLOGY ***102***
3.1 Introduction **102**
3.2 Research Philosophy **103**
3.2.1 Ontological Position **104**
3.2.2 Epistemological Position **105**
3.2.3 Axiological Position **106**
3.2.4 Research Paradigm: Pragmatism **106**
3.3 Research Approach **107**
3.3.1 Deductive Reasoning in the Quantitative Strand **107**
3.3.2 Abductive Reasoning in the Qualitative Strand **108**
3.4 Research Design **109**
3.4.1 Time Horizon **111**
3.5 Research Strategy **114**
3.5.1 Survey Strategy **114**
3.5.2 Embedded Case Study Strategy **115**
3.6 Population, Sampling Frame, and Sample Size **116**
3.6.1 Target Population **116**
3.6.2 Sampling Frame **117**
3.6.3 Sampling Strategy **118**
3.6.4 Sample Size Determination **119**
3.7 Measurement Instrument and Construct Operationalisation **121**
3.7.1 People Maturity Scale **122**
3.7.2 Process Maturity Scale **123**
3.7.3 Product Capability Scale **123**
3.7.4 Psychological Capability Scale **124**
3.7.5 MSME Performance Scale **124**
3.7.6 Higher-Order Construct: 4P Maturity **125**
3.8 Data Collection Procedures **128**
3.8.1 Questionnaire Development and Pilot Testing **128**
3.8.2 Survey Administration **129**

3.8.3 Qualitative Data Collection **129**

3.9 Data Analysis Strategy **131**

3.9.1 Analytical Approach **131**

3.9.2 Quantitative Data Analysis (PLS-SEM) **131**

(a) Measurement Model Evaluation 132

(b) Structural Model Evaluation 133

3.9.3 Qualitative Data Analysis **133**

3.9.4 Integration of Quantitative and Qualitative Findings **135**

3.9.5 Common Method Bias **136**

3.10 Research Rigour **136**

3.10.1 Reliability **137**

3.10.2 Validity **137**

3.10.3 Non-Response Bias **138**

3.11 Ethical Considerations **139**

3.11.1 Informed Consent **139**

3.11.2 Confidentiality and Anonymisation **140**

3.11.3 Role Duality and Conflict of Interest **141**

3.12 The PULSE 4P™ Business Health Index: Role in the Case Study Component **143**

3.12.1 Description of the Instrument **143**

3.12.2 Role Within the Research Design **144**

3.13 Embedded Case Studies: Panth Infrastructure, Champcon Control, and Vimson Derma **145**

3.13.1 Case A: Panth Infrastructure **145**

3.13.2 Case B: Champcon Control **147**

3.13.3 Case C: Vimson Derma **148**

3.14 Methodological Limitations **150**

3.15 Chapter Summary **153**

CHAPTER 4: DATA ANALYSIS AND RESULTS ***156***

4.1 Introduction **156**

4.2 Data Screening and Preparation **157**

4.3 Demographic Profile of Respondents **158**

4.4 Descriptive Statistics **160**

4.5 Normality Assessment **162**

4.6 Common Method Bias Assessment **163**

4.7 Correlation Analysis **164**

4.8 Measurement Model Assessment (PLS-SEM) **165**

4.8.1 Indicator Reliability **166**
4.8.2 Internal Consistency Reliability **172**
4.8.3 Convergent Validity **174**
4.8.4 Discriminant Validity **175**
4.9 Higher-Order Construct: 4P Maturity **177**
4.9.1 Two-Stage Approach **177**
4.9.2 Collinearity Assessment (VIF) **178**
4.10 Structural Model Assessment **179**
4.10.1 Path Coefficients and Hypothesis Testing **180**
Table 4.10: Structural Path Coefficients and Hypothesis Testing Results 180
4.10.2 Coefficient of Determination (R^2) **183**
4.10.3 Effect Size (f^2) **184**
4.10.4 Model Fit Assessment **185**
4.11 Summary of Findings **188**
CHAPTER 5: QUALITATIVE FINDINGS ***191***
5.1 Introduction **191**
5.2 Qualitative Data Collection and Analysis: Overview **192**
5.3 Case A: Panth Infrastructure - Within-Case Analysis **193**
5.3.1 Firm Context and PULSE 4P™ Baseline Diagnostic (Time 1) **193**
5.3.2 Theme 1: Centralised Authority as Structural Constraint and Systemic Risk **195**
5.3.3 Theme 2: Process Informality as Operational Ceiling and Growth Barrier **196**
5.3.4 Theme 3: Psychological Readiness as the Gateway to Systemic Change **197**
5.3.5 Theme 4: People-Process Interdependence in Labour-Intensive Contexts **199**
5.3.6 Six-Month Outcomes and Within-Case Summary **200**
5.4 Case B: Champcon Control - Within-Case Analysis **201**
5.4.1 Firm Context and PULSE 4P™ Baseline Diagnostic (Time 1) **201**
5.4.2 Theme 1: Process Discipline as the Foundation of Scalable Sales **202**
5.4.3 Theme 2: Digital Repositioning - From Price Competitor to Technical Authority **203**
5.4.4 Theme 3: Psychological Enablement as Multiplier on All Other Interventions **205**
5.4.5 Theme 4: Product-Process Synergy and the Conditionality of Product Capability **206**
5.4.6 Six-Month Outcomes and Within-Case Summary **207**
5.5 Case C: Vimson Derma - Within-Case Analysis **207**
5.5.1 Firm Context and PULSE 4P™ Baseline Diagnostic (Time 1) **207**
5.5.2 Theme 1: Revenue Concentration as Systemic Vulnerability **209**
5.5.3 Theme 2: Risk Aversion as the Primary Inhibitor of Product Capability

Development **210**

5.5.4 Theme 3: Manufacturing Excellence Without Market Development - A Capability Imbalance **211**

5.5.5 Theme 4: Incremental Psychological Reorientation as Catalyst for Diversification **212**

5.5.6 Six-Month Outcomes and Within-Case Summary **213**

5.6 Cross-Case Thematic Synthesis **215**

5.6.1 Cross-Case Theme 1: Psychological Capability as the Meta-Capability of the 4P Framework **217**

5.6.2 Cross-Case Theme 2: Process-Product Interdependence as a Consistent Structural Pattern **218**

5.6.3 Cross-Case Theme 3: People Maturity as Necessary Foundation, Insufficient Enabler **219**

5.6.4 Cross-Case Theme 4: The Non-Linear, Interdependent Nature of Capability Development **219**

5.7 Integration of Qualitative Findings with Quantitative Results **220**

5.8 Chapter Summary **224**

CHAPTER 6: DISCUSSION, CONCLUSIONS, AND IMPLICATIONS ***227***

6.1 Introduction **227**

6.2 Summary of the Study **227**

6.3 Discussion of Findings **228**

6.3.1 H1: People Maturity → 4P Maturity (β = 0.196, p = .001) **228**

6.3.2 H2: Process Maturity → 4P Maturity (β = 0.218, p < .001) **229**

6.3.3 H3: Product Capability → 4P Maturity (β = 0.116, p = .066) **230**

6.3.4 H4: Psychological Capability → 4P Maturity (β = 0.216, p < .001) **231**

6.3.5 H5: 4P Maturity → MSME Performance (β = 0.617, p < .001) **232**

6.3.6 Measurement Model: Honest Assessment and Implications **233**

6.4 Integrated Interpretation: Convergent and Divergent Evidence **233**

6.5 Theoretical Contributions **234**

6.5.1 Contribution 1: An Integrated Capability Framework for MSME Performance **234**

6.5.2 Contribution 2: Psychological Capability as a Developable Firm-Level Construct **235**

6.5.3 Contribution 3: Higher-Order PLS-SEM as Methodological Template for MSME Research **236**

6.6 Practical Implications **237**

6.6.1 Implications for MSME Owner-Managers **237**

6.6.2 Implications for Business Consultants and Advisory Practitioners **238**

6.6.3 Implications for Policymakers **240**

6.7 Assessment of the PULSE 4P™ Business Health Index: Practical Utility **242**

6.8 Limitations of the Study **244**

6.9 Directions for Future Research **245**

6.10 Conclusions **247**

REFERENCES ***250***

APPENDIX A: SURVEY QUESTIONNAIRE ***289***

SECTION A: PEOPLE (People Maturity) ***289***

A1. HR Formalisation 289

A2. Training & Skill Development 289

A3. Leadership Capability 290

SECTION B: PROCESS (Process Maturity) ***290***

B1. Operational Efficiency 290

B2. Financial Management 290

B3. Technology Adoption 291

SECTION C: PRODUCT (Product Capability) ***291***

C1. Innovation 291

C2. Market Positioning 291

C3. Quality & Differentiation 292

SECTION D: PSYCHOLOGY (Psychological Capability) ***292***

D1. Risk Orientation 292

D2. Decision-Making 292

D3. Adaptability 292

SECTION E: MSME PERFORMANCE (Dependent Variable) ***293***

E1. Financial Performance 293

E2. Operational Performance 293

APPENDIX B: THE PULSE 4P™ BUSINESS HEALTH INDEX — INSTRUMENT DOCUMENTATION ***294***

Overview of the PULSE 4P Framework 294

APPENDIX C: PARTICIPANT INFORMATION SHEET ***296***

APPENDIX D: INFORMED CONSENT FORMS ***298***

APPENDIX E: SEMI-STRUCTURED INTERVIEW GUIDE ***302***

APPENDIX F: ORGANISATIONAL PERMISSION LETTERS ***304***

LIST OF TABLES

Particulars	Page No.
Table 1.1: MSME Classification in India (Revised 2020 Criteria)	2
Table 1.2: The 4P Framework Overview of Dimensions and Theoretical Anchors	13
Table 1.3: Thesis Structure and Chapter Linkages	28
Table 2.1: Summary of Hypotheses	90
Table 2.2: Measurement of Constructs, Dimensions, and Scale Design	96
Table 3.1: Planned Sample Distribution by Stratum	120
Table 3.2: Summary of Construct Operationalisation	127
Table 3.3: Summary of Case Study Firms and 4P Diagnostic Profiles	150
Table 4.1: Data Screening Summary	156
Table 4.2: Demographic Profile of Respondents	157
Table 4.3: Descriptive Statistics of Key Constructs	160
Table 4.4: Skewness and Kurtosis	161
Table 4.5: Pearson Correlation Matrix of Key Constructs	163
Table 4.6: Outer Loadings of Reflective Indicators	166
Table 4.7: Construct Reliability and Convergent Validity Statistics	171
Table 4.8: Heterotrait-Monotrait (HTMT) Ratio Matrix	174
Table 4.9: Collinearity Statistics (VIF) for the Formative Higher-Order Construct (4P Maturity)	177

Table 4.10: Structural Path Coefficients and Hypothesis Testing Results	179
Table 4.11: Effect Sizes (f^2) for Structural Model Paths	183
Table 5.1: Qualitative Data Sources and Analytical Output by Case Study Firm	192
Table 5.2: PULSE 4P™ Diagnostic Scores: Panth Infrastructure	193
Table 5.3: PULSE 4P™ Diagnostic Scores: Champcon Control	200
Table 5.4: PULSE 4P™ Diagnostic Scores: Vimson Derma	207
Table 5.5: Cross-Case Thematic Comparison Matrix	214
Table 5.6: Integration of Quantitative and Qualitative Findings by Hypothesis	219

LIST OF FIGURES

Particulars	Page No.
Figure 1.1: The Four Analytical Streams and the Integration Gap	6
Figure 2.1: Resource-Based View	36
Figure 2.2: Dynamic Capabilities Theory	38
Figure 2.3: Social Exchange Theory	39
Figure 2.4: Upper Echelons Theory	40
Figure 2.5: Integrated Theoretical Perspective	42
Figure 2.6: Niti Aayog's Report on skills shortage in Indian MSME's	51
Figure 2.7: Impact of Process in increased operational efficiency	61
Figure 2.8: Integration of People, Process, Product, and Psychology dimensions	81
Figure 2.9: Conceptual Framework	89
Figure 4.1: Measurement Model Results from SmartPLS	166

LIST OF ABBREVIATIONS

Abbreviation	Full Form
AI	Artificial Intelligence
AVE	Average Variance Extracted
CMB	Common Method Bias
CRM	Customer Relationship Management
CR	Composite Reliability
DCT	Dynamic Capabilities Theory
DPIIT	Department for Promotion of Industry and Internal Trade
ECLGS	Emergency Credit Line Guarantee Scheme
GDP	Gross Domestic Product
GST	Goods and Services Tax
HOC	Higher-Order Construct
HR	Human Resource
HRM	Human Resource Management
ICT	Information and Communication Technology
IT	Information Technology
KMO	Kaiser-Meyer-Olkin Measure
MSME	Micro, Small and Medium Enterprise
MSMED	Micro, Small and Medium Enterprises Development
NPCI	National Payments Corporation of India
ONDC	Open Network for Digital Commerce
PLS-SEM	Partial Least Squares Structural Equation Modelling
PM	People Maturity
PMP	Process Maturity
PC	Product Capability
PsyC	Psychological Capability
PULSE 4P™	Performance Understanding and Leadership Scale for Enterprise – 4P Framework
Q^2	Predictive Relevance
R^2	Coefficient of Determination
RBV	Resource-Based View
RMSEA	Root Mean Square Error of Approximation
SET	Social Exchange Theory
SME	Small and Medium Enterprise
SOP	Standard Operating Procedure
SPSS	Statistical Package for the Social Sciences
UET	Upper Echelons Theory

UPI	Unified Payments Interface
USD	United States Dollar
VIF	Variance Inflation Factor
VRIN	Valuable, Rare, Inimitable, and Non-Substitutable
WHO	World Health Organization

CHAPTER 1:

INTRODUCTION

1.1 Opening Context: The Global and the Indian MSME Landscape

Micro, Small and Medium Enterprises (MSMEs) are the backbone of both developed and developing economies. MSMEs constitute approximately 90% of all businesses worldwide, provide 60-70% of world jobs, and contribute around 50% to the world GDP (UNCTAD, 2023). Apart from these economic contributions, MSMEs also play a vital role in innovation, inclusive development, and the functioning of local and global value chains.

This is especially evident in developing countries, where MSMEs are the main sources of employment and entrepreneurship (Agrawal & Singh, 2019). However, even in these contexts, where they play a pivotal role, MSMEs often trail their peers in developed countries (Ahamed, 2023). This is not just because of external factors such as market conditions or macroeconomic instability, but also because of the lack of attention to internal organisational limitations that are not yet well understood in the field of policy or academic literature (World Bank, 2022).

Indian MSME are a case of this paradox. The sector is still full of microenterprises that work with a high level of informality, with more than 250 million individuals accounting for over 63 million enterprises, adding about 30% to the national GDP, 45% to exports, and employment (Ministry of MSME, 2023). Although policies have been widely supported to access credit, formalise, and digitalise, the performance of firms is still low and unequal. This poor performance is not due to the external macroeconomic context but rather to internal

organisational capability constraints, especially in human resources, operational processes, product innovation, and owner-manager decision-making which have only been given little integrated focus in policy and academic literature (World Bank, 2022; Khatri, 2019). The empirical setting of this study is the structural and institutional characteristics of the Indian MSME sector: its size, heterogeneity, informality, and policy environment. Their resulting performance challenges are empirically considered in Section 1.2, analytically in Section 1.3, and formalised as a research problem in Section 1.4.

Table 1.1: MSME Classification in India (Revised 2020 Criteria)

Enterprise Category	Investment in Plant & Machinery	Annual Turnover	Approx. Share of Sector
Micro Enterprise	Up to ₹1 crore	Up to ₹5 crore	~94%
Small Enterprise	Up to ₹10 crore	Up to ₹50 crore	~5%
Medium Enterprise	Up to ₹50 crore	Up to ₹250 crore	~1%

Source: Ministry of MSME (2023); MSMED Act 2006 (amended 2020)

Footnote: This study uses the MSME classification criteria revised in 2020 (Ministry of MSME, 2023). Subsequent revisions effective from 1 April 2025 raised the thresholds; findings are interpreted in the context of the criteria prevailing during framework development.

1.2 The MSME Performance Gap: Empirical Evidence and Structural Diagnosis

Indian MSMEs still exhibit poor performance results that are uneven and sometimes suboptimal, despite their structural significance. Such a trend cannot be attributed to macroeconomic factors

or external restrictions alone but demonstrates more basic company-level limitations that cut across sectors and geography (Arena et al, 2018).

This performance gap has been emphasised by recent empirical evidence. While most MSMEs state that they have achieved low-level operational targets, less than 40 percent have reported revenues rising above the rate of inflation, indicating a low level of real growth (Kawale, 2024). Investment in capability building is still low, with less than one-quarter of MSMEs investing in technology adoption, workforce development, or process improvement. Similarly, a lack of online integration is observed as a high proportion of small retail MSMEs have not yet obtained formal digital tools and systems on topics such as Accounts, Inventory, and Customer Relationship Management (CRM) (PayNearby, 2024).

MSMEs also have poorly developed organisational systems. Research shows that approximately 70 percent of companies do not have a formal human resource role, and more than 90 percent of companies lack formal performance management systems (Katyal & Xaviour, 2015). These loopholes go beyond inefficiency in administration and reach workforce productivity, retention, and overall organisational performance. The adoption of technology is a field where there is some evidence that companies will be reactive in their adoption; they will adopt only after they have seen their peers successfully adopt it and not as part of a strategy (Singh & Singh, 2014).

This trend is further supported by the financial and operational constraints. The post-pandemic recovery path analysis indicates that credit availability was not the only factor impactingNon-responsey of maNon-responset the lack of internal financial management systems that could help

them leverage the resources they had (Baker et al., 2017). Simultaneously, behavioural and psychological factors have also been identified as having a major influence. It was found that stress and uncertainty among owner-managers during and after the COVID-19 pandemic affected decision quality and risk-taking and reduced long-term strategic orientation (Lathabhavan et al., 2021).

The constraints are not limited to the individual instances. They show a systemic pattern of internal organisational weaknesses in human resources, operational processes, technology uptake, and managerial cognition (Bansal, 2024). This is complemented by sectoral diversity, as there are unique but overlapping capacity needs of MSMEs in the manufacturing, services, and trading environments. However, in such disparities, there is a common factor: companies find it difficult not only because they do not have enough resources but also because they cannot fully mobilise and organise the resources into an organizational system (Chandra & Chand, 2023).

Taken together, this evidence points to a consistent conclusion: the performance gap of Indian MSMEs is fundamentally an internal capability problem rather than a resource-access problem (Chaturvedi, 2021). It is not the availability of finance, technology, or markets that primarily limits performance, but the organisational capacity to mobilise, integrate, and sustain those inputs productively. This diagnosis calls for an integrated capability framework that can capture the multidimensional nature of the gap. Section 1.3 examines how the scholarly literature has responded to these challenges and why, despite substantial academic interest, it has produced only partial and fragmented explanations of MSME performance.

1.3 Fragmentation of Current MSME Research

Research on MSME performance has evolved along several distinct streams of analysis, each providing useful but partial insight. Four prevailing analytical perspectives can be identified: human resource management, operations and process management, innovation and product capability, and entrepreneurial psychology (Choudhry, 2023).

The human resource literature relates formal human resource practices to employee and firm performance, and the operations literature relates process formalisation, technology, and quality management to efficiency (Das & Bandyopadhyay, 2018). Research on innovation and product capability has demonstrated the importance of product development and market positioning for competitive advantage. Recently, a fourth stream has emerged in the area of entrepreneurial psychology, which focuses on the influence of owner-manager cognition, decision-making style, and behavioural dispositions on firm outcomes (Desai & Rao, 2021).

These four streams have evolved to shed light on one dimension of MSME capabilities at a time. The literature has not explored how these dimensions interact within the same firm, for example, how an owner-manager's psychological orientation affects the quality of HR decisions or how weak process systems limit the firm's potential for investing in product innovation. This means that there are only single-dimensional explanations of a body of knowledge that requires multidimensional ones.

The Four Research Streams on MSME Performance and the Gap Between Them

Stream 1 HRM Research: Links formal HR systems to employee productivity and firm performance. Limitation: Analysed in isolation from operational, product, and psychological dimensions.
Stream 2 Operations Management: Documents gains from process formalisation, quality management, and ICT adoption. Limitation: The study underweights the role of the owner's mindset and HR capacity in sustaining process change.
Stream 3 InnovationandProductEstablishesthee centrality of product capability to competitive positioning. Limitation: This study underweights the psychological barriers to innovation in owner-managed firms.
Stream 4: Entrepreneurial psychology: Shows that owner-manager cognition significantly predicts firm outcomes. Limitation: This study does not model how psychology shapes HR, process, and product dimensions jointly.
THE GAP: No existing framework integrates all four dimensions into a single, testable model of MSME performance determinants.
THE RESPONSE: The 4P Framework (People–Process–Product–Psychology) as an integrated, empirically testable, higher-order capability model.

Figure 1.1: The Four Analytical Streams and the Integration Gap

These four research streams have developed largely in isolation from each other. Each provides a partial account of MSME performance, but none integrates all four dimensions into a single analytical framework that models their interdependencies. This constitutes a structural gap in the literature, which Section 1.4 formalises as the precise research problem the study is designed to address.

1.4 Research Problem Statement

The literature review reveals a single and structural gap in the scholarly literature which is the absence of an empirically examined integrated framework that models the combined effect of human resource practices, operational processes, product and innovation capability, and entrepreneurial psychology on MSME performance. The sections below elaborate on the theoretical and practical implications of this gap. In theory, an integrated framework would be lacking because this means that there is no depth of explanation. Firm performance is partially explained by prevailing one-dimensional approaches which fail to reflect the interdependencies of organisational capabilities (Dhanushri, 2024). As recent literature on MSMEs with limited resources states, firm performance is not an outcome of individual capabilities but of the interplay of capabilities across different dimensions (Patel et al., 2024).

Empirically, the lack of a comprehensive framework leaves MSME owner-managers, advisors, and policymakers without comprehensive tools for capability diagnostics (Ganguly et al., 2025). Interventions often focus on addressing one dimension alone, such as access to credit, process improvement, or skill development, without considering the interaction between dimensions. These types of incremental strategies can lead to short-term or limited performance gains.

To understand the MSME context in India, an integrated analytical approach is especially needed because of three structural features. First, in owner-managed businesses, decision-making is very centralised, and a disproportionately large influence of the cognitive and behavioural characteristics of the owner-manager on the performance of the organisation can be observed (Gupta et al., 2018). Second, the dominance of micro-enterprises with low resources exacerbates

capability constraints in all dimensions. Third, the business context in the post-pandemic era of fast-paced digitalisation, formalisation demands, and heightened competition has increased the minimum level of capabilities required to survive and thrive in business.

These factors would require a multidimensional analytical model that can explain the joint and interactive explanation of MSME performance. An integrated framework, one that not only involves organizational capabilities but also the psychology of the owner-managers and the interconnection between these two in the outcomes of the firms, is needed. To address this need, the 4P Framework (introduced in Section 1.5) is proposed.

As identified in the preceding sections, the problems of MSMEs are multi-dimensional and the literature is very wide, but so far there is no literature which is integrated and empirically tested to capture all these dimensions. This gap in the structure is the exact problem that motivates the present study.

1.5 The 4P Framework: An Integrated Response to a Fragmented Literature

To address the above research problem, the present study proposes the 4P Framework of MSME performance as a multi-dimensional integrated model which conceptualises firm capability as the interacting effect of four constructs: People Maturity, Process Maturity, Product Capability, and Psychological Capability. These dimensions are a higher-order formative construct, referred to as 4P maturity (Hair et al., 2021; Bollen and Lennox, 1991), which reflects the overall organisational capability of the company. The four dimensions in this formative specification are not reflective of a single underlying latent trait but are conceptualised as constitutive components

that together make up 4P maturity. It is important to note that the weights from each dimension to 4P Maturity are formative, and they represent the relative influence of each dimension on the integrated construct rather than causal influences in a traditional sense.

The overall conceptual and theoretical model proposed in this study is called 4P Framework. In this context, "4P Maturity" is defined as a higher order formative construct consisting of four first order dimensions: People Maturity, Process Maturity, Product Capability, and Psychological Capability. In this thesis the term integrated organisational capability is used which refers specifically to the 4P Maturity construct.

The underlying principle of the framework is that the performance of MSMEs is not sufficiently captured by any single capability dimension. Performance is the result of the interaction and reinforcement between organisational systems and owner-manager cognition (Hair et al., 2022). The 4P framework considers this by incorporating these dimensions within a single analytical model, which allows for a more realistic view of how and why firms with similar resource profiles can survive and grow while others can stagnate (Hannen et al., 2019).

This framework makes three major contributions to the literature.

First, its architecture is integrative. The 4P Framework considers human resources, operational processes, product strategy, and owner-manager cognition to be not distinct explanatory variables but a set of interacting dimensions of a more comprehensive capability system. This allows for a simultaneous assessment of the impact of each dimension and the overall impact of

the combination of dimensions on MSMEs performance, a design that mimics how MSMEs actually operate.

Second, it is theoretically informed by several complementary perspectives. People, Process, and Product are positioned within the Resource Based View (RBV) which emphasises the significance of valuable, rare, inimitable, and non-substitutable internal resources as the basis for competitive advantage (Barney, 1991). Dynamic Capabilities Theory takes this further by noting that businesses need to continually sense-seize-reconfigure their resource base to adjust to changes in the environment (Teece, 2018). Structured HR investment is converted into employee engagement, commitment, and productive reciprocity through the behavioural mechanism of Social Exchange Theory. The Psychological Capability dimension is based on the Upper Echelons Theory, which suggests that the cognitive and behavioural traits of top decision-makers significantly influence the outcomes of organisations (Hambrick, 2016). The 4P Framework presents a truly multi-level perspective on MSME performance, moving from the level of resources and processes at the organisational level to the mindset and decision-making style of the MSME owner-manager.

Third, the framework is intended to have practical applicability. The 4P model is intended to be a tool for diagnosis and development for those working in practice, as well as a theoretical contribution. It can be operationalised in the PULSE 4P™ Business Health Index, which will help owner-managers and consultants determine the maturity of their capabilities in each of the four dimensions and plan interventions accordingly. This practitioner orientation is a reflection of the applied nature of MSME research and is explored empirically using embedded case

studies; at this level, the use of the orientation should be regarded as illustrating rather than conclusively demonstrating.

All four dimensions reflect four different but related aspects of organisational capability.

People Maturity refers to the degree to which an MSME has established systematic and strategically oriented human resource systems (Hongal et al., 2017). It encompasses organisational practices such as recruitment, training and development, employee engagement, performance management, and leadership behaviours (Haruna et al., 2022). Notably, People Maturity is observable and institutionalised but not based on inner psychological characteristics.

Process Maturity is the level of formalisation, systematisation, and discipline of organisational operations. This includes the adoption of standard operating procedures, financial management systems, technology adoption, quality control measures, and compliance with regulations (Jahanara, 2017). Increased process maturity allows for consistency, scale, and data-driven decisions in the company.

Product Capability is the firm's ability to develop, position, and offer value in the market. This comprises the capacity to innovate, differentiate products or services, branding, market fit, and online existence (Junaidi et al., 2023). Product capability is important in determining customer acquisition and retention in the market which is becoming more competitive and platform-driven.

Psychological Capability reflects the cognitive and behavioural orientation of the MSME owner-manager, such as risk appetite, decision-making style, strategic vision, adaptability, and readiness to delegate (Kant & Shrutika, 2020). These psychological qualities serve as meta-capabilities in the context of Indian MSMEs, whose decision-making is highly centralised and therefore determines the development and implementation of all other organisational dimensions (Kumar, 2021).

An important conceptual difference is upheld between Psychological Capability and People Maturity. People Maturity represents organisational behaviour in terms of the management of human resources, but Psychological Capability reflects the inner cognitive and behavioural characteristics of the decision-maker that influence organisational behaviour (Lathabhavan, et al.,2021). This difference guarantees conceptual clarity while recognising their empirical interdependence.

Together, these four dimensions define 4P maturity as a higher-order formative construct (HOC) (Hair et al., 2021; Bollen and Lennox, 1991; Diamantopoulos and Winklhofer, 2001), where each of the four formative constructs on the first-order level defines an indicator of the integrated organisational capability maturity. The four dimensions are not a snapshot of a latent trait; rather, they are a composite of each other, which is 4P Maturity in this specification. This formative logic is appropriate because the 4P Framework assumes that integrated capability is a result of its dimensions; removing any one of these would alter the nature of the construct itself (Chin, 1998; Hair et al., 2022). The framework can then be used to analyse the impact of each dimension and the overall impact of a combination of capability maturity on MSME performance.

Table 1.2: The 4P Framework Overview of Dimensions and Theoretical Anchors

Dimension	**Core Focus**	**Key Sub-Themes**	**Theoretical Anchor**
People Maturity	Human resource and leadership capability	HR Formalisation, Workforce Retention, Training & Development, Employee Engagement, Leadership Style	Social Exchange Theory; Resource-Based View
Process Maturity	Operational systems, financial discipline, technology adoption	SOPs, Technology Adoption, Financial Management, Quality Control, Regulatory Compliance	Dynamic Capabilities Theory; Resource-Based View
Product Capability	Innovation, market positioning, branding, digital presence	Product Innovation, Market Fit, Branding & Positioning, Digital Platform, Marketing Strategy	Resource-Based View; Dynamic Capabilities Theory
Psychological Capability	Owner-manager cognition, risk orientation, decision-making, adaptability	Risk Appetite, Decision-Making Style, Vision Orientation, Change Readiness, Delegation Willingness	Upper Echelons Theory
4P Maturity (HOC)	Integrated organisational capability higher-order formative construct (HOC); four first-order reflective constructs serve as formative indicators constituting 4P	Higher-order formative construct; formative dimensions constitute 4P Maturity, which predicts MSME performance	All four theoretical perspectives in integration

	Maturity		

1.6 Research Questions and Objectives

The overarching research question guiding this study is as follows:

How do People Maturity, Process Maturity, Product Capability, and Psychological Capability collectively constitute a higher-order formative construct of 4P Maturity, and how does this 4P Maturity (higher-order formative construct) *composite predict MSME performance in India?*

This overarching question is addressed through five specific research questions.

- **RQ1:** Does People Maturity make a significant and positive formative contribution to 4P Maturity in Indian MSMEs?
- **RQ2:** Does Process Maturity make a significant and positive formative contribution to 4P Maturity in the Indian MSMEs?
- **RQ3:** Does Product Capability make a significant and positive formative contribution to 4P Maturity in the Indian MSMEs?
- **RQ4:** Does Psychological Capability make a significant and positive formative contribution to 4P Maturity in the Indian MSMEs?
- **RQ5:** Does 4P maturity significantly predict MSME performance?

This research questions correspond directly to the five hypotheses developed in Section 2.

In addition to the hypothesis-driven inquiry, the study also pursues two qualitative objectives: (a) to examine how the four capability dimensions interact and influence one another in real MSME contexts; and

(b) to assess the practical applicability of the 4P Framework as a diagnostic and improvement tool.

The formal research objectives of this study are as follows:

- **Objective 1:** To examine the internal capability challenges faced by the Indian MSMEs across People, Process, Product, and Psychological dimensions.
- **Objective 2:** To conceptualise and empirically examine the 4P Framework as an integrated, higher-order capability model, with findings interpreted as preliminary given the measurement limitations identified in Chapter 4.
- **Objective 3:** To empirically test the hypothesised relationships using Partial Least Squares Structural Equation Modelling (PLS-SEM).
- **Objective 4:** To explore the interdependencies among the four dimensions through embedded case studies.
- **Objective 5:** To develop actionable recommendations for MSME stakeholders based on an integrated framework.

These research questions translate into five formal hypotheses, stated at the end of Chapter 2, following the theoretical and empirical justification developed in the literature review.

H1: People Maturity makes a significant and positive formative contribution to 4P maturity.
H2: Process Maturity makes a significant and positive formative contribution to 4P maturity.
H3: Product Capability makes a significant and positive formative contribution to 4P

maturity.
H4: Psychological Capability makes a significant and positive formative contribution to 4P maturity.
H5:4P maturity positively predicts MSME Performance.

Beyond these hypothesis-specific questions, the study pursues two secondary objectives through the qualitative case study strand: (a) to examine the mechanisms through which the 4P dimensions interact and mutually reinforce or constrain one another in real MSME settings; and (b) to assess the practical utility of the 4P Framework operationalised through the PULSE 4P™ Business Health Index as a diagnostic and improvement tool in structured consulting engagements with Indian MSMEs.

1.7 Theoretical Framework: Overview

The 4P Framework is based on four well-known theories, which, when combined, offer a multi-level interpretation of MSME performance. These theories concentrate on the different ways in which organisational capacity and managerial qualities impact firm performance. The framework itself is developed in depth from each of the perspectives presented in Chapter 2. The overview provided here is of the theoretical architecture underlying each of these perspectives.

The first theoretical anchor is the resource-based view (RBV) of Barney (1991), which was further developed by Lockett et al. (2009) and Kraaijenbrink et al. (2010). According to RBV, sustained competitive advantage can be achieved using resources which are valuable, rare, inimitable, and non-substitutable (VRIN). In the MSME context, the capability combinations of

People, Process, and Product are valuable (correlated with performance), rare (most MSMEs do not have them), inimitable (embedded in firm routines, relationships), and not easily substituted. In view of the theoretical expectations of RBV, higher maturity of People, Process, and Product is expected to be related to improved MSME performance.

Dynamic Capabilities Theory (DCT) (Teece, 2018; Bleady et al., 2018; Gremme and Wohlgemuth, 2017) builds on the RBV by focusing on how firms can sense opportunities, seize them, and reconfigure their resource base as a result of environmental change. With the Indian MSME sector increasingly digitising, resources alone are not enough; it is how firms can adjust their operations, revise their products, and shift their resources to meet competition and technological change that makes them thrive (Leonardi & Harsono, 2022). Therefore, the emphasis of the Process dimension on the use of technology and flexibility of operations, and the emphasis of the Product dimension on innovation and repositioning the product are based on the theory of Dynamic Capabilities as a way for MSMEs to be competitive in a dynamic environment.

According to Social Exchange Theory (Cropanzano and Mitchell, 2005; Ahmad et al., 2023; Cook et al., 2013), People Maturity is the mechanism that explains its impact on firm outcomes. According to SET, organisational relationships are expected to be reciprocal, and if employees feel that their organisation is treating them fairly and genuinely investing in their growth and well-being, they will return the gesture with greater commitment, engagement, and discretionary efforts (Loo et al., 2023). People Maturity is essentially about the formalisation and employee management practices that provide credible signals of organisational intent, and when those

signals are reliable and credible, they elicit subsequent behavioural reactions that lead to the firm's performance improvements.

The Psychological Capability construct is based on Upper Echelons Theory (Hambrick, 2016; Carpenter et al., 2004; Neely et al., 2020) which suggests that the cognitive frames, values, and personality dispositions of top decision-makers influence decisions made and, in turn, organisational outcomes. This is especially significant in the context of Indian MSMEs, where the owner-manager is usually the sole decision-maker with a strategic role. An owner/manager's risk orientation, decision-making, change readiness and strategic vision are not isolated characteristics; they are organisational-level constructs that help to explain the allocation of resources, competitive response and long-term development of the business firm.

1.8 Research Context: The Indian MSME Ecosystem in 2024–25

The focus of this study on the Indian MSME sector is not incidental but reflects a deliberate choice. The Indian MSME ecosystem is one of the most consequential and analytically complex MSME environments in the world; however, it remains among the least studied relative to its economic significance.

1.8.1 Scale and Economic Significance

According to all tangible measurements, the MSME industry in India is the largest in the world in terms of the absolute number of businesses and people employed. The MSME Dashboard (2023) estimates that the number of registered firms is 35.4 million, with manufacturing (around 36 percent of value-added industrial output), services (the fastest growing sector, especially IT-

enabled services, logistics, and healthcare), and trading (the numerically dominant category) making up the largest share. All of these companies have a combined share in GDP of about 30 percent - a number that, when adjusted to the informality premium of unregistered companies, can be significantly larger (Khatri, 2019). In 2022-23, India exported MSME products and services worth USD 150.7 billion, which is approximately forty-five percent of the total merchandise exports (Ministry of MSME, 2023).

The rapid development of the Indian digital economy has generated numerous real opportunities as well as key competitive threats to MSMEs. Launched in 2022, the Open Network for Digital Commerce (ONDC) can potentially democratise access to e-commerce by small firms by unbundling the platform benefits of large e-commerce platforms. Even small businesses have benefited significantly from the friction of digital payments lowered significantly by the Unified Payments Interface (UPI), which has handled 14,726 crore transactions totalling 199 lakh crores in 2023–24 (NPCI, 2024). The GST network has both institutionalised the records of transactions of an increasing proportion of MSMEs that were previously informal and has generated both compliance costs and new possibilities for accessing formal credit. These digital infrastructure changes add up to a change in the enabling environment structure but increase the bar to effective participation.

1.8.2 The Startup Ecosystem and its Implications for MSMEs

India has become one of the three largest startup ecosystems in the world (DPIIT, 2024), with more than 117,000 registered startups, 111 unicorns as of early 2025, and a valuation of over USD 350 billion. This has implications that extend beyond the startup segment itself.

In terms of competition, while platform-based startups in the e-commerce, food delivery, logistics, financial services, and healthcare segments are already challenging and competing with traditional MSMEs in the same set of customers, they are much more advanced than their counterparts in terms of technology, customer experience, and marketing power. If MSMEs are unable to gain a similar capability in all these aspects, they will be pushed out of the market by platform competitors with network effects, growth capital from VC, and data-driven customer acquisition (Hendrawan et al., 2024). In terms of talent, the culture of performance management, equity compensation, and quick career escalation within the talent base of the startup ecosystem has increased the demand for skilled workers, thus making it more difficult to attract and maintain the human capital needed to develop the capability. This is a clear reflection of the People Maturity challenge that the 4P Framework aims to tackle.

Simultaneously, MSMEs have been provided with new opportunities through the startup ecosystem that has helped them reduce the cost of acquiring customers, adopting technology, and logistics. Individual fintech-based companies (Razorpay, BharatPe, Open), B2B marketplace services (Udaan, IndiaMart, TradeIndia), and SaaS-based products catering to smaller companies (Zoho, Khatabook, OkCredit) have also developed products and services that specifically aim to reduce capability barriers in smaller businesses. The actual use of these tools and the organisational prerequisites for taking advantage of them will be directly linked to the Process Maturity and Psychological Capability exhibited the largest formative weights among the dimensions constituting the higher-order 4P Maturity construct.

1.8.3 Post-Pandemic Recovery and Structural Resilience

The COVID-19 pandemic caused grave harm to the MSME sector in India. Approximately 35 percent of MSMEs had to close down or suffer a setback of extreme activity in the initial lockdown period (CRISIL, 2021), and micro-enterprises and contact-intensive service businesses were disproportionately affected. The government responded with the 3-lakh crore ECLGS, Emergency Procurement provisions under Atmanirbhar Bharat, and a 45-day payment guarantee requirement on MSME suppliers to big enterprises which all helped in the much-needed short-term relief.

1.9 Significance and Contributions of the Study

This study puts forward 5 zones of possible knowledge contribution: two theoretical, two empirical, and one practical. Care has been taken to present these claims in a reserved manner, as contributions, where the degree of support is commensurate with the strength of the claims. Therefore, the empirical contributions reported in Chapter 4 are best seen as an initial, empirical investigation of the 4P Framework rather than a conclusive validation.

The post-pandemic recovery path offers particularly insightful signage. The firms that recovered most quickly and comprehensively were those that entered the crisis with pre-existing strengths: they had formalised HR practices in place that facilitated swift reallocation of their workforce; they had documented processes which they could adapt to remote or hybrid operating; diversified product offerings and reduced reliance on any single revenue stream; and owner-managers who were psychologically resilient and strategically flexible enough to evolve their

business models, make quick decisions under extended periods of uncertainty, and maintain vigilance and focus during periods of extreme volatility.

The recovery path after the pandemic, therefore, provides naturalistic real-life evidence of the integrated 4P perspective: those companies that survived and later grew were not the ones that had the best access to governmental relief, but those whose internal capacity was more coherent and all-inclusive. This finding has direct policy implications regarding the future design of MSME support, which should be based on the concept of holistic capability-building interventions in an integrated and not piecemeal fashion, that is, covering the People, Process, Product, and Psychological dimensions, as opposed to single-dimension access schemes that currently dominate the policy arena.

1.9.1 Theoretical Contribution 1: An Integrated Capability Framework for MSME Performance

The conceptualisation and empirical operationalisation of the 4P Framework as a composite of the performance determinants of MSMEs is the major theoretical contribution of this study, where capability is conceptualised as multidimensional and interrelated rather than a single factor to explain MSMEs performance. The framework aims to tackle the existing issue of literature fragmentation by defining PM, PMP, PC, and PCC as co-existing elements of a higher-order construct (4P Maturity) that collectively, and not separately, can account for the performance of firms. This perspective is consistent with new lines of enquiry in the MSME literature that centre on composite, capability-based models that encompass the combined and synergistic influences of organisational dimensions (Patel et al., 2024; Bansal, 2024), as well as

the theoretical synthesis from the Resource-Based View, Dynamic Capabilities Theory, Social Exchange Theory, and Upper Echelons Theory.

1.9.2 Theoretical Contribution 2: The Psychological Capability Construct

The second theoretical input is the conceptualisation and operationalisation of Psychological Capability as a firm-level organisational construct, and not as an individual characteristic. This research, based on Upper Echelons Theory and operationalised by multi-item measures of risk orientation, decision-making style, vision orientation, change readiness, and delegation willingness, provides a precedent for viewing owner-manager psychology as something that can be analysed, measured, and is therefore amenable to improvement. In theory, this will generalise the applicability of the Upper Echelons Theory in large-firm executive team environments to the owner-managed MSME environment. In practice, it leaves the option of creating specific psychological capability development interventions for MSME owners as a structured program.

1.9.3 Empirical Contribution 1: Initial Empirical Evidence for the 4P Framework

This study attempts to conduct an initial empirical analysis of the proposed 4P Framework through PLS-SEM and a wide range of MSMEs in India. The analysis provides evidence of the level of contribution of the four capability dimensions in the higher-order construct of 4P Maturity and the relationship between the higher-order 4P Maturity and MSME performance. With the limitations of measurement as found in Chapter 4, convergent and discriminant validity issues included, the results should be viewed as providing partial and preliminary empirical evidence for parts of the proposed framework, but not for the framework as a whole.

1.9.4 Empirical Contribution 2: Case Study Evidence on Interdependencies and Mechanisms

The embedded case study strand seeks to provide qualitative evidence of the mechanisms and interdependencies that complement the statistical estimates of the quantitative model. The six-month consultancy engagements with Panth Infrastructure, Champcon Control, and Vimson Derma aim to support theoretically rich, contextually specific insights into how the 4P dimensions interact in real firms. This is particularly useful in examining the potential role of Psychological Capability as a cross-cutting enabler or constraint on the other three dimensions, a dynamic that the model theorises but which requires qualitative illustration to achieve analytical depth.

1.9.5 Practical and Policy Contribution: The PULSE 4P™ Diagnostic

From a practical standpoint, this study illustrates the practical application of the 4P Framework as an organising structure for a consulting and diagnostic tool, the PULSE 4P™ Business Health Index, which enables MSME owner-managers and consultants to evaluate their maturity level for each of the four dimensions, identify capability development priorities and monitor changes over time. Case studies are built into this instrument to show how it can be used practically and should be regarded as examples and not conclusions at this stage. This practitioner tool is the direct translation of the academic theory to the applied management practice, as is appropriate for the action-research approach of the study. The 4P Framework is a multi-dimensional analytical tool that helps policymakers to perceive MSME support programmes not in one dimension (such as access to credit, technology subsidy), but in the package of capability building that reflects interdependencies between the four dimensions of development (People, Process, Product, and Psychological).

1.10 Scope and Delimitations

The scope of this study was based on three dimensions. The geographical area of study is MSMEs in India with a quantitative sample of both Tier 1 and Tier 2/3 cities in five states, namely Gujarat, Maharashtra, Rajasthan, Karnataka, and Tamil Nadu. These states were chosen as they collectively contribute to a disproportionate number of registered MSME activities in India and offer geographical diversity to reflect variations in institutional settings, infrastructure quality, and market dynamism.

The study is sectoral, covering three broad categories of MSME: manufacturing, services, and trading, which constitute the largest majority of the registered sector. MSMEs related to agriculture are also not considered in the main quantitative sample, as they have a different institutional environment, regulation, and performance dynamics, which would require separate theoretical and empirical considerations. The research also omits MSMEs in financial services and real estate which have different regulation systems and performance measurement standards.

The study is methodologically limited to Indian MSMEs that are in operation in the micro, small, and medium-sized groups of MSMED as revised. Big companies and startups are not considered, since they are (or should be) further down the resource hierarchy, have a different governance system, and face different competition.

There are two other delimitations that are significant for the interpretation of the findings. First, the quantitative survey is cross-sectional in nature, meaning that it only gathers data at a specific point in time; therefore, it is not possible to make causal conclusions regarding the direction of

the 4P-performance relationship. The postulation of the theoretical model is that 4P maturity predicts performance, yet the survey data results suggest associative but not necessarily causal conclusions. To some extent, the longitudinal case study strand addresses this limitation but does not eliminate it completely. Second, although the sample was strategically stratified, it was based on the population of MSMEs which are accessible (primarily formal or semi-formal) and may not be fully representative of the most informal and unregistered micro-enterprises which are the numerical majority of the sector. This is one caveat that should be considered in the findings.

1.11 Structure of the Thesis

This thesis is structured into six chapters which individually contribute to the overall research argument in a distinct and cumulative manner.

Chapter 1 (this chapter) has defined the context of the research, the research gap in the Indian MSME sector, the piecemeal state of the analytical architecture of the extant literature, the 4P Framework has been proposed as a comprehensive response, the purpose and objective of the research, and the theoretical backdrops, importance, and extent of the study.

The remainder of this thesis is organised as follows. Chapter 2 presents the Literature Review: it uses the research in the four analytical streams identified in Section 1.3 to formulate the theoretical basis of each of the 4P constructs, summarises the empirical evidence linking each construct with MSME performance, identifies the specific gaps in the research that the 4P Framework addresses, and formally derives the five hypotheses. The conceptual model that structures the quantitative analysis in Chapter 4 is also developed in Chapter 2.

Chapter 3 describes the Research Methodology: the pragmatist research paradigm, quantitative-dominant mixed-methods design, stratified purposive sampling strategy, creation and pilot testing of the measurement instrument, PLS-SEM analytical procedure, qualitative thematic analysis protocol, rigour framework, and ethical considerations. Chapter 3 explains the role of the PULSE 4P™ Business Health Index as part of the case study.

In Chapter 4, the Quantitative Findings, measurement model assessment (reliability, convergent validity, discriminant validity), and structural model assessment (path coefficients, bootstrapped confidence intervals, R 2, f 2, Q 2) are presented, which is a full empirical explanation of the 4P framework performance in the PLS-SEM analysis. The results are presented per hypothesis and the higher-order 4P Maturity construct.

Chapter 5 presents the Qualitative Findings of the three embedded case studies. It uses within-case and cross-case thematic analysis based on interview transcripts, field notes, and analysis of business documents of the six-month consulting engagements of Panth Infrastructure, Champcon Control, and Vimson Derma to shed light on the mechanisms and relationships between the 4P dimensions in actual MSME settings. As qualitative evidence of the practical usefulness of the framework, the PULSE 4P TM diagnostic profiles and intervention outcomes were addressed.

Chapter 6 presents the Discussion, Conclusions and Implications. It combines both quantitative and qualitative results in a combined presentation, interprets them through the theoretical framework, measures the results of the study against the purpose of the research, draws practical

implications for MSME owner-managers, consultants, and policymakers, presents the limitations, and presents future research directions.

Table 1.3: Thesis Structure and Chapter Linkages

Chapter	Title	Primary Content	Key Output
Chapter 1	Introduction	Research context, problem statement, 4P Framework overview, research questions, significance	Research problem and questions clearly defined
Chapter 2	Literature Review	Four research streams, theoretical foundations (RBV, DCT, SET, UET), construct conceptualisation, hypotheses	5 formal hypotheses and conceptual model
Chapter 3	Research Methodology	Philosophical position, mixed-methods design, sampling, instrument, PLS-SEM, ethics, case study protocol	Methodological framework and data collection plan
Chapter 4	Quantitative Findings	Measurement model, structural model, hypothesis testing via PLS-SEM	Empirical estimates of 4P construct relationships
Chapter 5	Qualitative Findings	Case study thematic analysis Panth, Champcon, Vimsonwithin-case and cross-case	Mechanism-level evidence for 4P interdependencies
Chapter 6	Discussion & Conclusions	Integration, theoretical interpretation, recommendations, limitations, future directions	Integrated conclusions and actionable implications

1.12 Chapter Summary

This chapter has provided the intellectual and contextual background of the study that the Indian MSME sector is important in terms of its scale, contribution to the Indian economy, and

employment and innovation, despite its high level of policy support. It then established the problem of fragmentation in the existing literature, suggesting that the four main streams of analysis (HRM, operations management, innovation and product capability, and entrepreneurial psychology) have yielded valuable but limited insights so far without drawing models that would explain how these dimensions relate to firm performance.

To cope with this fragmentation, the chapter proposes a higher-order formative model, the 4P Framework, in which the intersection of 4P Maturity (People Maturity, Process Maturity, Product Capability, Psychological Capability) is a theoretically grounded and empirically testable response. It identified five research questions and five hypotheses and described four theoretical perspectives: Resource-Based View, Dynamic Capabilities Theory, Social Exchange Theory and Upper Echelons Theory, which together form the framework. The chapter also places the study in the Indian MSME ecosystem in 2024–25, which has unique capability needs of MSMEs arising from the competition of the startup ecosystem, the development of digital infrastructure, and the impact of the pandemic on the economy. It presented five contributions: two theoretical, two empirical, and one practical, and spelt out the scope and limitations under which the findings would be construed.

Chapter 2 elaborates on the theoretical basis of the 4P Framework in detail based on a thorough examination of the empirical and conceptual literature on all four streams of analysis to construct the evidential and theoretical argument about each construct and each of the five hypothesised relationships.

CHAPTER 2:

LITERATURE REVIEW

2.1 Introduction

Micro, Small, and Medium Enterprises (MSMEs) are an important pillar of economic growth, especially in emerging economies such as India. The industry contributes approximately 30 percent to India's GDP, 45 percent of exports, and employs more than 25 crore people, making it one of the largest sources of livelihood and entrepreneurship in the country (Kumari and Kumari, 2024). Beyond their economic contribution, MSMEs are essential drivers of regional development, innovation, and inclusive growth, particularly in Tier 2 and Tier 3 cities. Despite their significance, MSMEs continue to face structural, operational, and managerial constraints that limit their productivity, competitiveness, and long-term sustainability (Maheshkar and Soni 2021; Ahamed 2023).

The findings in the available literature show that MSMEs are beset with a wide range of limitations, including low awareness of finance, inadequate human resource management, low technology adoption rate, and low operational efficiency (Biswas, 2014; Singh et al., 2014; Hendrawan et al., 2024). However, the problems are normally examined individually, resulting in incomplete knowledge of the factors influencing MSME performance. Previous studies have mostly concentrated on a single aspect of HR practices (Heneman et al., 2000; Harney et al., 2022), innovation and product development (Deligianni and Voudouris, 2014), or operational efficiency and process management (Bloom and Van Reenen, 2010; Kant and Shrutika, 2020). All these studies provide good insights; however, none have an integrated and systemic

understanding of MSME challenges. Performance is determined by a combination of internal capabilities and behaviour rather than by the operation of each individual dimension (Patel et al., 2024).

To address this gap, the present research proposes a 4P model in which People, Process, Product, and Psychology collectively constitute a higher-order formative construct, 4P Maturity which is expected to predict MSME performance outcomes (Petrenko et al., 2016). The proposed framework conceptualises these dimensions as interrelated determinants of organisational capability and growth, unlike traditional frameworks, which use them separately. This strategy fits the resource-based and capability-based views, which posit that the performance of firms is a product of integrated organisational resources and managerial capabilities (Bloom and Van Reenen, 2010). This empirical study focuses on how the above constructs affect the main performance outcomes, such as business development, efficiency of operations, and organisational productivity.

The people dimension defines the human resource and organisational capacity of the firm, including human resource formalisation, workforce skills, leadership capability, and employee management practices (Paul & Rosado-Serrano, 2019). Existing studies indicate that structured HR systems facilitate employee engagement, retention, and productivity, thereby improving company performance (Chandler and McEvoy, 2000; Borah and Baruah, 2018). The Process dimension includes operational systems, formalisation of the workflow, financial discipline, and use of technologies. Higher operational performance, cost efficiency, and scalability in SMEs have been associated with efficient processes (Kant and Shrutika 2020; Khanna et al. 2020). The

Product dimension indicates the capacity of the firm to be innovative, differentiated, and to position the firm's products in competitive markets. Innovation and product diversification are the sources of revenue growth and competitive advantage in MSMEs (Deligianni and Voudouris, 2014; Okoli et al., 2024). The psychology dimension is concerned with the cognitive and behavioural attributes of the owner-managers, such as risk orientation, decision-making style, and adaptability. Resilience, motivation, and well-being are also psychological factors that play a significant role in business performance and strategic decision-making (Delmar, 1996; Luthans et al., 2007; Farrington, 2017).

Within the Indian context, MSMEs are subjected to an intricate institutional setting comprising regulatory burdens, informality, and resource limits (Patel et al., 2016). MSMEs face more than 1,000 regulatory compliance requirements annually, generating significant cost burdens that compound the operational inefficiencies already present within the firm (Adewoye & Obasan, 2012; Alsamydai, 2014). Government schemes such as Make in India, Digital India, and Startup India are meant to facilitate the growth of MSMEs in terms of infrastructure, digitalisation, and policy changes. However, such interventions at the macro level tend to offer general support and might not fully respond to the firm-level managerial and behavioural constraints that most directly shape performance outcomes (Ahamed and Raju, 2023). Consequently, many MSMEs continue to struggle despite receiving policy support, indicating the need for a more granular, firm-level analytical approach.

Although the number of MSME studies has increased, three gaps remain. Existing research is mainly single-dimensional, focusing only on HR practices, operational efficiency, innovation

capability, or none of these three, without accounting for the integration of the three in a holistic approach (Papola, 2018). Second, empirical research which investigates the relationship among these dimensions and the performance outcomes of firms is still limited (Rindrayani, 2016). Third, the influence of owner-managers' psychology and behavioural dispositions on the organisation's outcomes have not been studied in depth, especially in emerging economies where decision-making is mostly in the hands of one individual, rather than spread across several or many (Fernet et al., 2016; Stephan et al., 2015).

This research is unique in that it empirically develops and tests a 4P model that explains the interaction and interaction effects of People, Process, Product, and Psychology on MSME performance (Panigrahi, 2013). The study also adds to the theoretical knowledge by conceptualising these dimensions as formative items of a higher-order construct of capability and offers a preliminary empirical understanding of the combined relationship between these dimensions and performance outcomes (Pandita et al., 2020). Furthermore, the study explicitly introduces the psychological aspects of the owner-manager, which have been neglected in previous MSME studies, alongside structural and operational aspects (Pahnke et al., 2024).

The 4P framework offers a multidimensional and integrated view of comprehending the joint effects of internal organisational strength and owner-level traits on the performance of MSMEs in a structure that is empirically testable (Organ, 1997). In addition to its theoretical relevance, the framework is applied at the practical level to support targeted interventions aimed at boosting a firm's competitiveness, scalability, and sustainability by highlighting the relatively low level of development of each capability dimension.

2.2 Theoretical Foundation

The performance of MSMEs cannot be explained without a theoretically supported explanation of the relationship between internal organisational capabilities, managerial behaviour, and firm outcomes. This study is based on four complementary theoretical perspectives, including the Resource-Based View (RBV), Dynamic Capabilities Theory, Social Exchange Theory, and Upper Echelons Theory, and builds a logical framework to connect the 4P constructs (People, Process, Product, and Psychology) to performance outcomes.

2.2.1 Resource-Based View (RBV)

The resource-based View (RBV) assumes that the successful performance of firms is determined by the effective use of valuable, rare, inimitable, and non-substitutable resources. Instead of focusing on external market circumstances as the key determinants of competitive advantage, RBV focuses on internal organisational resources and capabilities as the major source of competitive advantage (Chaturvedi, 2021). These resources include not only material resources but also intangible ones, such as human resources, organisational processes, and innovation capability (Nickell et al., 2013).

The conceptualisation of the critical internal resources of MSMEs can be possible in the form of the people, process, and product dimensions (Ardhanari, 2007). Personnel capabilities (human capital and effective leadership) improve organisational productivity, process capabilities (well-designed operating systems and routines) increase cost efficiency and scalability, and product capabilities (innovation and differentiation) increase competitiveness in the market. The

implication of this integration to RBV is that the competitive position of the firm will improve, such that the firm will achieve better performance results (Baer & Brown, 2012). From the 4P Framework perspective, this indicates that the improvement in the capabilities of People and Process leads to better competitive positioning, which is connected to better performance outcomes of MSMEs in relation to the Product.

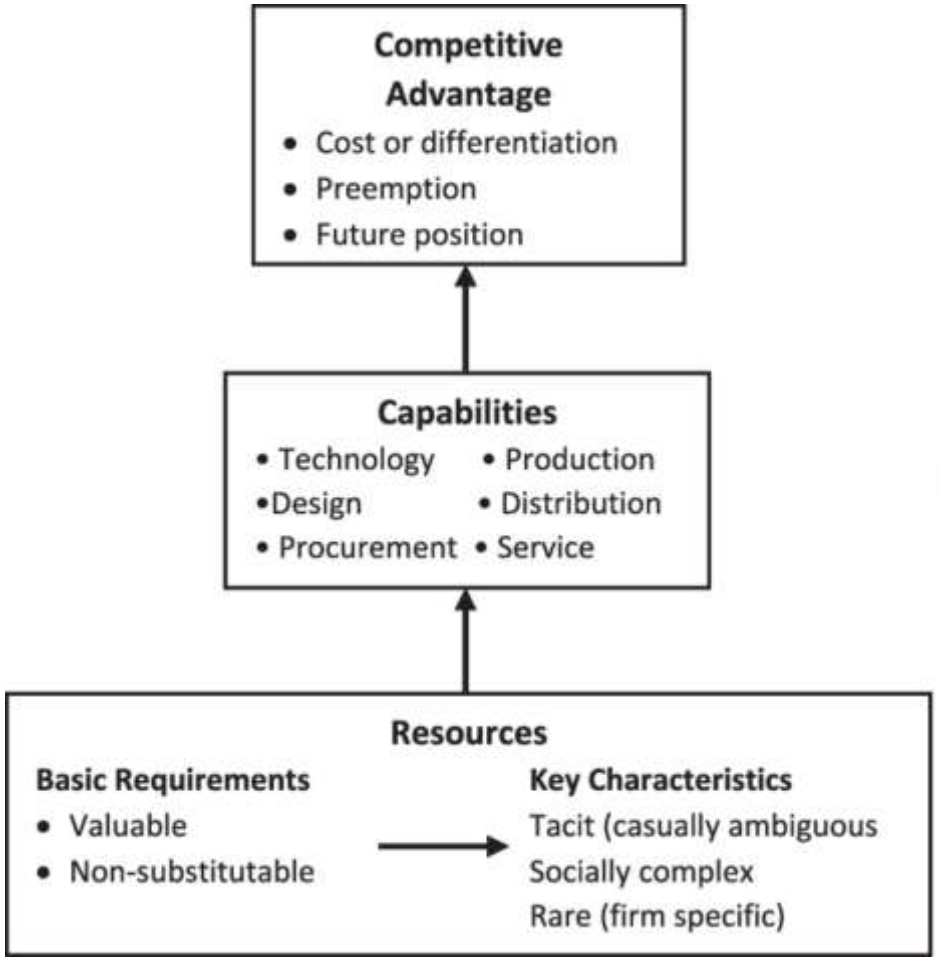


Figure 2.1: Resource-Based View

Source: Ansoff (1957)

2.2.2 Dynamic Capabilities Theory

Although RBV explains the role of internal resources, it is also static by nature. Dynamic Capabilities Theory builds on this viewpoint by focusing on the capacity of a firm to adjust, assimilate, and realign resources in reaction to environmental shifts (Nautiyal & Pathak, 2024). This is especially applicable to MSMEs that are forced to work in challenging and resource-limited environments, where responsiveness and flexibility are the keys to survival. Dynamic capabilities manifest in the fact that a firm can always enhance processes and create new products, as well as strategically react to changes in the market (Barner et al., 1999). In the 4P model, Process, Product and Psychology are core to facilitating such flexibility. These areas facilitate the ability to respond to market demands via operational flexibility and technological adoption (process), innovation capability (product), and managerial cognition and decision-making (psychology) (Nair, 2024).

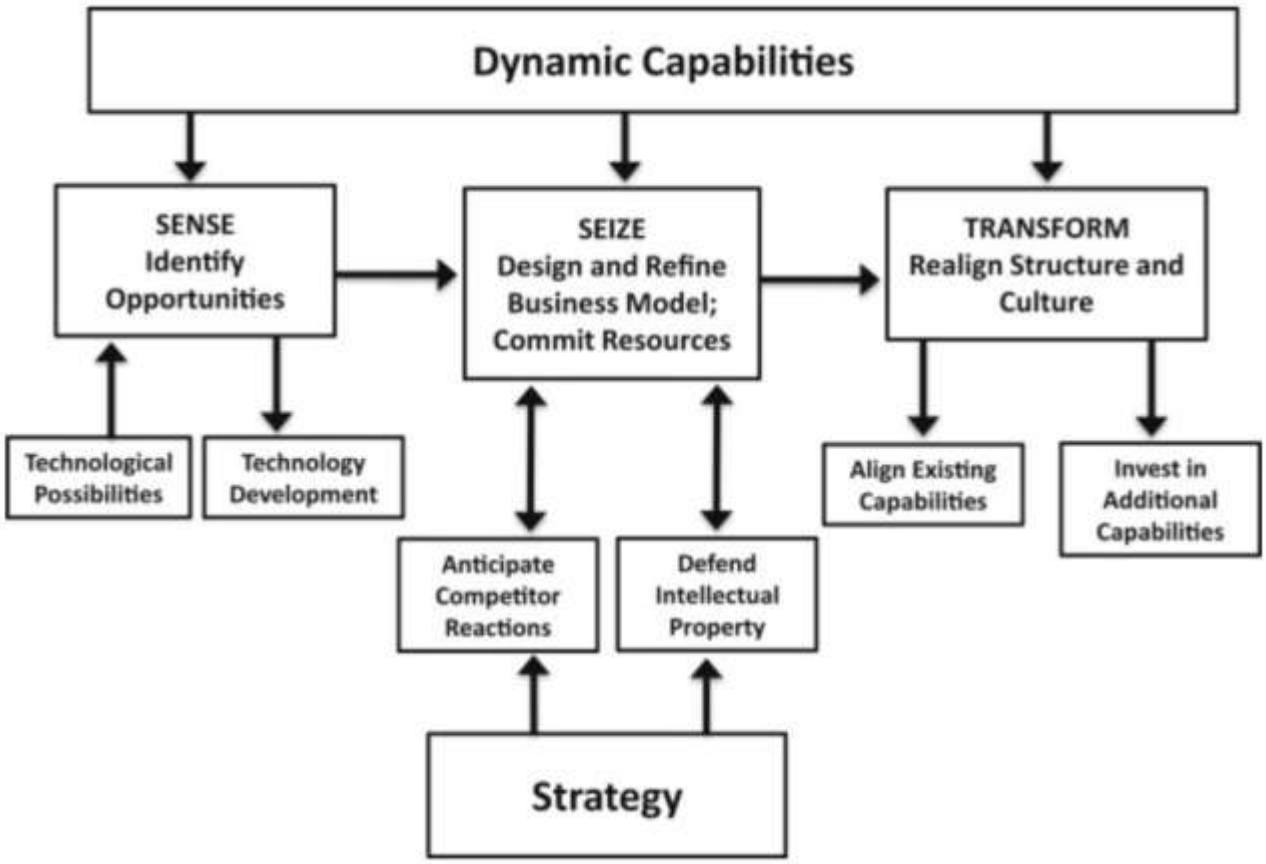


Figure 2.2: Dynamic Capabilities Theory

Source: Biswas & Das (2020)

Drawing on Dynamic Capabilities Theory, the integration of Process, Product, and Psychology dimensions enhances a firm's adaptive capabilities, which fosters organisational agility and subsequently leads to improved MSME performance (Nababn, 2014).

2.2.3 Social Exchange Theory

Social Exchange Theory offers a behavioural explanation of organisational practices in relation to employee outcomes (Adewoye & Obasan, 2012). According to the theory, reciprocal exchange rules relationships in organisations where employees are expected to react positively to

positive and equitable organisational practices. Employees who perceive organisational investment in their well-being demonstrate greater engagement, commitment, and performance (Agarwal, 2024). Formal structures in MSMEs can be restricted; thus, training, fair treatment, and managerial support as HR practices are imperative signals of organisational intent (Agustina et al., 2023). The people dimension, especially the practices of HR formalisation and employee management, determines employee attitudes and behaviours, which subsequently impact productivity and organisational performance.

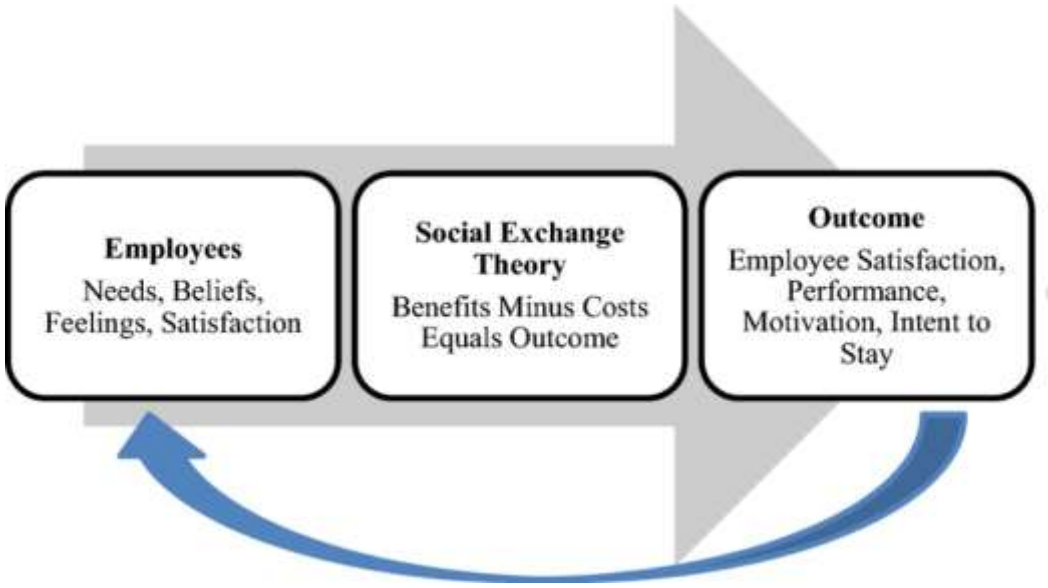


Figure 2.3: Social Exchange Theory

Source: Agustina et al. (2023)

Drawing on Social Exchange Theory, well-structured HR practices promote employee engagement and commitment, which in turn increases productivity and leads to enhanced MSME performance outcomes (Nababan, 2014).

2.2.4 Upper Echelons Theory

The theory of Upper Echelons states that the nature, thinking, and principles of high-level decision-makers largely determine the performance of organisations (Anjani, 2021). Managers are not always rational, and their decisions depend on psychological characteristics, experience, and cognitive biases. This is especially true in MSMEs, where the owner-manager plays a major role in strategic and operational decision-making (Msangi, 2023). These behavioural and cognitive attributes, such as risk orientation, adaptability, and decision-making style, are gathered in the Psychology dimension of the 4P framework (Mochammad, 2025). These aspects affect opportunity identification, resource distribution, and strategy implementation, thereby determining firm performance.

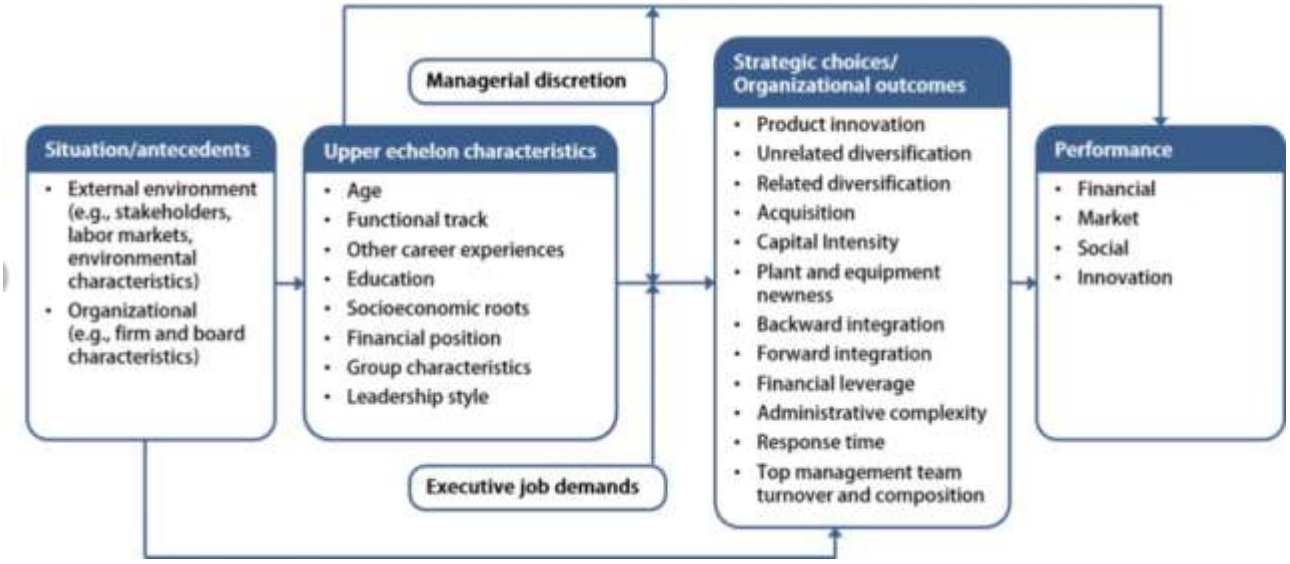


Figure 2.4: Upper Echelons Theory

Source: Anjani (2021)

Drawing on Upper Echelons Theory, the cognitive characteristics of owner-managers shape strategic decision-making processes, which in turn influence organisational outcomes and MSME performance.

Integrated Theoretical Perspective

None of the theoretical frameworks can fully account for the performance (Melander et al., 2024). RBV identifies the internal capabilities that generate competitive advantages; Dynamic Capabilities Theory brings adaptability and environmental responsiveness of the business into the equation; Social Exchange Theory captures the mechanisms by which employee behaviour is affected by People Maturity, leading to productivity; and Upper Echelons Theory considers the influence of the individual owner-manager on the other dimensions of the business. The four perspectives can be used together to create a coherent, multilevel explanatory architecture. Theories such as RBV can determine what is generating competitive advantage in the firm, but they cannot explain how the firm develops or adapts those assets when it is subjected to environmental pressure, as Dynamic Capabilities Theory does. However, neither of these theories can clarify how organised HR practices relate to employee motivation and performance, and here, Social Exchange Theory plays a crucial role. None of the three can explain why two companies with the same resources and processes can be so different, as illustrated by the cognitive and behavioural dimensions of the decision maker at the top of the hierarchy in the context of Upper Echelons Theory. These four frameworks tell us not only what capabilities are important, but also how they are constructed, how they influence employee engagement, and who ultimately has an impact on their growth. In other words, the dimensions they designate as People, Process, Product, and Psychological Capability are not independent: an owner-manager's

aversion to risk will cap technology adoption; weak process systems will reduce the firm's ability to create products; and HR investment, without strategic direction, will yield activity without results. This interdependence is what the higher-order formative specification of the 4P Framework aims to model and is the reason why the composite construct of 4P Maturity is the correct predictor of MSME performance, and not any single dimension (Mehrotra & Parida, 2019).

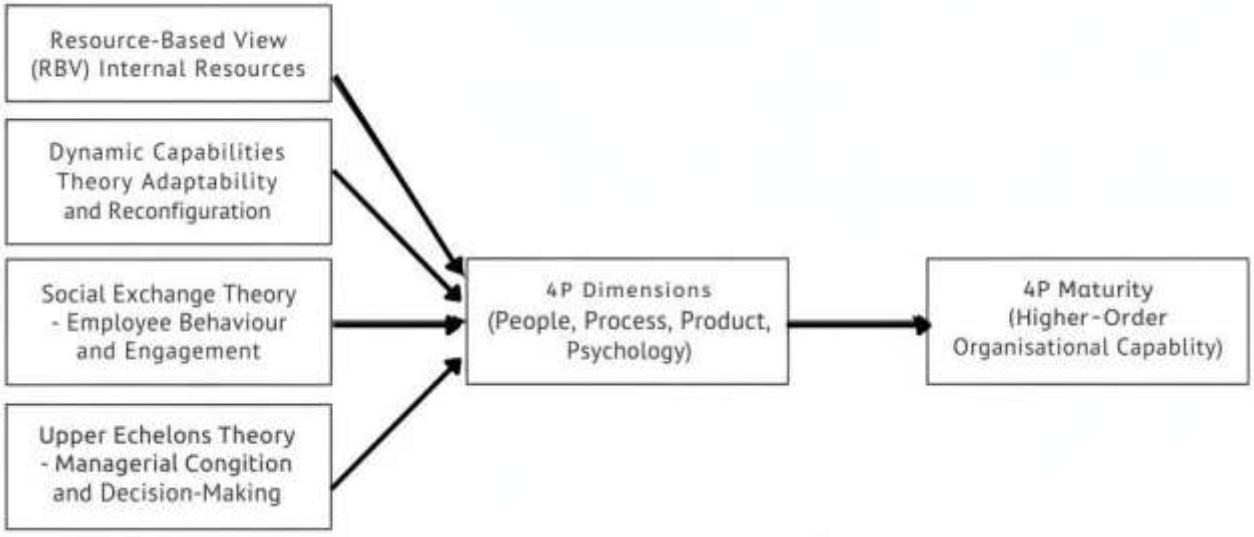


Figure 2.5: Integrated Theoretical Perspective

All these theoretical views anchor the argument that organisational capabilities and managerial behaviour have a joint effect on the performance outcomes of MSME.

2.3. MSME Performance

2.3.1 Defining MSME Performance

The concept of firm performance is the focus of management and entrepreneurship research; however, it is conceptualised in vastly different ways depending on the context, especially with micro, small, and medium enterprises (MSMEs) (Maziriri et al., 2019). Large organisations do not have such environments; therefore, unlike them, MSMEs function in an environment of restricted resources, informality, and high uncertainty, necessitating a more comprehensive and varied definition of performance in relation to conventional financial performance indicators (Delmar, 1996; Rindrayani, 2016). Consequently, MSME performance cannot be sufficiently reflected using a one-dimensional method and must be considered a multidimensional construct.

Historically, firm performance has been evaluated in terms of financial metrics, profitability, revenue growth, and cost-effectiveness (Mahmood et al., 2021). These are measurable in the economic performance of organisational operations and are also important in determining the success of a business (Loo et al., 2023). It has been empirically indicated that financial management practices, financial literacy, and access to financial resources play a significant role in MSMEs' financial performance (Chaniago, 2022; Obazee, 2024). For example, companies with more robust financial discipline and planning capacities are in a better position to optimise the use of resources, risk management, and sustainable growth. In contrast, financial limitations remain one of the key obstacles to MSME performance, restricting the ability to invest and obtain expansion opportunities (Biswas, 2014; Gupta et al., 2018).

Although financial metrics are necessary, they provide a partial picture of MSME performance. There is growing evidence among scholars that firms should include these operational and non-financial indicators, which are used to reflect the internal operations and long-term viability of the firm (Leonardi & Harsono, 2022). These include productivity, efficiency, ability to innovate, process effectiveness, and employee performance (Barhate and Dirbude, 2023; Aulia et al., 2023). Operational performance is the capability of a firm to effectively utilise resources and generate outputs that are a major issue in MSMEs, where inefficiencies can adversely affect the survival and competitiveness of the firm (Le Moal et al., 2025).

Empirical evidence shows that the increase in productivity and decrease in costs are caused by the improvement of operational processes, such as standardisation, lean procedures, and quality management systems (Kant and Shrutika, 2020; Realyvásquez-Vargas et al., 2019). There is also evidence of the adoption of information and communication technologies to enhance operational efficiency and profitability through process streamlining and decision-making facilitation (Hendrawan et al., 2024). These results indicate that operational capabilities are important for determining overall firm performance.

In addition to financial and operational capabilities, innovation- and product-related capabilities have also been gradually identified as key factors driving MSME performance. Innovation helps companies become different, adapt to changing market needs, and add value to customers, resulting in increased revenue and competitive advantage (Okoli et al., 2024; Deligianni and Voudouris, 2014). It has also been associated with product diversification and constant

improvement, which boost business resilience and sustainable survival in the long term (Kumar, 2021; Egbetade and Onyeizugbe, 2025).

Moreover, entrepreneurial and managerial variables have a high impact on MSME performance, especially in small businesses, where decisions are highly centralised. Entrepreneurial orientation, risk-taking skills, and decision-making are important for firm results (Khalid et al., 2016; Delmar, 1996). Resilience, motivation, and well-being are also crucial and influential in terms of entrepreneurial efficacy and business success due to psychological and behavioural factors (Farrington, 2017; Prayudi et al., 2023). However, psychological stress and burnout may adversely affect the decision-making process and decrease organisational performance (Fernet et al., 2016; Martin et al., 2020). Collectively, the literature posits that MSME performance is multidimensional by nature and entails both financial and operational performance, that is, growth, profitability, efficiency, productivity, innovation, and sustainability. These dimensions are interconnected, and as a whole, they dictate the possibility of the firm surviving, competing, and developing in dynamic environments (Lafuente & Abad, 2018). In the present study, therefore, MSME performance is conceptualised as a multi-dimensional construct that depicts the financial and operational effectiveness of the firm as a whole or its capacity to attain sustainable growth, efficiency, and competitiveness.

2.3.2 Determinants of MSME Performance: Conceptual Synthesis

It is worth noting that the determinants of MSME performance have been thoroughly investigated in various spheres of research, such as human resource management, operations

management, entrepreneurship, and strategic management (Labola, 2019). Nevertheless, even though the current literature is comprehensive, there is no unanimity on the relative significance and interplay of these factors, resulting in a fragmented perception of MSMEs' performance. A large body of literature has highlighted the significance of human resources and organisational practices in determining performance outputs (Kuwu & Gakure, 2014). Research shows that good HR practices, such as training employees, performance management, and engagement, can lead to high productivity and organisational performance (Chandler and McEvoy, 2000; Borah and Baruah, 2018). In particular, employee motivation and engagement have been noted to be the key mechanisms in which HR practises affect the performance of firms (Akpan et al., 2022; Kompaso and Sridevi, 2010). This indicates that a clear causal relationship might exist in which structured HR practices increase employee output, which subsequently increases the performance of the organisation.

Along with human resource factors, operational and process-related capabilities are important in the performance of MSMEs. Standardisation and quality management practices help firms create efficient operational processes that lower costs and increase productivity and competitiveness (Kant and Shrutika, 2020; Khanna et al., 2020). These capabilities are also enhanced by the uptake of digital technologies and innovations that enhance coordination, decision-making, and scalability (Hendrawan et al., 2024; Loo et al., 2023). These results suggest that the maturity of the processes is one of the most essential factors influencing the effectiveness of the firm's operations and its performance in general.

There is one more significant stream of research that is concerned with factors related to

products and innovation. The ability to innovate, diversify products, and place them on the market has always been attributed to enhanced performance outcomes in MSMEs (Okoli et al., 2024; Kumar, 2021). Companies that invest in product development and innovation can compare with customers better, meet their needs, and grow longer. These capabilities are especially valuable in competitive and fast-paced markets, where innovation is a major success factor in the long run (Kumar, 2024).

Monetary influences are also important in determining MSME performance. Access to finance, financial literacy, and success in financial management practices affect a firm's capability to invest, grow, and address risks (Biswas, 2014; Gupta et al., 2018). Nonetheless, financial limitations still hamper the growth of most MSMEs, which explains the significance of financial capability as a performance determinant.

In addition to structural and financial aspects, recent studies emphasise the increasing role of entrepreneurial and psychological variables in explaining MSME performance (Köksal & Özgül, 2007). Entrepreneurial resilience, self-efficacy, and well-being have been reported to affect the decision-making process, persistence, and adaptability, which are all essential for business success (Bernard and Barbosa, 2016; Prayudi et al., 2023). However, psychological stress and burnout may adversely affect the effectiveness of managers and organisational performance (Fernet et al., 2016; Lathabhavan et al., 2021). These results highlight the significance of the behavioural and cognitive aspects of firm performance.

The discussion above shows that a wide range of organisational, operational, financial, and

behavioural factors affect MSME performance. Nevertheless, these determinants have rarely been studied in combination (Kohli & Gopal, 2022). Rather, previous research is more inclined to consider independent variables and does not provide the possibility of comprehending the simultaneous influence of various dimensions shaping the performance of firms (Kim & Sherraden, 2014). This fragmentation is a major gap in the literature because MSME performance is multidimensional from its core and occurs because of the interplay of various factors.

This body of evidence makes it clear that multiple determinants matter and that they interact. An MSME that invests heavily in process standardisation without addressing the owner-manager's resistance to technology adoption may find that process improvements stall at the implementation stage. Similarly, a firm with strong HR practices but underdeveloped product capability may retain motivated employees yet fail to grow revenue because capability development in one dimension depends on a sufficient baseline in others. This interdependence is precisely what fragmented, single-dimensional research designs cannot capture. Recent scholarship calls for consolidated, multi-faceted frameworks that model the joint and interactive effects of organisational capabilities and managerial behaviour on performance outcomes (Patel et al., 2024; Bansal, 2024).

This study hypothesises that these determinants can be aggregated into four higher-order dimensions: People, Process, Product, and Psychology, as each is a significant area of organisational competence (Khatri, 2019). Conceptualising these factors in an integrated approach can allow a more structured analysis of the role of internal capabilities and managerial

characteristics in MSME performance.

Based on the above synthesis, this study hypothesises that the performance of MSMEs is not influenced by individual variables but rather by the compound and interdependent effect of organisational capabilities and behavioural dispositions. Accordingly, this study develops five hypotheses to examine the formative contribution of People Maturity, Process Maturity, Product Capability, and Psychological Capability to the integrated 4P Maturity construct, and the predictive relationship between 4P Maturity and MSME performance (Keerthi & Reddy, 2019). MSME Performance is conceptualised as the key outcome variable, predicted by the integrated capability composite rather than by any single dimension in isolation.

2.4. People Maturity

2.4.1 Conceptualising the People Maturity

In the general theory of organisational capabilities, aspects of human capital and the workforce are the core components of firm performance, especially in the context of Micro, Small, and Medium Enterprises (MSMEs), where human resources could be the most important and resilient asset (Kakkar & Kaushik, 2019). In contrast to large organisations with formalised structures and specialised functionalities, MSMEs are overly reliant on their workforce's skills and capabilities, as well as the decision-making of a relatively small workforce. This means that the operational effectiveness and growth of the organisation lie in the focus of the People dimension (Junaidi et al., 2023).

People Maturity is a first-order reflective construct measured by a set of reflective indicators which together represent the domain of the construct. The sub-themes identified in this chapter (human resource formalisation, training and skill development, and leadership capability) are content domains that were used to develop the items for the questionnaires but were not operationalised as low-order constructs in the measurement model. The 12 People Maturity items were loaded directly onto the single construct of People Maturity. The aim of this design decision was to retain a parsimonious measurement model: a single first-order reflective construct was used for each of the four 4P dimensions, and each dimension was used as a formative indicator of the second-order measurement for the 4P Maturity HOC. In this specification, all four dimensions are kept constant, and it is the basis for the analysis of PLS-SEM in Chapter 4 (Jahanara, 2017). This specification is consistent with the current thinking on strategic human resource management, which recognises that the unit of analysis is the integrated human capital system, as opposed to individual HR practices in isolation, when understanding the capability-performance relationship (Iranmanesh et al., 2021).

The literature confirms the significance of people-related variables in MSMEs. Research proves that MSMEs frequently struggle with issues associated with informal human resource management, skill shortages, and lack of managerial experience, which restrict their productivity and potential for development (Katyal and Xaviour, 2015; Kumar, 2020). Additionally, the lack of well-organised HR systems and formal leadership procedures translates to inefficiency in handling employees, lack of motivation, and inconsistent organisational performance.



NITI Aayog

Azadi Ka Amrit Mahotsav

NITI Aayog Releases Report on "Enhancing Competitiveness of MSMEs in India"

Posted On: 02 MAY 2025 12:22PM by PIB Delhi

NITI Aayog today released the report on 'Enhancing MSMEs Competitiveness in India', prepared by NITI Aayog in collaboration with the Institute for Competitiveness (IFC). The report presents a detailed blueprint for unlocking the immense potential of India's Micro, Small and Medium Enterprises (MSMEs) through systemic reforms in financing, skilling, innovation and market access.

The report delves into the key challenges affecting the competitiveness of MSMEs in India. Using firm-level data and the Periodic Labour Force Survey (PLFS), it provides recommendations to foster sustainable integration and enhance their incorporation into global value chains. It focuses on four important sectors - textiles manufacturing and apparel, chemical products, automotive and food processing while highlighting the sector-specific challenges and opportunities that need to be addressed to unlock the potential of MSMEs in India. The report examines current national and state policies, highlighting gaps in implementation and limited awareness among MSMEs.

One of the important findings of the report is the notable improvement in MSMEs' access to formal credit. Between 2020 and 2024, the share of micro and small enterprises accessing credit through scheduled banks rose from 14% to 20%, while medium enterprises saw an increase from 4% to 9%. Despite these improvements, the report reveals that a substantial credit gap remains. Only 19% of MSME credit demand was met formally by FY21, leaving an estimated ₹80 lakh crore unmet. The Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) has expanded significantly, but still faces significant limitations. To bridge the credit gap and unlock inclusive, scalable finance for MSMEs, the report calls for a revamped CGTMSE, supported by institutional collaboration and more targeted services.

The report also highlights the pressing issue of skill shortages within the MSME sector. A large portion of the workforce lacks formal vocational or technical training, which hampers productivity and limits the ability of MSMEs to scale effectively. Many MSMEs also fail to invest sufficiently in research and development (R&D), quality improvement, or innovation, making it difficult to stay competitive in national and global markets. The report further points out that MSMEs face barriers in adopting modern technologies due to unreliable electricity supply, weak internet connectivity and high implementation costs. Despite state government schemes designed to support technological advancement in MSMEs, many enterprises are either unaware of them or unable to access them. In its analysis of clusters, the report finds that upgrading outdated technologies and improving marketing and branding capabilities are critical to improving competitiveness.

Figure 2.6: Niti Aayog's Report on skills shortage in Indian MSME's

Source: https://www.pib.gov.in/.

There are various interpretations of what is meant by people's maturity. Social Exchange Theory explains the connection between HR practices and employee attitudes and behaviour; Human Capital Theory explains the connection between skills investment and productivity; and Upper Echelons Theory explains the connection between leadership cognition and organisational outcomes (Hongal, 2014). Combined, these perspectives suggest that the effective governance of human resources, skills, and leadership capability has an impact on MSME (Hirsh 2010). Structured HR practices, skill development, and effective leadership are linked to a higher level of people maturity, which, in turn, has a positive impact on employee outcomes and organisational productivity, ultimately improving 4P Maturity (Herzallah et al., 2021). In the

original HOC specification of this study, People Maturity is a constituting dimension of 4P Maturity, and the question is whether the formative weight is statistically significant and positive.

2.4.2 Human Resource Formalisation and MSME Performance

The concept of human resource formalisation refers to the degree to which the HR practices in an organisation are designed, documented, and implemented in an organised manner (Hecklau et al., 2016). In informal HR practices in MSMEs, recruitment is ad hoc, performance evaluation is minimal, and employee development practices are minimal (Nimbagal and Mandali, 2019; Harney et al., 2022). While this kind of informality can provide flexibility within a short time, it is known to cause inefficiencies and inconsistencies which ultimately adversely impact the performance of the organisation.

The empirical data indicate that the lack of formal HR systems leads to role ambiguity, accountability, and perceived unfairness among employees, which subsequently leads to a lack of motivation and engagement (Kumar and Rani, 2023; Chandra and Chand, 2023). These matters are especially acute among MSMEs, where workers tend to perform several tasks without any distinct set of responsibilities, resulting in inefficiencies and conflicts (Haruna et al., 2022).

Social Exchange Theory can offer a constructive model for interpreting the connexion between HR practices and performance outcomes (Gull & Nizami, 2015). This theory postulates that

organisational support and fair treatment are returned to employees in the form of increased organisational commitment and improved performance (Eisenberger et al., 1986; Caesens et al., 2019). By adopting organised HR practices, such as open recruitment procedures, performance appraisal systems, and mechanisms to help employees, MSMEs indicate that the organisation invests in employees, which deepens trust and engagement (Gray, 2002).

The formalisation of HR practices, when perceived by employees as fair and supportive, fosters higher levels of engagement, which subsequently enhances productivity and leads to 4P Maturity (Granerud & Rocha, 2011). Moreover, formal HR systems can lead to better decision-making and organisational consistency because processes are standardised, and it is no longer necessary to rely on the discretion of individuals (Fisher et al., 2016). Research shows that when MSMEs implement structured HR, they have greater employee retention, manage performance better, and improve organisational effectiveness (Das and Chaudhary, 2024; Hiremath et al., 2024).

Nonetheless, all these advantages do not imply that a high number of MSMEs do not work formally with the help of HR systems because of the resources and the absence of managerial skills. This explains why HR formalisation is a key aspect of People Maturity that determines MSME performance (Fernández-Muñiz et al., 2024).

2.4.3 Training, Skill Development, and MSME Performance

Another important aspect of People Maturity is training and skill development, which is associated with the capacity of the organisation to increase the labour force capabilities of its

employees. Skill gaps are one of the chronic issues related to MSMEs, especially in fields such as technical skills, digital literacy, and managerial skills (International Labour Organisation, 2020). These weaknesses restrict productivity and decrease the firm's capacity to adapt to changing market conditions.

Human Capital Theory assumes that investments in employees'skills and knowledge will result in organisational performance and higher productivity (Ehnert et al.,2014). A talented employee is more competent in undertaking work effectively, resolving issues, and leading to innovation which improves firm performance. This can be confirmed by empirical research that shows that training programs can significantly affect the performance of employees and organisations (Afshan et al., 2012; Kodwani, 2017). Investment in training and skill development strengthens employee competencies, which subsequently enhances efficiency and innovation, thereby contributing to 4P Maturity.

Training is significant for MSMEs because of the multitaskal character of the employee. Compared to large organisations, tasks in MSMEs are very specialised; therefore, MSME employees are mostly expected to carry out several functions that require skill versatility (Dutta, 2017). Consequently, training programs not only help an individual perform better but also enhance the flexibility and adaptability of the organisation (Dhanushri, 2024). Moreover, the digitalisation of business processes and the use of technologies have led to an increase in the number of required skills. According to these studies, MSMEs that invest in skill development and digital training are more likely to capitalise on technology to enhance efficiency and competitiveness (Mustangin et al., 2021; Loo et al., 2023). However, the untrained state reduces

opportunities to use technology and hinders the potential value of digital transformation (Dey, 2014).

Although training is acknowledged to be important, MSMEs tend to spend less on employee development because of their limited resources and short-term operational concerns. This has resulted in chronic skill gaps that stifle production and development (Dewal & Kumar, 2017). Thus, skill development and training become important powerhouses of MSME performance in the People Maturity stage.

2.4.4 Leadership Capability and MSME Performance

One dimension of People Maturity is leadership capability, which is especially critical in MSMEs with a very centralised decision-making authority (Desai & Rao, 2021). Compared to large organisations, where the leadership structure is dispersed, MSMEs are usually owner-managed, and their decisions have a direct impact on the outcomes of organisations. Consequently, leadership ability is important in determining firm performance (Deci & Ryan, 2000).

The Upper Echelons Theory is based on the assumption that the results of organisations can be greatly affected by the nature, thinking, and values of top managers (Davis, 1989). This power is even greater in MSMEs, where the owner-manager usually makes the strategic plans, resource distribution, and operation decisions. Therefore, leadership ability defines the level of response of the organisation to challenges and opportunities (Dasari & Sujatha, 2023). Empirical studies

have shown that the effectiveness of leadership is related to the performance of a firm based on strategic choice, employee motivation, and organisational orientation (Sharma and Jain, 2023; Vaccaro et al., 2012). Good leaders can formulate clear objectives, align resources, and inspire workers, which increases the productivity and performance of an organisation.

Organisational alignment occurs through effective leadership capability, as it provides an organisation with a clear strategic vision, motivates employees with a common objective, and channels resources to where they are required the most. This directive role is what makes the difference between leadership and the thinking decision-making abilities that make up the psychological construct. Furthermore, leadership is vital in promoting organisational culture and flexibility (Das & Bandyopadhyay, 2018). Leaders must be able to navigate uncertain environments, risk management, and innovation so that MSMEs operating in dynamic environments can navigate these environments. Research suggests that resilience, adaptability, and emotional intelligence are leadership qualities that positively correlate with firm performance (Mahmudah et al., 2017; Jaboob et al., 2025).

Nevertheless, most MSMEs have issues with leadership competence, such as a deficiency in managerial training, an inadequate strategic perspective, and intuition-driven decision making (Ciocoiu, 2025). Such restrictions can limit organisational growth and performance, thus showing the essence of leadership as a crucial component of the construct of people.

2.4.5 Synthesis of the People Maturity

The discussion above has revealed that the aspects of formalisation of human resources, training and skill development, and leadership capability are related aspects that have an overall impact on the performance of MSMEs (Chumtap & Surakarn, 2023; Chuang et al., 2016). Although all these factors have been examined separately, a combination of them offers a more detailed picture of the contribution of people-related capabilities to organisational success.

All these dimensions together indicate the maturity of the People Maturity as a whole, that is, the capacity of the organisation to successfully manage its human resources and develop and mobilise them (Chowdhury, 2023). The formalisation of HR offers structure and regularity, training adds capabilities to employees, and leadership provides a strategic direction and alignment (Choudhry et al., 2007; Burger, 2025). The combination of these dimensions leads to better employee performance in the form of engagement, productivity, and performance, which subsequently alters firm-level performance. The effective development of human capital strengthens employee capabilities, leading to higher organisational productivity and ultimately resulting in improved 4P Maturity (Brown et al., 2018; Brown et al., 2005).

The evidence reviewed above establishes that HR formalisation, skill development, and leadership capability each contribute independently to MSME performance, but the more significant argument is that they are mutually reinforcing. Leadership capability shapes the quality of HR systems that are implemented; training investments depend on whether leaders prioritise development; and the effectiveness of HR formalisation hinges on managerial follow-through (Harney et al., 2022; Kumar and Rani, 2023; Sharma and Jain, 2023). These three dimensions together constitute People Maturity as an integrated organisational capability rather

than a list of practices. Critically, however, People Maturity does not operate in isolation: the quality of HR practices is constrained by the owner-manager's psychological orientation (Psychological Capability), and its translation into productivity gains depends on the adequacy of supporting operational processes (Process Maturity). These cross-dimensional dependencies reinforce the case for a higher-order formative specification in which People Maturity contributes to 4P Maturity alongside, but not independently of, the other three dimensions. The literature reviewed above provides a theoretical and empirical basis for proposing H1.

2.4.6 Research Gap

Although the human resource practises, training, and leadership in MSMEs have received a lot of study, there are still a number of significant gaps. To begin with, the literature concerning these dimensions is mostly in an independent mode of study without consolidation into one framework. This does not allow one to comprehend the interaction of various human capital variables to help determine performance outputs. Second, a large part of the current studies is devoted to employee-level outcomes, including job satisfaction and engagement, and does not directly relate them to firm-level performance. Consequently, there is a paucity of empirical evidence that can be used to determine the relationship between people-related capabilities and organisational performance in MSMEs. Third, there is the aspect of the higher-order construct of people which is underserved. Although each of the dimensions discussed individually (HR practices and leadership) has been extensively researched, the combination of these dimensions in a single latent construct with a single impact on performance has not been researched. The gaps indicate the necessity of a combined method to capture the multidimensional nature of People Maturity and its connection with 4P Maturity.

2.4.7 Hypothesis Development

Although the literature confirms a direct relationship between people-related capabilities and organisational performance, the current study has taken an integrated capability approach. As such, the conceptualisation of People Maturity as a part of the overall 4P Maturity is achieved, and its impact on the performance of MSMEs is determined.

H1: *People maturity positively influences 4P maturity.*

2.5. Process Construct

2.5.1 Conceptualising the Process Construct

Organisational processes are also a very important aspect of firm capability, especially in Micro, Small, and Medium Enterprises (MSMEs), where efficiency, resource utilisation, and adaptability define survival and growth (Cherevatskyi, 2023; Brumberg, 2021). In contrast to large firms, whose systems are formalised and standardised, MSMEs frequently tend to use informal, changing, and experience-based processes (Chaturvedi, 2021). Although this flexibility can be useful in short-run responsiveness, it often creates inefficiencies, inconsistencies, and a lack of scalability.

The Process construct in this study is conceptualised as an organisational capability that is higher in nature, and it includes three major dimensions: efficiency in operations, financial management

practices, and the adoption of technology (Carvache-Franco et al., 2020; Brown et al., 2005). All these dimensions represent how far an MSME can go in the design, implementation, and relentless improvement of its internal processes to achieve efficiency and performance results. These dimensions are not considered independent variables but rather components of a latent construct which is seen to be reflective of the overall process maturity.

Process capability is especially important in MSMEs, where there is a scarcity of resources, which requires the best use of the inputs available (Calvo-Porral et al., 2016). Research also shows that operational process inefficiencies, financial discipline, and underutilisation of technology are major limiting factors of MSME productivity and competitiveness (Nadaf and Kadakol, 2017; Papaiah and Reddy, 2019). Moreover, inefficiency in the processes of operation typically leads to increased cost of operations, loss of quality of products, and slowness in reacting to changes in the market.

The Process construct has a solid theoretical basis in Dynamic Capabilities Theory. The theory focuses on the capability of the firm to integrate, reconfigure, and remodel its internal processes to adapt to environmental change (Bottani et al., 2009). Process maturity within the MSME context is not only about efficiency but also flexibility so that firms can respond to changes in market volatility and technology (Botha, 2024). A higher level of process maturity, reflected in efficient operations, sound financial management, and effective technology adoption, strengthens organisational efficiency and adaptability, thereby enhancing overall organisational performance and MSME outcomes.

2.5.2 Operational Performance and MSME Performance

Operational efficiency refers to a company's ability to use its resources efficiently to manufacture goods or services (Biswas & Das, 2020). The operation processes in MSMEs are frequently informal, non-standardised, and reliant on personal experience which may imply inefficiencies and inconsistencies in the performance results. Evidence indicates that a structured method of operation, including process standardisation, quality management systems, and lean methodologies, can substantially improve productivity and decrease operational costs (Lo et al., 2014; Gopalakrishnan et al., 2015). These practices help MSMEs simplify work, reduce wastage, and enhance consistency in production, thereby enhancing their competitiveness. Higher levels of operational efficiency minimise waste and increase productivity, resulting in greater cost efficiency and, consequently, 4P maturity.



Figure 2.7: Impact of Process in increased operational efficiency

Source: https://timesofindia.indiatimes.com/blogs/truth-lies-and-politics/msmes-achieving-increased-income-improved-operational-efficiency-through-adoption-of-digital-technology-observation-of-paynearbys-msme-digital-index-2025/.

Moreover, standardisation of processes can help transfer knowledge and minimise reliance on a few employees, which is especially significant in MSMEs, where workforce turnover may lead to process disruption. Research shows that organisations with clear-cut processes have enhanced stability in operations and improved performance results (Reger et al., 1994; Verma, 2022). Achieving operational efficiency also helps in the resilience of the organisation, whereby external shocks, such as economic decline and supply chain disruption, can be endured by MSMEs. Research shows that companies that manage to be efficient in their processes can respond to changing conditions more effectively and can retain their level of performance during periods of uncertainty (Sullivan-Taylor and Branicki, 2011; Panjaitan, 2022).

However, most MSMEs cannot adopt ordered operational practices because of insufficient resources, knowledge, and resistance to change (Bez & Chesbrough, 2020). This translates to inefficiencies that end up being persistently limit productivity and growth. Thus, the performance of MSMEs in the Process construct is an essential factor determined by operational efficiency.

2.5.3 Financial Management Practices and MSME Performance

Financial management is one of the fundamental aspects of organisational operations that determines how a firm will allocate resources, risk management, and operations (Barber et al.,

1999). Financial practices in MSMEs are usually informal and responsive, which is in the form of poor record-keeping, poor financial planning, and limited reliance on short-term decisions. Research has shown that efficient financial management behaviour, such as budgeting, financial reporting, and cash flow management, is closely correlated with enhanced firm performance (Mutoharoh and Muryanto, 2021). Through these practices, MSMEs can keep track of performance, detect inefficiencies, and make serious decisions on investment and growth. Strong financial management practices promote financial stability, optimise resource utilisation, and improve risk control, thereby enhancing overall organisational performance and MSME outcomes (Athaya & Hasbi, 2019).

Financial literacy is also important for improving financial management. Company owners with higher financial literacy also stand a better chance of obtaining funding, dealing with debt, and making the most of financial resources (Chaniago, 2022). On the other hand, financial management practices result in cash flow issues, exposure to risk, and failure of the business. Moreover, MSMEs still face a significant problem in accessing finance, especially in developing economies. Financial constraints make it difficult to invest in technology, grow operations, and innovate, impacting performance results (Biswas, 2014; Baker et al., 2017). To some extent, these constraints can be addressed through effective financial management practices that would help in better utilisation of resources and financial sustainability.

Moreover, merging financial procedures with overall organisational mechanisms amplifies strategic planning and decision-making. Some studies have shown that organised financial management systems can assist MSMEs in coordinating their resources more effectively with

their strategic targets and thus perform at a high level (Obazee, 2024). Although it is important, financial management is not well developed in most MSMEs, and there is a need to develop the financial management process as part of the overall organisation's capacity.

2.5.4 Technology Adoption and MSME Performance

The adoption of technology is an important aspect of process capability, especially in digital transformation and Industry 4.0 (Aruna, 2015). In the case of MSMEs, the utilisation of digital tools and technologies can help to increase operational efficiency, decision-making, and market competitiveness to a great extent. Empirical literature illustrates that productivity increases due to the adoption of technology because it automates processes, minimises errors, and provides a real-time flow of information (Biswas, 2015; Banerji, 2013). Digital tools also help enhance coordination among functions and improve overall organisational efficiency. The adoption of technology facilitates process automation and data-driven decision-making, which increases efficiency and scalability, thereby contributing to enhanced 4P maturity.

The adoption of technology also helps MSMEs tap new markets and enhance interactions with customers. For example, e-commerce solutions and the use of digital platforms increase competitiveness and market reach, especially in globalised markets (OECD, 2021; Loo et al., 2023). Nevertheless, MSMEs face several barriers to technology adoption, such as financial resources, insufficient technical skills, and change resistance (Hagan et al., 2022; Okręglicka et al., 2015). These issues restrict firms' potential to optimise the advantages of digital transformation. In addition, performance benefits are generated when the adoption of technology is accompanied by complementary organisational capabilities, including a skilled workforce and

efficient processes. In the absence of these enabling features, technology investments may not translate into enhanced results (Arena et al., 2018).

2.5.5 Synthesis of the Process Construct

The above discussion confirms that the three preceding aspects (operational efficiency, financial management, and technology adoption) are interrelated aspects that, in combination, describe the process capability of an organisation. Themes are content domains for structuring items in the questionnaires for Process Maturity and should therefore not be interpreted as measures at a lower order as a construct in the measurement model. Each of the 12 Process Maturity items was directly loaded onto a single first-order reflective construct, which, in turn, was a formative indicator of the second-order 4P Maturity HOC. The design is parsimonious because it maintains the theoretical width of the Process construct (Álvarez Jaramillo et al., 2019) while keeping the measurement model simple. Operational efficiency ensures the efficient use of resources, financial management ensures the efficient distribution and control of resources, and technology adoption enhances operational efficiency and scalability.

Process Maturity is perhaps the most enabling dimension of the 4P framework. Research consistently shows that operational efficiency, financial discipline, and technology adoption improve resource utilisation, organisational adaptability, and competitive responsiveness in MSMEs (Das and Chaudhary, 2024; Hiremath et al., 2024; Mustangin et al., 2021). However, what the literature treats separately is, in practice, deeply interdependent: digital technology adoption is of limited value without the financial management discipline to sustain it, and process standardisation without leadership commitment, a function of psychological capability,

rarely survives beyond the implementation phase. More critically, the absence of process maturity constrains innovation: firms that lack systematic operational processes find it difficult to free up the managerial attention, financial slack, and organisational bandwidth needed to experiment with new products or services. In this sense, Process Maturity is not simply a performance driver in its own right but an enabling condition for Product Capability development. The literature reviewed here provides a theoretical and empirical basis for proposing H2.

2.5.6 Research Gap

Although operational efficiency, financial management, and technology adoption have been widely discussed, some gaps are crucial. To begin with, research on these dimensions has mostly been conducted separately, without incorporating them into a single framework. This reduces the capacity to comprehend the interaction between the various components of process capability and their effect on performance. Second, a significant part of the studies is dedicated to a particular sector or situation, which makes the results less applicable to the overall MSME sector as a whole. Third, empirical research on process capability as a higher-order construct, which is a combination of various dimensions of firm performance, is scarce. These gaps require an effective framework that embraces various process-related dimensions and determines their overall influence on 4P maturity.

2.5.7 Hypothesis Development

Although the literature has established a direct relationship between people-related capabilities

and organisational performance, the current research adopts an integrated capability approach. Conceptualising the Process Maturity as one of the many components of the 4P Maturity is realised with the assistance of which its influence on the performance of the MSMEs is realised.

H2: *Process maturity positively influences 4P maturity.*

2.6. Product Capability

2.6.1 Conceptualising the Product Capability

The capabilities of products are crucial to the competitiveness of a business, especially MSMEs, which may rely on innovativeness, differentiation, and market positioning. To thrive in highly competitive and dynamic markets, MSMEs should constantly change their products and services to suit dynamic customer demands, technological changes, and the pressures of competition (Ang, 2001). In contrast to large companies that enjoy the effects of scale and brand equity, MSMEs must depend greatly on product-level strategies to attain growth and sustainability.

In this study, product Capability is developed as a higher-order organisational capability, which consists of three dimensions: innovation capability, market positioning, and quality and differentiation. These dimensions are handled as reflective elements of the latent construct of overall product capability (Alsamydai 2014). This practice is consistent with the views on strategic management that focus on the importance of firm-specific resources and competencies in the development of competitive advantage.

Product Capability has a solid theoretical basis that can be used to explain the Resource-Based

View (RBV). The RBV assumes that companies develop long-run competitive advantages by successfully employing value, rare, inimitable, and non-substitutable resources. Product-related capabilities, such as innovation, brand positioning, and quality, are strategic resources in the context of MSMEs that distinguish firms in competition and result in better performance outcomes.

In summary, stronger product capability, reflected in innovation, effective market positioning, and superior quality and differentiation, enhances competitive advantage, which subsequently drives market success and leads to improved 4P maturity.

2.6.2 Innovation Capability and MSME Performance

Innovation capability is also defined as the capability of a firm to create new products, enhance existing products, and embrace new ideas to create value for customers. Necessity often leads to innovation in MSME, as companies do not always have to use formal R&D to innovate. Instead, common innovations occur in the form of incremental improvements, customer feedback, and market knowledge, which companies use to develop their products.

Empirical studies have also proven that innovation is paramount in improving firm performance through differentiation, customer value improvement, and market expansion (Wan and Ron, 2023; Cooper, 2025). Innovative firms can respond more effectively to dynamic market needs and capitalise on emerging opportunities, thereby achieving greater growth and competitiveness. Innovation also leads to organisational flexibility, where MSMEs can redefine, their products based on changes in the environment. Research has shown that companies with a high level of innovation are more resilient and have higher performance during periods of uncertainty (Jayanto

et al., 2025; Susilawati, 2024).

Financial constraints, the absence of technical knowledge, and risk aversion tend to limit innovation in MSMEs. However, companies that manage to overcome these limitations and invest in innovation will have better chances of gaining a competitive advantage and succeeding in the long run. Research has shown that even incremental innovation can contribute to MSME performance by increasing the quality of products and customer satisfaction (Hannen et al., 2019; Katz and Allen, 1982).

In addition, the ability to innovate is highly connected to the acquisition of knowledge and collaboration with the external environment. MSMEs that interact with external partners, research centres, and networks are more likely to gain access to new knowledge and technologies; hence, their innovation outcomes would improve. This increases the value of innovation as one of the most important factors in product capability and performance.

2.6.3 Market Positioning and MSME Performance

Market positioning is the art of strategically establishing how a firm will position itself in the market in relation to other competitors. It comprises target segments, value proposition choices, pricing choices, and brand perception decisions. In the case of MSMEs, positioning is essential to become visible and compete in markets with a high number of competitors. The empirical literature suggests that companies with well-defined and consistent market positioning are more likely to have customer recognition, brand loyalty, and competitive advantage (Babber and

Mittal, 2025; Koeksal and Oezgul, 2007). Positioning also helps companies distinguish their products and make their value understood to consumers, hence affecting buying behaviour and performance in the market.

Resource constraints are a common factor that affects MSME positioning because they restrain the capacity to invest in branding and marketing processes. Consequently, this situation causes most MSMEs to suppress their market identity, making them less visible and competitive. Research indicates that companies that spend on branding and strategic positioning can find customers more easily and attain sustainable development (Ang, 2001; Iranmanesh et al., 2021).

Market positioning is also important in the face of economic uncertainty. Strongly positioned firms can better position themselves and navigate market changes, thereby retaining customer loyalty. It has been shown that positive strategic positioning makes organisations more resilient and increases their long-term success (Nickell et al., 2013). Positioning is another attribute that is highly associated with customer knowledge and market orientation. MSMEs that effectively interact with customers and adjust their products and services according to feedback have a higher chance of ensuring that they attain successful positioning and better performance results.

2.6.4 Quality, Differentiation, and MSME Performance

Quality and differentiation are crucial elements of product capability, which indicate a firm's ability to provide customers with high-quality value. The quality and uniqueness of the products used in the markets are major determinants of customer satisfaction and repeat business. It has been empirically identified that Companies that practice quality management and continuous

improvement attain greater performance by improving customer satisfaction and minimising defects and inefficiencies (Aulia et al., 2023; Bottani et al., 2009). An improvement in quality will not only lead to customer loyalty but also cost efficiency through rework and waste reduction.

Differentiation also enhances competitive advantage, as it helps firms differentiate their products from those of their rivals. When MSMEs differentiate their products and services by features, design, or value proposition, they are in a better position to price their products at a premium price and higher margins. Research has shown that differentiation strategies are most critical in situations where MSMEs are involved, since they enable firms to compete without necessarily using cost advantages (Kuwu and Gakure, 2014).

Organisational processes and capabilities are also closely related to quality and differentiation issues. Companies that create quality management systems, train employees, and continuously improve their processes have a higher chance of attaining better product results. On the other hand, poor quality and inadequate differentiation may result in customer dissatisfaction and decreased competitiveness. The issue of ensuring steady quality in MSMEs may be problematic because resources are scarce, and processes do not always turn out in the same way. Nevertheless, quality and differentiated firms are in a better position to realise sustainable growth and a competitive edge.

2.6.5 Synthesis of the Product Capability

As shown in the discussion above, the three dimensions of innovation capability, market

positioning, and quality and differentiation are interrelated, and when combined, they affect the performance of MSMEs. Although the individual dimensions have an effect on their own, the overall impact is a better explanation of product capabilities. Taken together, these dimensions are indicative of the maturity of the Product Capability, which is the firm's capability to create, position, and deliver value to customers. Product development and flexibility are fuelled by innovation, competitiveness, and visibility in the market, which is facilitated by positioning, and customer satisfaction and allegiance are guaranteed by quality.

As the literature reviewed mentions, innovation, market positioning, and quality differentiation are mutually reinforcing factors for the capacity of a firm to generate customer value and market dynamics, as well as to maintain the competitive advantage (Afshan et al., 2012; Kodwani, 2017; Chandra and Chand, 2023). Product-based capabilities help strengthen the strategic positioning of MSMEs and make them competitive in increasingly dynamic markets. Nevertheless, current research has focused on these dimensions in most cases without conceptualising their joint impact as a higher-order product capability construct. The literature reviewed above provides a theoretical foundation for proposing H3.

2.6.6 Research Gap

Numerous studies have been conducted on innovation, positioning, and quality, but some gaps remain. First, what is presently available in the literature is mostly the focus on these dimensions, without bringing them to a common framework. This limits the ability to identify the "how" of the interaction of the performance impact of multiple product capabilities. Second, studies on this topic predominantly consider large companies or involve a small industry, although there is

a lack of attention to MSMEs, especially in developing economies. Third, the empirical studies conducted have not attempted to "conceptualize" product capability as a higher-order phenomenon that represents the overall effect of the different dimensions. It is necessary to have a well-defined analysis of the relationship between product-based capabilities and MSME performance. The sub-themes found in this section (innovation capacity, market positioning, branding, digital presence, and marketing strategy) are content themes that informed the 12 questionnaire items in the Product Capability section, as with the other sections of the questionnaire (People Maturity and Process Maturity). They are not defined at lower levels as discrete subcomponents. All Product Capability items loaded directly onto a single first-order reflective construct, which in turn contributed as a formative indicator for 4P maturity.

2.6.7 Hypothesis Development

Although product-relevant capabilities, such as innovation and differentiation, have been identified to have a direct impact on the performance of a firm, the current research takes an integrated approach, as Product Capability is a contributor of 4P maturity, via which performance outcomes are achieved.

H3: *Product capability positively influences 4P maturity.*

2.7. Psychological Capability

2.7.1 Conceptualising the Psychological Capability

Although structural and operational dimensions such as human resources, processes, and product capabilities are important determinants of firm performance, there is increasing evidence that

managerial thinking and behavioural attributes are also important, especially in Micro, Small and Medium Enterprises (MSMEs). Such companies are characterised by the high centralisation of decision-making power, and organisational performance is greatly driven by the perceptions, attitudes, and psychological personality of the owner-managers.

Psychological Capability in this study is theorised as a higher-order behavioural capability which comprises three important dimensions: risk orientation, decision-making capability, and adaptability. All these dimensions are used to describe the cognitive and behavioural patterns that determine the perception of opportunities by the entrepreneurs, the reaction of the entrepreneur to uncertainty, and strategic decision-making. Instead of operating as independent variables, the dimensions are conceptualised as reflective elements of an underlying latent construct manifesting the general psychological preparedness or behavioural maturity of the leadership of the company.

The theory of Upper Echelons offers a good theoretical background for this construct, implying that the results of organisations are mirrors of the cognitive foundations, values, and experiences of top managers. This relationship is even more marked in MSMEs, where the owner-manager has a direct impact on the strategic direction, operational decisions, and allocation of resources. Behavioural schools also highlight that decision-making is not entirely rational and is influenced by both psychological factors (perception of risks, biases, and emotional conditions) and emotional states. The psychological capability of the owner-manager, reflected in risk orientation, decision-making effectiveness, and adaptability, drives strategic behaviour, which subsequently enhances organisational outcomes and results in improved 4P maturity.

2.7.2 Risk Orientation and MSME Performance

Risk orientation denotes the degree to which an entrepreneur is ready to take calculated risks to seize opportunities. Risk orientation is crucial in the strategic decisions and performance of MSMEs, where the level of uncertainty is high and resources are scarce. Entrepreneurs' risk-taking is one such determinant of firm growth and innovation that has enjoyed extensive acknowledgement. Companies with increased risk orientation tend to explore new ventures, practices, and markets, which positively increases performance (Sitkin and Pablo, 1992; Wiseman and Gomez-Mejia, 1998). However, a high level of risk aversion will result in stunted growth through constrained growth in terms of investment and innovation.

However, there was no linear relationship between risk orientation and performance. Although moderate risk-taking performance is effective, excessive risk-taking may result in misplaced resources and business collapse. Research shows that risk management, not risk avoidance, is essential for attaining optimal performance results (Miller and Leiblein, 1996). The personal attributes and experiences of the owner-manager tend to affect the risk orientation. Incentivised entrepreneurs are more prone to calculating risk-taking, and those with limited experience may resort to risk-averse behaviour. It is also noted that context is a moderating factor in the relationship between risk orientation and performance, as environmental uncertainty plays a moderating role. In addition, psychological motivators, such as fear of failure and loss aversion, can also play a major role in risk-taking behaviour. Owners of MSMEs in uncertain situations may ensure survival rather than growth and make more conservative decisions. This highlights the need to balance risk-taking with strategic planning and management.

2.7.3 Decision-Making Capability and MSME Performance

Decision-making ability is a key aspect of managerial performance, especially in MSMEs, where only a few people make strategic and operational decisions. Decision-making entails the choice of options, interpretation and evaluation of information, and alignment of options with organisational objectives. According to Upper Echelons Theory, decisions depend on the mental bias, experiences, and values of top managers. In MSMEs, where formal decision-making processes may be nonexistent, intuition, experience, and subjective judgement are often used to make decisions. Although these strategies can be used to respond promptly, they can result in inconsistencies and suboptimal results. The construct should be distinguished from the directional and motivational functions of leadership: Decision-Making Capability refers specifically to the cognitive quality of the owner-manager's information processing, alternative evaluation, and choice under uncertainty

Empirical studies show that firm performance is positively linked to efficient decision-making, as it allows for the distribution of resources more efficiently, achieving a more appropriate strategic fit, and responsiveness to environmental factors (Elbanna and Child, 2007; Shepherd et al., 2015). The quality of decision-making is essential in dynamic environments where fast and correct decisions can provide a competitive edge.

Behavioural studies indicate that cognitive biases, including overconfidence, anchoring, and confirmation bias, may adversely impact the quality of the decisions made (Kahneman and Tversky, 1979; Hodgkinson and Healey, 2011). The consequences of these biases in MSMEs are

potentially enormous, as the decisions made can be highly centralised which may have both short- and long-run effects on the business. Moreover, the ability to make decisions is directly connected to information availability and processing. There are increased chances that the MSMEs that embrace the concept of data-driven decision-making can analyse the market trends, evaluate alternatives, and make informed decisions. Nevertheless, a good number of MSMEs do not have access to quality data and analytical tools, which makes their decision-making less effective and efficient. In addition, emotions and psychological factors, such as stress and cognitive overload, tend to affect decision-making in MSMEs. Research indicates that stress may negatively affect the quality of decisions and result in mistakes and poor organisational functioning (Fernet et al., 2016; Martin et al., 2020).

2.7.4 Adaptability and MSME Performance

Adaptability is the capacity of an organisation to react well to changes in the external environment. Adaptability is an important ability in the context of MSMEs, as companies operate in dynamic and uncertain settings, which are marked by fast technological shifts, customer tastes, and competition. Dynamic environments mandate that MSMEs continuously change their strategies, processes, and products to keep up with the competition. Flexibility helps companies identify opportunities, react to challenges, and maintain performance in the long run. Studies have shown that flexible companies are stronger and can succeed more effectively in the long run (Weick and Sutcliffe, 2015; Vogus and Sutcliffe, 2007).

Flexibility is directly associated with learning and innovation. Companies involved in lifelong learning and knowledge acquisition can adjust to varying conditions and enhance their

performance. Adaptability in MSMEs is usually motivated by the desire of the owner-manager to change and explore new methods of operation. Empirical research shows that adaptability contributes to organisational resilience; that is, firms can absorb shocks and recover following disruptions (Sullivan-Taylor & Branicki, 2011; Panjaitan, 2022). This is especially true in uncertain places where the capacity to act promptly and efficiently can spell the difference between survival and extinction.

However, adaptability requires organisational flexibility and resource availability. Stable, structured MSMEs or those with few resources might not be able to adapt; hence, they become less competitive. Psychological elements such as openness to change, learning orientation, and resilience have a key influence on adaptability.

2.7.5 Synthesis of the Psychological Capability

The above-discussed evidence points to the fact that risk orientation, decision-making capability and adaptability as a set of factors influence managerial behaviour and determine how MSMEs react to uncertainty and strategic challenges (Mahmudah et al., 2017; Jaboob et al., 2025; Sharma and Jain, 2023). These behavioural processes increase organisational alignment and responsiveness to the strategies. However, much of the previous research on these dimensions has been conducted in isolation and not in combination, where their combination would form a higher-order construct of psychological capability. The convergent evidence considered above provides the conceptual basis for hypothesising that Psychological Capability has a positive relationship with 4P Maturity (H4).

2.7.6 Research Gap

The findings suggest that owner-managers' responses to risk and strategic issues are influenced by the interplay among risk orientation, decision-making quality, and adaptability (Mahmudah et al., 2017; Jaboob et al., 2025; Sharma and Jain, 2023). These behavioural elements help owner-managers make informed decisions, take calculated risks, and adapt to the changing business environment. Like the other three 4P dimensions, the subthemes identified here (risk orientation, decision-making style, vision orientation, change readiness, and delegation willingness) are content domains to guide the development of the 12 questionnaire items for Psychological Capability and are not operationalised as lower-order constructs. All Psychological Capability items are directly loaded onto one first-order reflective construct, which is a formative indicator of 4P Maturity. The literature reviewed above provides a conceptual and empirical basis for proposing H4.

2.7.7 Hypothesis Development

Although prior research has linked psychological characteristics such as risk orientation, decision-making, and adaptability directly to firm performance, the present study adopts an integrated capability perspective. Accordingly, Psychological Capability is conceptualised as a component of 4P Maturity, through which its influence on MSME performance is realised.

H4: *Psychological capability positively influences 4P maturity.*

2.8. Integrated Model Discussion

2.8.1 Interdependence of the 4P Constructs

Although the above sections have discussed the personal impact of the people, process, product, and Psychological Capability on the performance of MSMEs, there has been emerging literature pointing to the fact that organisational performance does not often occur due to the action of single factors. Rather, it is a product of the interplay and harmonisation of various organisational capabilities and behavioural dimensions, which, in combination, determine the results of firms. The 4P Framework represents the overall theoretical model, whereas 4P Maturity represents the higher-order formative construct operationalised and tested in the quantitative analysis.

Interdependence is especially strong in the MSME environment because of the lack of resources, structural informality, and centralised decision-making. Compared to large organisations, where the operation of functions is rather autonomous, MSMEs are highly interconnected in functional domains. Consequently, the gain in one area tends to rely on and even enhance the ability of other areas.

For example, the efficiency of people-related capabilities, such as training and leadership, is highly correlated with process maturity because talented workers need a well-organised system and working processes to operate at their best. Similarly, product capability, especially innovation and differentiation, requires organisational processes and human capital to bring ideas to marketable products. Simultaneously, Psychological aspects, such as decision-making and adaptability, affect the efficiency of resource allocation and the implementation of strategies.

The literature suggests that the alignment and integration of the People, Process, Product, and Psychology dimensions may generate organisational capability congruence, which may contribute to improved MSME performance through 4P maturity.

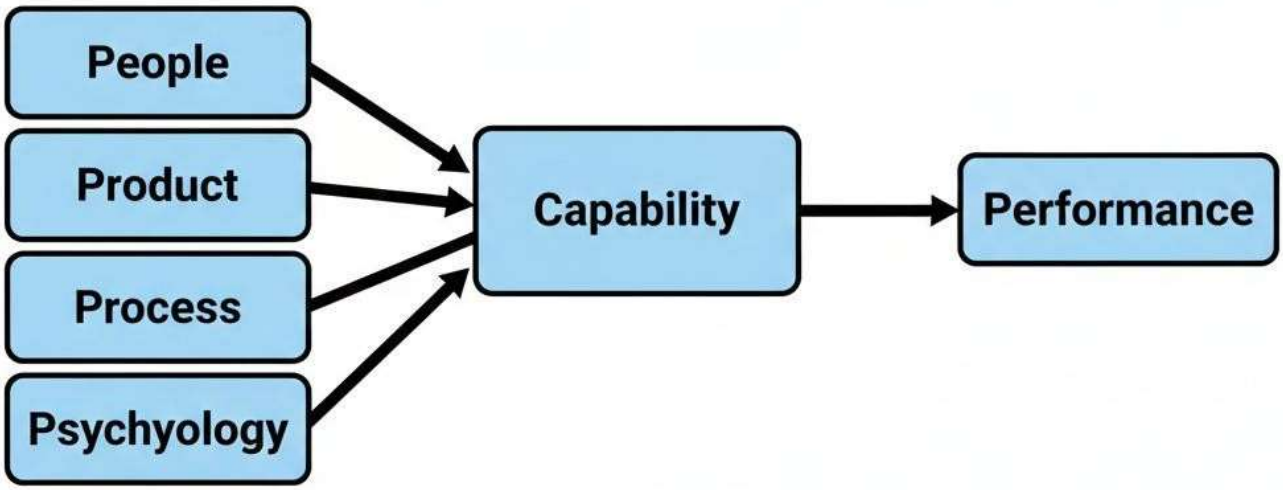


Figure 2.8: Integration of People, Process, Product, and Psychology dimensions

Empirical studies have shown this combined view and suggested that the alignment and configuration of various capabilities drive firm performance, as opposed to single factors (Agarwal, 2024). As research has pointed out, organisations are better off when various capabilities support each other to produce a synergistic effect. This point of view aligns with systems theory and capability-based views, which focus on the fact that organisational outcomes are determined by the interaction of various subsystems (Wulandari, 2007). The lack of alignment between these dimensions may cause inefficiencies and poor MSME performance. Namely, investing in technology and not training employees can lead to ineffective utilisation of resources, and good leadership, but ineffective processes can provide uneven implementation

(Agarwal & Bhatia, 2021). Similarly, new products can never succeed in the market without proper positioning and operational strengths.

The other issue that the interdependence of the 4P constructs brings out is the complementarity of capabilities. Complementarity is the effect whereby the effectiveness of a certain capability is enhanced by the existence of another capability. For example, the performance improvement associated with innovation can be increased with the help of effective processes and responsive leadership. In turn, the lack of complementary capabilities may undermine the overall effectiveness of individual dimensions. In addition, the dynamic characteristics of MSME environments support the necessity of an integrated approach. A company in a volatile market must keep its resources, processes, and strategies in sync with changing conditions. This requires strong individual capabilities and coordination of these capabilities.

2.8.2 Overall 4P Maturity and MSME Performance

Based on the discussion above, this study hypothesises that MSME performance can be best represented using an integrated framework which captures the overall impact of People, Process, Product, and Psychology as higher-order variables (Parekh, 2010). Instead of analysing these dimensions separately, this study theorises them as sections of a larger latent construct called 4P maturity (Agrawal & Singh, 2019). The 4P maturity concept reflects the general competence and readiness of the behaviours of organisations as the degree of ability to manage human assets, work processes, product plans, and cognition of the management (Sugiarto, 2018). This combined vision is in line with capability-based and systems approaches that posit that the performance of firms is a product of the overall strength and congruity of several capabilities (Joshi et al., 2024).

The proposed higher-order construct of 4P Maturity is intended to capture the integrated alignment of People, Process, Product, and Psychology capabilities within an organisation. Thompson et al. (2013). Theoretically, such alignment may foster a more cohesive organisational capability. Consequently, firms exhibiting higher levels of 4P Maturity may be better positioned to utilise resources effectively, execute strategy, and respond to environmental change (Alsamydai, 2014; Weick, 1995). Theoretically, this combined strategy can be justified by the Resource-Based View, Dynamic Capabilities Theory, and behavioural perspectives. Whereas RBV focuses on the significance of valuable and inimitable resources, Dynamic Capabilities Theory points to the fact that such resources are to be integrated and reconfigured, and behavioural theories provide an explanation of how managerial cognition affects the deployment of such resources (Verbano & Venturini, 2013). Collectively, these views indicate that performance is not a factor of the mere existence of individual abilities but also a factor of the integration and alignment of such abilities (Tabala et al., 2025).

Empirical evidence also supports the idea that integrated capability frameworks are more explanatory of firm performance. The findings show that companies with more advanced organisational maturity, including well-established systems, advanced workforce, and innovative and adaptive leadership, perform better (Protogerou et al., 2012; Helfat and Martin, 2015). These results emphasise that it is significant to consider the issue of multiple dimensions instead of addressing the independent variables.

The 4P maturity concept is especially applicable in the MSME setting because the organisational

functions are too closely related (Stroh et al., 2022). In one instance, a company with good product capability and poor processes might not be able to expand its operations, whereas in the other, a company with good processes and poor innovation can also fail to grow. Similarly, good human capital and the lack of good leadership can result in resources not being fully utilised (Song et al., 2022). These limitations are overcome in the proposed integrated framework through the ability of the framework to obtain the overall impact of the combination of various dimensions on performance. This study allows us to understand the 4P constructs as being part of a higher-order construct, making the performance of MSMEs more holistic (Snyder, 1999).

Moreover, this style promotes the suggestion of the supervisor to analyse the entire impact of 4P maturity on the individual dimensions only after first analysing the overall impact (Singh & Singh 2014). This approach enables the model to capture how multiple organisational capabilities combine through the higher-order formative construct of 4P Maturity to predict MSME performance. (Sherlywati et al., 2017). This study seeks to contribute theoretical and empirical insights into MSME performance by examining 4P maturity using a higher-order construct approach.

2.8.3 Theoretical and Conceptual Contribution of the Integrated Model

The synthesised 4P model is an important step towards the current methodologies of MSME performance. Although previous studies have focused on the single dimensions of HR practices, operational efficiency, or innovativeness, most have not considered the relationship between these dimensions (Sharma & Jain, 2023). This study makes three main contributions to the literature. First, it proposes a multidimensional conceptualisation that incorporates structural,

operational, product-related, and behavioural variables into one model. This resolves the gap in the literature and provides a more detailed insight into the determinants of performance (Shane et al., 2012).

Second, this study conceptualises the constructs of the 4P as higher-order capabilities, which allows for the analysis of individual and joint impacts (Martinravi & Krishnasamy, 2024). This method complements modern methodological developments in structural equation modelling, which is especially concerned with the need to model latent constructs and their connections (Shafie & Isa, 2022). Third, the incorporation of Psychological Capability with conventional organisational dimensions is a new addition which makes a significant contribution to the role of managerial cognition and behaviour in influencing firm outcomes (Sahoo et al., 2023). This applies more to MSMEs, where the impact of owner-managers is more intense.

2.8.4 Hypothesis Development: Integrated Effect

Based on the theoretical and empirical arguments outlined above, it is hypothesised that MSMEs' performance does not depend on any of the four capability dimensions individually but on the composite capability that the four dimensions form. This is reflected in the two-stage structure of the 4P Framework: People Maturity, Process Maturity, Product Capability, and Psychological Capability are all formative indicators of 4P Maturity (H1–H4), which in turn predicts MSME Performance (H5). The model does not have the four dimensions directly predicting MSME Performance anywhere; they only indirectly do so through the 4P maturity composite. Aligning multiple organisational dimensions presents an integrated capability

perspective, indicating that capability integration leads to a higher-order phenomenon that is more likely to enhance firm performance.

H5: 4P Maturity positively influences MSME performance

2.9. Conceptual Model Summary

The above sections have developed an elaborate theoretical framework for explaining 4P maturity by combining various dimensions of organisational and behavioural aspects in a single model. This study conceptualises firm performance as a product of both structural capability and managerial cognition, drawing on insights from the Resource-Based View, the Dynamic Capabilities Theory, the Social Exchange Theory, and the Upper Echelons Theory. The major issue in the suggested framework is the argument that MSME performance is not predetermined by single factors but by the interplay of various interconnected capabilities, that is, People, Process, Product, and Psychology (Ryff, 1995). These constructs are all higher-order dimensions that consist of several underlying elements that reflect the overall capability maturity of the firm.

People Maturity engages the human capital capability of the organisation, such as the formalisation of human resources, training and development of skills, and effective leadership (Robert et al., 2019). These factors affect employee-level performance, including engagement, productivity, and role clarity, which subsequently affect organisational performance. In this way, the interdependence between People and 4P Maturity is theorised as an ability-based channel, in which the appropriate management of human resources improves the performance of firms (Reif et al., 2025).

Process construct is the operational potential of the firm, which includes the operational efficiency of the firm, financial management practices, and technology use (Rani, 2015). These dimensions define the effectiveness of an organisation in terms of using its resources, running its operations, and adjusting to changing conditions. Process maturity facilitates cost-effectiveness, scalability, and operational stability which have a direct impact on performance (Babber and Mittal, 2025).

Product Capability is a manifestation of the firm's capability to face the market, such as innovation, market positioning, quality, and differentiation (Singla & Phadtare, 2025). These factors determine the capacity of the firm to generate and provide value to the customer, competitive advantage, and maintenance of performance in the market. The conceptualisation of product capability is presented as one of the major sources of revenue growth, customer satisfaction, and competitive positioning (Rahman et al., 2022).

Psychological Capability entails the behavioural and cognitive attributes of the owner-manager, such as risk orientation, decision-making ability, and adaptability (Radipere & Dhliwayo, 2014). These contribute to the perception of opportunities, decision-making, and implementation of strategies in the organisation. Psychological capability is important in determining the performance of MSME, where leadership is highly centralised, because it influences strategic behaviour.

The model takes note of the fact that the four dimensions are not independent but interdependent and mutually reinforcing (Purnamasari et al., 2020). A dimension can be effective or not, depending on the presence or absence of other dimensions. E.g. innovation (Product) requires skilled employees (People) and effective processes (Process) and strategic decisions (Psychology) drive the allocation of the resources between the three. This interdependence means that it is important to study the joint impact of these constructs instead of considering them independent predictors (Priyaadarshini & Jena, 2024).

Therefore, this study proposes the notion of overall 4P maturity, which is a combined state of organisational competence and behavioural preparedness in four dimensions. This higher-order construct will be used to measure the degree to which an MSME is successful in matching its human resources, operational processes, product strategies, and managerial cognition to deliver performance results (Prayudi et al., 2019). The conceptual model assumes that there is a single mediated pathway through which organisational capability affects firm performance. Four constructs are involved: People, Process, Product, and Psychology, each leading to the development of the overall 4P Maturity which in turn leads to MSME performance. Such a full mediation structure indicates the theoretical stance of the study that individual capability dimensions acquire their performance relevance through a combination and integrated expression as organisational maturity, and not through direct effects. This two-tier strategy makes it possible to study the individual effects and cumulative impact and obtain a more detailed picture of 4P Maturity.

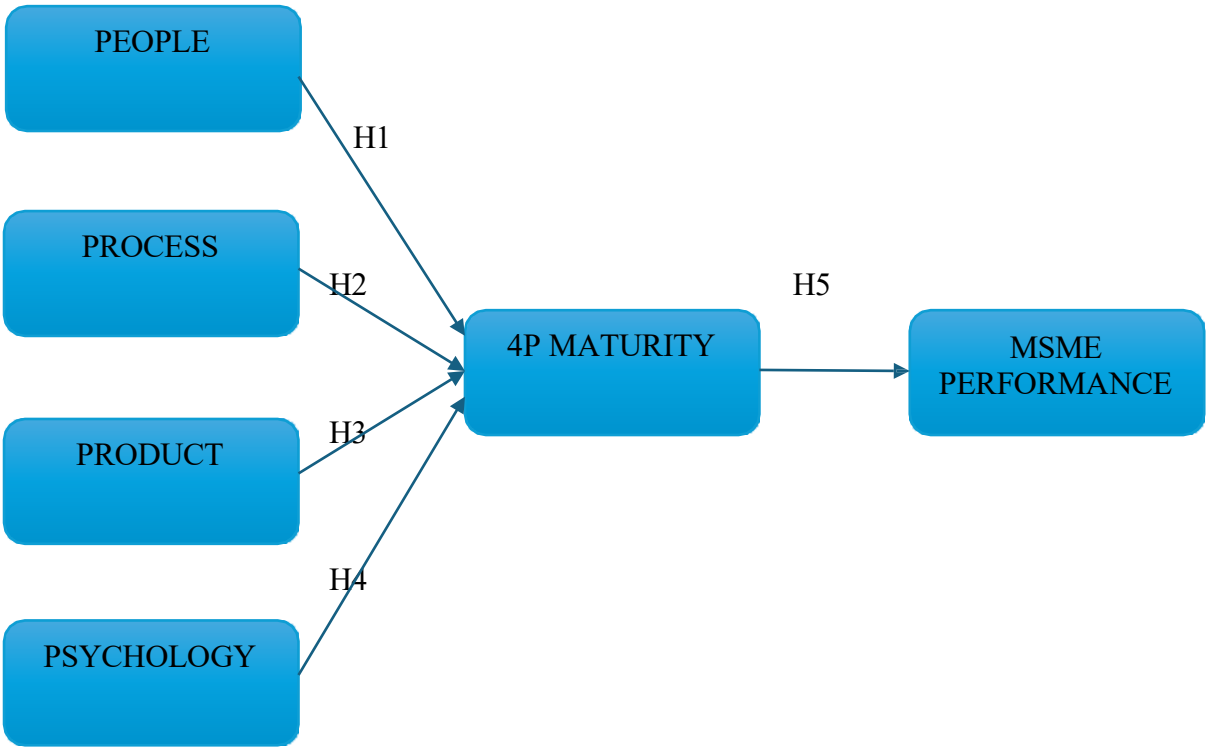


Figure 2.9: Conceptual Framework

Note: 4P Maturity is modelled as a higher-order formative construct formed by People Maturity, Process Maturity, Product Capability, and Psychological Capability.

The model structure responds to a consistent literature gap, the lack of frameworks that reflect the interdependent and composite nature of MSME capability (Pierce et al., 2003). The suggested model adds to the theoretical knowledge and provides an initial analytical framework for exploring 4P maturity. The next section formalises the above conceptualisation into formal

hypotheses, which are expressed in a structured and testable manner regarding how the relationships between the constructs and 4P Maturity will be proposed.

2.10. Hypothesis Table (H1–H5)

Table 2.1: Summary of Hypotheses

Code	Path	Sign	Primary Theory	Justification (Expanded – DBA Level)	Key Citations (from LR)
H1	People Maturity → 4P Maturity	+	Social Exchange Theory; Human Capital Theory; Upper Echelons Theory	People Maturity, reflected through structured HR practices, skill development, and leadership capability, enhances employee engagement, competence, and organisational alignment. Social Exchange Theory explains how fair and supportive HR practices foster reciprocal employee commitment, whereas Human Capital Theory highlights the role of skills and knowledge in improving productivity. Additionally, leadership capability, as explained by the Upper Echelons Theory, shapes strategic direction	Harney et al. (2022); Kumar & Rani (2023); Afshan et al. (2012); Kodwani (2017); Sharma & Jain (2023); Vaccaro et al. (2012)

				and organisational coordination. Collectively, these dimensions strengthen the overall organisational capability system, thereby contributing to higher levels of 4P Maturity.	
H2	Process Maturity → 4P Maturity	+	Dynamic Capabilities Theory	Process Maturity, encompassing operational efficiency, financial management, and technology adoption, enhances an organisation's ability to utilise resources effectively and adapt to changing environments. Dynamic Capabilities Theory posits that firms achieve superior outcomes through their ability to integrate and reconfigure internal processes. Efficient operations reduce waste, financial discipline improves resource allocation, and technology adoption enables data-driven decision making and scalability. Together, these capabilities strengthen the adaptive and integrative	Das & Chaudhary (2024); Hiremath et al. (2024); Mustangin et al. (2021); Loo et al. (2023)

				capacity of the organisation, thereby contributing to 4P Maturity.	
H3	Product Capability → 4P Maturity	+	Resource-Based View (RBV)	Product Capability, including innovation, market positioning, and quality differentiation, represents a key strategic resource that enhances competitive advantage. According to the Resource-Based View, firms achieve superior performance by developing valuable, rare, and inimitable capabilities. Innovation enables responsiveness to market changes, effective positioning enhances customer alignment, and high quality strengthens customer value and retention. These product-related capabilities contribute to the firm's overall strategic strength and integration with other organisational functions, thereby enhancing 4P Maturity.	Afshan et al. (2012); Kodwani (2017); Chandra & Chand (2023); Kumar & Rani (2023); Harney et al. (2022)
H4	Psychological	+	Upper	Psychological Capability,	Mahmudah et

	Capability → 4P Maturity		Echelons Theory; Behavioural Theory	reflected in risk orientation, decision-making ability, and adaptability, shapes strategic behaviour and organisational responsiveness. Upper Echelons Theory suggests that managerial cognition and behavioural traits influence organisational outcomes through their strategic choices. Risk-taking enables opportunity exploration, effective decision-making ensures timely and informed actions, and adaptability allows firms to respond to environmental uncertainties. These behavioural attributes strengthen the organisation's ability to align and integrate its capabilities, thereby contributing to overall 4P Maturity.	al. (2017); Jaboob et al. (2025); Sharma & Jain (2023); Vaccaro et al. (2012)
H5	4P Maturity → MSME Performance	+	Resource-Based View; Dynamic Capabilities Theory; 4P	4P Maturity represents the integrated alignment of People, Process, Product, and Psychological capabilities within an	Patel et al. (2024); Pandita et al. (2020); Mustangin et al. (2021); Loo et

			Maturity (higher-order formative construct)	organisation. From an RBV perspective, this integrated capability constitutes a valuable and inimitable resource that enhances the competitive advantage. Dynamic Capabilities Theory further explains how the alignment of these capabilities enables firms to adapt to and respond effectively to environmental changes. The synergy among these dimensions leads to improved efficiency, innovation, strategic alignment, and responsiveness, ultimately resulting in enhanced MSME performance.	al. (2023)

Table 2.2: Measurement of Constructs, Dimensions, and Scale Design

Construct & Dimension	Definition	Reflective / Formative	Original Scale Source	Adaptation Rationale	No. Items	Sample Item (verbatim)	Respondent	Anchors
People Maturity (Second-order)	The extent to which an organisation effectively develops, manages, and aligns its human capital through structured HR practices, skill development, and leadership capability.	**Second-order Reflective** (formed by first-order constructs)	Harney et al. (2022); Kumar & Rani (2023); Sharma & Jain (2023)	Items adapted to capture MSME-specific HR informality, skill gaps, and leadership centralisation	12	"Employees have clearly defined roles and responsibilities."	Owner/Manager	1 = Strongly Disagree to 5 = Strongly Agree
→ HR Formalisation	The degree to which HR practices are	Reflective	Nimbagal & Mandali (2019); Chandr	Adapted to reflect informal HR systems	4	"Recruitment and selection processes are	Owner/Manager	Same

	structured, documented, and consistently implemented.		a & Chand (2023)	in MSMEs		structured and systematic."		
→ Training & Skill Development	Extent to which the organisation invests in improving employee skills and competencies.	Reflective	Afshan et al. (2012); Kodwani (2017); ILO (2020)	Adapted to include digital and multi-skill requirements in MSMEs	4	"Employees are regularly provided with training opportunities."	Owner/Manager	Same
→ Leadership Capability	Ability of leadership to provide direction, motivation, and organisational alignment.	Reflective	Sharma & Jain (2023); Vaccaro et al. (2012)	Adapted for owner-managed MSME context	4	"Leaders provide clear direction and vision."	Owner/Manager	Same
Process Maturity (Second-order)	The extent to which organisational processes	**Second-order Reflective**	Das & Chaudhary (2024); Hiremat	Adapted to reflect operational constrai	12	"Work processes are well-organised and	Owner/Manager	Same

	are efficient, structured, and supported by financial discipline and technology.		h et al. (2024); Mustangin et al. (2021)	nts and informality in MSMEs		streamlined.”		
→ Operational Efficiency	The degree to which operations minimise waste and maximise productivity.	Reflective	Kumar (2020); Katyal & Xaviour (2015)	Adapted for MSME operational limitations	4	“Our operations are efficient with minimal wastage.”	Owner/Manager	Same
→ Financial Management	Extent to which financial planning, control and stability are maintained.	Reflective	Das & Chaudhary (2024); Hiremath et al. (2024)	Adapted to MSME financial constraints and decision-making practices	4	“Financial planning and budgeting are properly maintained.”	Owner/Manager	Same
→ Technology Adoption	The degree to which technology is used to	Reflective	Mustangin et al. (2021);	Adapted for digital adoption	4	“Technology is used to improve operational	Owner/Manager	Same

	support operations and decision-making.		Loo et al. (2023)	variability in MSMEs		efficiency."		
Product Capability (Second-order)	An organisation's ability to develop, position, and deliver high-quality and differentiated products/services.	**Second-order Reflective**	Afshan et al. (2012); Kodwani (2017); Chandra & Chand (2023)	Adapted to MSME product innovation and market positioning constraints	12	"Our organisation introduces new or improved products/services."	Owner/Manager	Same
→ Innovation	Extent to which the organisation develops new ideas and offerings.	Reflective	Afshan et al. (2012); Kodwani (2017)	Adapted to incremental innovation in MSMEs	4	"We respond quickly to market changes with new ideas."	Owner/Manager	Same
→ Market Positioning	Ability to target, communicate, and position offerings effectively:	Reflective	Kumar & Rani (2023); Chandra & Chand (2023)	Adapted to limited marketing resources in	4	"Our products/services are clearly positioned in the market."	Owner/Manager	Same

				MSMEs				
→ Quality & Differentiation	The degree to which offerings are perceived as high quality and distinct.	Reflective	Harney et al. (2022); Nimbagal & Mandali (2019)	Adapted to customer value perception in MSMEs	4	"Our products/services maintain high quality standards."	Owner/Manager	Same
Psychological Capability (Second-order)	The cognitive and behavioural attributes of the owner-manager influence strategic decisions and adaptability.	**Second-order Reflective**	Mahmudah et al. (2017); Jaboob et al. (2025); Sharma & Jain (2023)	Adapted to centralised decision-making in MSMEs	12	"The organisation is willing to take calculated risks."	Owner/Manager	Same
→ Risk Orientation	Willingness to take calculated risks and explore opportunities.	Reflective	Mahmudah et al. (2017); Jaboob et al. (2025)	Adapted to MSME risk behaviour	4	"The organisation is willing to take calculated risks."	Owner/Manager	Same
→	Ability to	Reflect	Sharma	Adapted	4	"Decisions	Owner/M	Same

Decision-Making	make timely, informed, and effective decisions.	ive	& Jain (2023); Vaccaro et al. (2012)	to owner-driven decisions		are made quickly and effectively."	anager	
→ Adaptability	Ability to respond to and adjust to environmental changes.	Reflective	Mustangin et al. (2021); Loo et al. (2023)	Adapted to dynamic MSME environments	4	"The organisation adapts quickly to market changes."	Owner/Manager	Same
4P Maturity (Higher-order Construct)	4P Maturity (higher-order formative construct) reflects the alignment of the People, Process, Product, and Psychological dimensions.	**Second-order Formative (HCM)**	Derived from this study (based on RBV & Dynamic Capabilities)	Conceptual construct integrating four capability dimensions		Derived through SEM (not directly measured)		
MSME	The overall	Reflect	Kumar	Adapted	6	"Our	Owner/M	Same

Performance	effectiveness of a firm in achieving financial and operational outcomes.	ive	(2020); Katyal & Xaviour (2015)	to MSME performance indicators		organisation has experienced growth in revenue."	anager	

CHAPTER 3:

RESEARCH METHODOLOGY

3.1 Introduction

The philosophical and procedural foundations of any academic enquiry are research methodologies. It does not just include the choice of data-collection tools, epistemological engagements, ontological inclinations, and analytical plans that define the manner in which knowledge is generated, justified, and understood. The methodological design, in relation to the topic of the current study, aimed at exploring the association between a structured 4P model, that is, including People Maturity, Process Maturity, Product Capability, and Psychological Capability, and the outcomes of MSME performance in India, is informed by the conceptual model and hypotheses formulated in Chapter 2. The chapter includes a thorough, theoretically based description of all methodological decisions, including the research philosophy and statistical procedures in hypothesis testing.

The Indian MSME environment poses specific methodological issues: the sector is both heterogeneous in terms of size, industry, geography, and the level of formalisation, as well as the informal economy in which about 94 percent of companies are engaged (Khatri, 2019; Mehrotra and Parida, 2019). These realities necessitated a research design that was both rigorous and pragmatically akin to the realities of data collection in an intricate emerging market setting. The decision made at every step of the chapter, such as the decision to adopt a research paradigm, the decision to adopt Partial Least Squares Structural Equation Modelling (PLS-SEM), the design of a multi-item reflective measure instrument, and the selection of a purposive stratified sampling,

are all clearly explained as to why the decision was made in the manner it was made given the theoretical imperatives of the study as well

The remainder of this chapter is organised as follows. Section 3.2 determines the philosophical stance of the study. The research approach and design are provided in Sections 3.3 and 3.4. Section 3.5 provides details on the research strategy. The population, sampling frame, and sample size are outlined in Section 3.6. Section 3.7 explains the measurement tool, which involves construct operationalisation. The data collection procedures are discussed in Section 3.8. Section 3.9 deals with the methods of analysis. The rigour framework is presented in Section 3.10. The ethical considerations are discussed in Section 3.11. The PULSE 4P™ Business Health Index is located in Section 3.12 as part of the case study aspect of the study. The three embedded case studies are presented in Section 3.13. Section 3.14 addresses the limitations of this study. Section 3.15 provides a summary of the chapter.

3.2 Research Philosophy

Research philosophy is a system of beliefs regarding the nature of reality (ontology), knowledge (epistemology), and values that affect research (axiology). These promises, which are frequently tacit in applied management research, significantly influence the acceptability of questions, the validity of answers, and the extrapolation of results (Saunders et al., 2019). The research philosophy of this study lies within the pragmatist tradition.

3.2.1 Ontological Position

Ontology deals with the nature of reality and whether it exists even when it is not observed. This research takes a stance of subtle realism, acknowledging that organisational phenomena (such as organisational formalisation, process maturity, product capability, and entrepreneurial psychology) are real social constructs that exist outside of individual perception but are observable only through their observable manifestations (Blaikie and Priest, 2019). The performance of MSME, as an example, is a truly real phenomenon that can be measured and compared between firms, although its exact outlines are determined by sector, geography, and owner traits. This stance stands between both ends of naive realism, which holds that there is only one observable truth, and relativism, which holds that all accounts are equally true, irrespective of their empirical basis.

Constructs are operationalised in the 4P model as higher-order latent variables, such as People Maturity, Process Maturity, Product Capability, and Psychological Capability. 4P maturity is defined as a higher-order formative construct (HOC) (Hair et al., 2021; Bollen and Lennox, 1991). Throughout this formative specification, the 4P Maturity is the four first-order constructs, People Maturity, Process Maturity, Product Capability, and Psychological Capability, and it should be viewed as formative indicators of 4P Maturity as a whole rather than as reflecting a common latent trait. This ontological perspective acknowledges that MSME competence cannot be a single reality that appears consistently across dimensions but rather an integrated composite created when distinct but interrelated dimensions' contributions are combined. This is in line with the formative measurement logic used by PLS-SEM, which assumes that the indicators

represent the causes of the construct and not its reflections (Diamantopoulos and Winklhofer, 2001; Hair et al., 2022).

3.2.2 Epistemological Position

Epistemology deals with the creation and verification of knowledge. This research adopts a pragmatist epistemology, which values research designs that are finely tuned to the research question over those that are philosophically flawless but practically unsatisfactory (Morgan, 2014). Pragmatism does not give precedence to any of the traditions of positivism or interpretivism but uses both to achieve the empirical goals of the research (Tashakkori and Teddlie, 2010). This is especially suitable in the context of MSME research in India, as the sector is heterogeneous, and quantitative measurement of latent constructs is combined with qualitative information on how the latent constructs affect the performance.

Epistemologically, this research creates knowledge in two complementary ways: a structured cross-sectional survey, which yields generalisable, statistically defensible results on the relationship between 4P and performance, and embedded case studies of three MSMEs that help shed light on the processes, contingencies, and contextual factors that cannot be generalised through survey data alone. This is a dual-channel method that indicates the pragmatist belief in the pluralism of methodologies in the service of research's validity (Creswell and Creswell, 2018).

3.2.3 Axiological Position

Axiology concerns the values and ethics that shape research practices. This study acknowledges that the researcher occupies a dual role as both a practitioner consultant and an academic researcher, creating a potential risk of role conflict. The researcher simultaneously produces academic knowledge and delivers business interventions to the same MSME firm. This is handled by disclosure transparency, informed consent, anonymisation of sensitive commercial data, and standardised measurement tools that limit the chances of researcher-induced bias. This study adopts a reflexive awareness position (Finlay, 2002), which actively follows the role of previous consulting relationships in the interpretation of data, especially in the case study.

3.2.4 Research Paradigm: Pragmatism

Combining the above ontological, epistemological, and axiological positions, the present research is formally placed in the pragmatist paradigm. Pragmatism, coined by Dewey (1938) and later applied within the framework of mixed-methods research by Morgan (2014) and Tashakkori and Teddlie (2010), views research as a means of solving real life issues. The use value of the findings, the combination of multiple methods, and the iterative theory-evidence relationship are the priorities of the paradigm.

In the case of MSME research in India, pragmatism aligns well because of the nature of the research problem (how the 4P constructs as a set of variables affect firm performance), since both quantitative accuracy (to test the directional hypotheses H1 through H5) and qualitative richness (to comprehend the mechanisms, barriers, and context-specific facilitators that determine the relationships between the constructs in firms like Panth) are required. Neither a purely positivist nor a purely interpretivist approach adequately serves both purposes.

3.3 Research Approach

The research methodology establishes the connection between theory and data; that is, does the study begin with theory to data (deductive), begin with data to theory (inductive), or both (abductive)? The study employed a deductive approach in its quantitative strand and an abductive approach in its qualitative strand.

3.3.1 Deductive Reasoning in the Quantitative Strand

The deductive strand begins with the theoretical framework established in Chapter 2, which draws on Resource-Based View theory (Barney, 1991; Kraaijenbrink et al., 2010), Dynamic Capabilities Theory (Teece, 2018), Social Exchange Theory (Cropanzano & Mitchell, 2005), and Upper Echelons Theory (Hambrick, 2016) to generate formally stated hypotheses:

H1: People Maturity makes a significant and positive formative contribution to 4P Maturity.

H2: Process Maturity makes a significant and positive formative contribution to 4P Maturity.

H3: Product Capability makes a significant and positive formative contribution to 4P Maturity.

H4: Psychological Capability makes a significant and positive formative contribution to 4P Maturity.

H5: 4P Maturity positively predicts MSME Performance.

The structural model is thus hierarchical in its organisation: Hypotheses H1 through H4 position the four capability domains as formative first-order indicators of the higher-order 4P Maturity construct, while H5 specifies the directional path from 4P Maturity to the dependent construct MSME Performance. This complete five-hypothesis structure is maintained throughout the chapter in the construct operationalisation (Section 3.7), the measurement model (Section 3.9.2a), and the structural model evaluation (Section 3.9.2b), ensuring full consistency with the theoretical framework developed in Chapters 1 and 2.

This is a testable hypothesis based on previous theory and empirical literature and is tested with reference to primary data of MSME owner-managers in India. This step-by-step process, starting with theory, progressing to hypothesis, followed by measurement and testing, is traditionally deductive (Bryman and Bell, 2015) and is highly appropriate for the application of PLS-SEM, a prediction-oriented structural modelling technique suitable for examining theoretically specified relationships (Hair et al., 2021).

3.3.2 Abductive Reasoning in the Qualitative Strand

The qualitative case study strand is based on abductive logic, which involves constantly cycling between theory and observations to construct an account of the mechanisms identified through quantitative analysis (Blaikie and Priest, 2019). The quantitative strand investigates whether the 4P constructs predict performance, while the qualitative strand explores how and why. The case evidence from Panth infrastructure, Champcon control, and Vimson derma is used in four particular ways. First, it is used to interpret the results of the survey, which shows the processes that are significant in the structural model (e.g., Process Maturity → 4P Maturity) and the specific mechanisms and organisational practices in which process capability is manifested in

real MSMEs. Second, it is used to produce illustrative examples of mechanisms: the case narratives are used to provide contextually rich cases of how the four dimensions interact, reinforce, or limit each other over time, something that is not captured in cross-sectional survey data. Third, it was used to explore how Product Capability contributes to organisational outcomes and to provide contextual insights that may help interpret the quantitative findings. Fourth, it is referenced as a way of demonstrating how the framework might be applied as a consulting tool in practice: The PULSE 4P™ diagnostic profiles and the six-month outcomes of the interventions at each firm offer illustrative (not generalisable) evidence. The four roles consistently remain throughout Chapter 5 and are linked to the quantitative findings in Chapter 6.

3.4 Research Design

The research design is a quantitative-dominant convergent parallel mixed methods design (Creswell and Plano Clark, 2017). This is a design in which the strands are executed in parallel, but the methodological dimension is not equally weighted between the quantitative and qualitative parts. The quantitative strand is a structured cross-sectional survey analysed using PLS-SEM, which is the main method for testing hypotheses and obtaining generalisable, statistically valid estimates that answer RQ1-5. The qualitative strand (three embedded case studies) has a secondary, explanatory, and illustrative purpose: it serves to put the quantitative results in context, explain them, and give them some mechanistic depth, but is not used to test or re-test the hypotheses separately. This one-sided layout is consistently used in this thesis. Specifically, the qualitative evidence drawn from the case studies is utilised to (a) explain the mechanisms related to the quantitative relationships, (b) illustrate how the 4P dimensions interact in real-life MSME environments, and (c) identify contextual factors and concrete moderators that

could not be captured by the survey data. The qualitative strand is secondary to the quantitative strand and was used throughout the study to explain the results. Not treated on equal footing with the quantitative strand, but used to explain, contextualise, and provide mechanistic insight into the relationships found in the quantitative strand. This ancillary explanatory function continues consistently in Chapters 3 and 5. This design enabled triangulation of the findings and provided complementary evidence regarding the applicability of the 4P framework to Indian MSMEs. In the quantitative strand, 4P Maturity is considered as a higher-order formative construct (HOC) (Hair et al., 2021; Sarstedt et al., 2019; Diamantopoulos and Winklhofer, 2001). The 4P Maturity is a higher-order construct made up of four lower-order reflective constructs: People Maturity, Process Maturity, Product Capability, and Psychological Capability, all of which predict MSME Performance (H5). It is applied in all the chapters (1, 2, 3, and 4) of this formative specification to ensure theoretical and methodological uniformity.

For clarity and consistency, the methodological labels used in this thesis are reconciled here. Pragmatism is the research paradigm of the study (Section 3.2.4); the research design is a quantitative-dominant convergent parallel mixed-methods design; the cross-sectional survey is the strategy of the quantitative strand; and the embedded multiple-case study is the strategy of the qualitative strand (Section 3.5). The six-month consulting engagements with the three case firms do not constitute a separate methodology: they are the access vehicle and temporal frame within which the embedded case studies were conducted, with the PULSE 4P™ Business Health Index serving as a structuring diagnostic instrument rather than an academic data-collection instrument (Section 3.12). The two strands address the same research questions at different levels of analysis. The quantitative strand tests the hypothesised structural relationships of the 4P Framework across a broad sample of Indian MSMEs, while the qualitative strand explains,

complements, and contextualises those statistical estimates by tracing mechanisms and interdependencies within firms. The strands were integrated at the interpretation stage (Sections 3.9.4 and 5.7), where the qualitative evidence was mapped against each quantitative hypothesis.

Second, the design allows for triangulation of findings among methods (Denzin, 2012). The validity of the conclusion is greatly strengthened where quantitative results, such as the significant path of Psychological Capability to 4P Maturity, are underpinned by qualitative research evidence based on case studies where founders who are more risk-oriented have stronger HR and process practices.

Third, the design is appropriate for the aim of contextual theory testing (Edmondson and McManus, 2007). This study examines the applicability and usefulness of the proposed 4P framework in the MSME context and explores the extent to which the hypothesised relationships are supported by the data. The methodology suitable in this case is a mixed design, where quantitative hypothesis testing is supported by qualitative contextualisation.

Fourth, mixed-methods designs are increasingly viewed as methodologically suitable for MSME research in emerging economies, with measurement issues, informality, and contextual heterogeneity making single-method designs vulnerable to systematic error (Loo et al., 2023; Harney et al., 2022).

3.4.1 Time Horizon

The research design of the quantitative survey is a cross-sectional time frame, where the data are collected at one point in time, and the sample of the MSME owner-managers is observed. Cross-sectional designs are suitable in cases where the purpose of research is to describe a population at

a particular time and analyse the relationships between the constructs at that time (Saunders et al., 2019). Although longitudinal data would allow the researcher to draw causal conclusions about how 4P Maturity has evolved over time, the practical issues associated with gathering longitudinal data, such as high turnover rates, inadequate record-keeping systems, and lack of longitudinal databases, cross-sectional survey design is more justifiable in the context of the present study.

The qualitative case study aspect, on the other hand, covers a six-month consultancy engagement with all the three case study companies. This time aspect in the qualitative strand allows the researcher to trace changes in 4P capabilities over time, monitor the adoption of particular interventions, and measure the initial signs of performance change. The fact that cross-sectional quantitative data are coupled with longitudinal qualitative data in the convergent parallel design is also a strength of the methodology of the entire research architecture.

3.4.2 Justification for the Integrated Mixed-Methods Design

The overall design of the present study was quantitative-dominant convergent mixed methods using the pragmatic research paradigm. This design was chosen as it was necessary to analyze the proposed 4P Framework statistically and in a real-life context through the functioning of the 4P Framework in real MSMEs.

The main goal of the study was to see either there is a higher order construct of 4P Maturity by combining People Maturity, Process Maturity, Product Capability, and Psychological Capability and if there is, does this capability construct predict MSME performance? The quantitative

research approach dominated this research design, since the objectives included hypothesis testing and inspection of structural relationships between latent constructs.

However, quantitative findings were not enough to explain how each of the four capability dimensions interact in organisational settings. PLS-SEM can determine the strength and significance of relationships, but it does not explain in practice how capability development takes place, why some relationships become stronger, or how the owner-managers experienced and implemented the capability-building initiatives.

A qualitative strand was then included in this study to overcome this limitation by using three embedded case studies of MSMEs. The qualitative portion was not to validate the quantitative findings alone, but to give context to them, to explore interdependency of capabilities, and to better interpret the quantitative results.

As a systematic diagnostic tool, the PULSE 4P™ Business Health Index was used in the case-study element to allow for the systematic measurement of the four capability dimensions in participating companies. The instrument was used to collect data and to compare cases, but not as a standalone tool for instrumenting the 4P Framework.

The philosophical perspective to support the combination of these approaches was the pragmatic paradigm, which posits that phenomena observed in complex organizations can be best understood by using more than one type of evidence. As such, the quantitative strand was the main empirical assessment of the framework, and the qualitative strand was the main explanatory

and practical assessment. The two strands, when combined, yielded a more holistic view of MSME capability development, as neither approach alone would have been able to achieve.

3.5 Research Strategy

The research strategy used in this study is a combination of a cross-sectional survey strategy (quantitative strand) and an embedded case study strategy (qualitative strand). All strategies were chosen based on their correspondence to the research objectives, the type of constructs under investigation, and the practical situation of MSME research in India.

3.5.1 Survey Strategy

In the quantitative strand, the most important means of collecting data is the survey. The data needed to perform the PLS-SEM analysis of the 4P framework were produced using structured questionnaires given to MSME owner-managers throughout India. The survey approach was selected because it allows for the systematic measurement of latent constructs in a large and diverse sample, calculation of descriptive and inferential test statistics, and generation of findings that can be generalised, with relevant caveats, to the wider MSME population (Forza, 2002).

The fact that structured questionnaires and not semi-structured interviews were used as the main quantitative data-gathering tool is supported by four reasons. To begin with, the hypotheses of the research presuppose the measurement of latent constructs, such as People Maturity, Process Maturity, Product Capability, Psychological Capability, 4P Maturity, and MSME Performance, in a sufficient number of respondents to provide the structural equation modelling. In this study, the minimum sample size of PLS-SEM with model complexity is estimated to be approximately

120 respondents according to the ten-times rule (Hair et al., 2021), although 300-400 respondents is significantly more powerful and minimises the risk of Type II error. Second, the survey format minimises the time required of the respondents compared to the interviews, which is essential since MSME owner-managers are often limited in terms of time to participate in research. Third, standardised response formats minimise measurement errors caused by interviewer effects. Fourth, electronic administration through a validated online system facilitates the collection of data in Tier 1, Tier 2, and Tier 3 cities in a geographically dispersed group of respondents.

3.5.2 Embedded Case Study Strategy

The qualitative strand of the research was carried out using the embedded case study strategy (Yin, 2018). Panth Infrastructure, Champcon Control, and Vimson Derma are the three MSMEs chosen as case study units. In each case, several units of analysis are intertwined: the founder/owner-manager, the process of operations, the portfolio of products/services, and HR practices. This built-in structure allows for a finer-grained analysis of the within-case dynamics of the 4P framework than a holistic single-unit approach would. Two additional practitioner cases (Kelvin Lighting and PORClean India) were studied using PULSE 4P™ diagnostic assessments and consulting observations. The supplementary cases were also not considered as full cases in this convergent mixed-methods design but were utilised for illustrative practitioner examples to examine the transferability of the patterns observed in the primary cases across different MSME contexts.

This choice of five case study firms is based on the logic of theoretical sampling (Eisenhardt, 1989) and not statistical representativeness. The three companies are differentiated in a

systematic way on such dimensions which are theoretically applicable to the 4P model: industry (construction, B2B trade, and production), scale (micro and small), and business maturity. These variants facilitate cross-case comparison, that is, whether the 4P constructs can work in the same or different ways across the types of firms, while the longitudinal consulting engagement allows within-case comparisons of the way the diagnostic implications of the framework are implemented into real change.

Yin (2018) differentiates between single-case and multiple-case designs, asserting that the latter is better where the objective is analytical generalisation as opposed to statistical representativeness. The study design is based on the replication logic proposed by Yin: the cases are analysed separately, and the results are compared to determine convergences and divergences that can be utilised to clarify and broaden the theoretical propositions within the 4P framework.

3.6 Population, Sampling Frame, and Sample Size

3.6.1 Target Population

This study focuses on owner-managers and senior decision-makers of Micro, Small, and Medium Enterprises (MSMEs) based in India as a target population under the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006, and the redefined classification criteria established in 2020. The 2020 update defines MSMEs based on two concomitant criteria: investment in plant and machinery or equipment and annual turnover as follows: micro enterprises are those that have an investment up to ₹1 crore and an annual turnover up to ₹5 crore; small enterprises are those that have an investment up to ₹10 crore and an annual turnover up to ₹50 crore; and medium enterprises are those that meet the two thresholds to be classified.

The researcher ensured that the classification thresholds reflected the most recent official MSME standards at the time of the final submission.

The research targets owner-managers and senior partners as the major decision-makers on people, process, product, and strategic issues, that is, the individuals who have the authority to make decisions on all four 4P dimensions (Chandler and McEvoy, 2000; Harney et al., 2022). It covers three industries, namely, manufacturing, services, and trading, which constitute around 90 percent of the registered MSME sector in India (Ministry of MSME, 2023). The population is distributed across Tier 1 (Mumbai, Delhi, Bengaluru, and Ahmedabad) and Tier 2/3 (Surat, Indore, Coimbatore, and Ludhiana) cities, showing the geographic spread of MSME activity in India.

3.6.2 Sampling Frame

A key limitation of MSME research in India is the absence of a comprehensive and complete sampling frame (Khatri, 2019; Mehrotra and Parida, 2019). This research thus assumes a pragmatic sampling frame which combines various sources of sampling to ensure that the available population is covered as extensively as possible.

Four sources were used to construct the sampling frame. First, the Udyam Registration Portal, managed by the Ministry of MSME, includes records of formally registered businesses. Second, databases created by District Industries Centres (DICs) in selected states Gujarat, Maharashtra, Rajasthan, Karnataka, and Tamil Nadu which are states with high levels of MSME activity. Third, regional industry association membership lists, such as the FICCI SME Division, CII MSME Council, and state-level NASSCOM chapters of service-sector MSMEs. Fourth, verified networks were developed as a result of the consulting practice of the researcher that offers access

to MSME owners that may not be found in any official database but are open to participating in academic research. This multi-source method, although not perfect, is the most justifiable sampling frame that can be used based on the structural features of the Indian MSME sector.

3.6.3 Sampling Strategy

Considering that the sampling frame is incomplete and the theoretical need to capture MSMEs in terms of sector, size, and geography, this study utilises a purposive stratified sampling approach (Patton, 2015). Purposive sampling is suitable in cases where the researcher is interested in informants who possess certain theoretical characteristics - in the present case, the decision-making authority in the four dimensions of the 4P of all MSMEs. Stratification was done in three dimensions to ensure that the theoretically significant variation in the Indian MSME sector was reflected in the sample.

The three dimensions of stratification include: (1) size of enterprise, that is, micro, small, and medium; (2) sector, that is, manufacturing, services, and trading; and (3) geography, that is, Tier 1 and Tier 2 / 3 cities. Snowballing at each stratum is also possible as an additional recruitment tool, but with the restriction that not more than 20 per cent of responses at each stratum can be assigned to a single referral network to reduce network homophily influences.

It should be noted that purposive stratification coupled with limited snowball referrals does not result in a random probability sample. Therefore, this sampling design is not justified by claims of statistical representativeness and inferential generalisation to the entire Indian MSME population, which are not made in this study. It is instead optimised in two senses: analytical relevance, which is to have adequate representation of theoretically meaningful variation in firm size, sector, and geography, and theoretical usefulness, which is to choose informants possessing

decision-making authority and experience in context to give valid answers to the 4P measurement instrument. The results would be viewed as theory-insightful and empirical to MSMEs that share the structural attributes reflected in the sample, and the results would be used cautiously before generalising them to the entire population of Indian MSMEs.

3.6.4 Sample Size Determination

In PLS-SEM, two factors determine the sample size adequacy: adequacy and statistical power. The minimum adequacy criterion, which is formed around the ten times rule proposed by Hair et al. (2021), is that the sample size should be ten times or more than the maximum number of structural paths to any single endogenous construct in the model. Under the 4P Maturity construct, the 4P Maturity construct is predicted by four exogenous constructs (H1 to H4) with a minimum of 40 respondents. Nevertheless, Hair et al. (2021) observe that the ten-times rule is a conservative lower bound and cannot be used with a model of moderate-to-high complexity that contains multiple reflective indicators.

To obtain a more rigorous estimate of the required sample, an a priori power analysis was conducted in G*Power (Faul et al., 2009) using a medium effect size ($f^2 = 0.15$), a significance level of $\alpha = 0.05$, and a target statistical power of 0.80. In addition, because the PLS-SEM model is a multi-construct, multi-indicator model, the minimum sample size recommended by Hair et al. (2021) for models with five or more latent variables and four to six indicators per construct (approximately 200 responses) was adopted as the lower bound.

Considering the typical level of incompleteness of responses for survey research in India (15-20% of returns were incomplete in past MSME surveys) and the need to analyse sub-groups

across size and sector, the study targeted 350 usable returns. This target is similar to the performance studies on MSMEs using the PLS-SEM technique (Barhate and Dirbude, 2023; Loo et al., 2023). It is clear that this is a sample target for analytical adequacy and not for the statistical representativeness of the entire Indian MSME population. Therefore, all generalisations of the findings of this study must be considered analytically indicative rather than statistically representative and must be taken with the caveat throughout the thesis.

It must also be acknowledged that, although the achieved sample of 336 valid responses satisfied the a priori benchmarks described above, the post-hoc minimum sample-size analysis reported in Section 4.2 indicated that an estimated 461 respondents would have been required to detect the weakest hypothesised path (Product Capability → 4P Maturity) with adequate statistical power. The achieved sample therefore fell below the requirement for this path, and the corresponding result (H3) is interpreted with explicit caution throughout Chapters 4, 5 and 6 (see also Sections 3.14 and 6.8).

Table 3.1: Planned Sample Distribution by Stratum

Stratum	Category	Target n	% of Sample
Enterprise Size	Micro (≤₹10 cr turnover)	210	60%
Enterprise Size	Small (₹10–125 cr turnover)	105	30%
Enterprise Size	Medium (₹125–500 cr turnover)	35	10%
Sector	Manufacturing	117	33%
Sector	Services	117	33%
Sector	Trading	116	34%

Stratum	Category	Target n	% of Sample
Geography	Tier 1 Cities	175	50%
Geography	Tier 2/3 Cities	175	50%

Note: Category boundaries in the 'Enterprise Size' stratum reflect the official MSMED Act 2020 classification thresholds. The proportional targets for strata are study-specific stratification targets and do not imply that the sample is statistically representative of the full MSME population.

3.7 Measurement Instrument and Construct Operationalisation

The study constructs were operationalised using multidimensional latent variables, and each construct was assessed using a series of items that represented the theoretical dimensions of the construct. The measurement design is based on the conceptual framework elaborated in Chapter 2, and thus, there is correspondence between the theoretical constructs and empirical indicators. In line with previous studies on the organisational capability and performance of SMEs, the constructs were defined as reflective in nature, with the observed indicators being manifestations of the latent variables (Hair et al., 2021).

Every question in the questionnaire was gauged on a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree. This scale was chosen because of its extensive use in management and behavioural studies and its applicability in measuring perceptual responses in SMEs (Likert, 1932; Joshi et al., 2015).

MSME Performance is conceptualised as a multidimensional reflective variable that applies both financial and operational performance, and this is especially suitable for MSME research, where objective financial data is often challenging to access and is not readily available because of

informality and owners' unwillingness (Dess and Robinson, 1984; it has become the norm in MSME studies). Two major domains are part of the construct: (1) financial performance (e.g. revenue growth and profitability compared to the previous year) and (2) operational performance (e.g. efficiency, productivity, and customer retention). To minimise social desirability bias, subjective perceptual measures anchored on the previous-year baseline of the firm, as opposed to industry standards, would enhance accuracy in the MSME context. This operationalisation is consistent with existing methods of performance measurement in MSMEs and directly relates to the dependent variable in the structural equation (H5).

3.7.1 People Maturity Scale

People Maturity was operationalised as a multi-dimensional construct that assesses the degree to which MSMEs embrace structured and strategically aligned human resource practices. The construct was operationalised based on three dimensions, which are based on the human resource management literature on SMEs (Harney et al., 2022; Chandler and McEvoy, 2000):

HR formalisation indicates the existence of formal recruitment, role definition, and HR policies.
Skills and training, in which the firm invests in learning and building the capabilities of its employees.
Managerial support, direction, and leadership ability.

All these dimensions are indicative of the maturity of people-related systems and practices within an organisation.

3.7.2 Process Maturity Scale

Process Maturity is the level of formalisation, standardisation, and systematisation of organisational processes. The construct was measured based on the operations management and SME process literature (Kant and Shrutika, 2020; Khanna et al., 2020) in three dimensions.

Standardisation and operational systems, such as the use of standard operating procedures and workflow consistency.
Financial management practices include budgeting, record-keeping, and financial control systems.
The use of technology includes the use of digital tools to carry out operations, accounting, and decision-making.

These dimensions reflect how well firms are run in terms of being well-organised, streamlined, and scalable.

3.7.3 Product Capability Scale

Product Capability is the capacity of a firm to create, position, and provide value in the market. Using the literature on innovation and marketing ability (Deligianni and Voudouris, 2014; Iranmanesh et al., 2021), this construct was assessed using the following dimensions:

Product/service innovation is the capability of a firm to bring in new or better products.
Competitive positioning, value proposition clarity, market positioning, and differentiation.

Digital and market presence, which means visibility on digital platforms and communication channels with customers.

These dimensions reflect the market facing the strength of the firm and its competitiveness.

3.7.4 Psychological Capability Scale

Psychological Capability focuses on the cognitive and behavioural qualities of the MSME owner-manager that determine strategic and operational decisions. This construct was quantified in three dimensions based on Upper Echelons Theory (Hambrick, 2016; Neely et al., 2020):

Risk-taking orientation indicates the readiness to take risky or novel actions.
Decision-making style covers analytical, intuitive, and speed-based aspects of managerial decision-making.
Openness to change and long-term orientation: Adaptability and strategic vision.

These dimensions are internal managerial characteristics that define the development and deployment of organisational capabilities.

3.7.5 MSME Performance Scale

The only dependent variable in this research is MSME Performance, which is operationalised into a multidimensional perception variable that has two theoretically based dimensions: Financial Performance and Operational Performance. This conceptualisation in two dimensions aligns with the conventional practice in SME performance literature, in which economic and

non-economic measures are utilised in an environment where objective financial information is often inaccessible or untrustworthy (Dess and Robinson, 1984; Barhate and Dirbude, 2023). Financial Performance is estimated using three items that reflect the evaluation of the respondent regarding the growth of the revenue trend of the firm, profitability in comparison with the competitors in the industry, and the overall effectiveness in cost management in the last 12 months. Operational Performance is measured using three additional items that determine the efficiency of processes, level of customer satisfaction, and employee productivity. The six items are the MSME Performance construct, which is hypothesised as a reflective first-order construct, wherein each item is viewed as an expression of the latent variable of performance.

There are three reasons why the use of perceptual owner-manager self-report measures should be justified. First, owner-managers in small firms in India generally have the correct information about the relative performance of their firm, despite the incompleteness and lateness of formal accounts, a phenomenon that has been well-documented in the entrepreneurship literature (Dess and Robinson, 1984). Second, subjective performance indicators have high criterion validity with objective financial documents of MSMEs (Prayudi et al., 2019). Third, perceptual performance scales eliminate the large missing data issues linked to seeking objective financial information among MSMEs that are less formalised in accounting. The six items were rated using the same five-point Likert scale as the predictor constructs to maintain the same analytical operations throughout the entire measurement model.

3.7.6 Higher-Order Construct: 4P Maturity

In this study, 4P Maturity is theoretically defined as a higher-order formative construct (HOC), which is specified in all the different chapters (Hair et al., 2021; Sarstedt et al., 2019; Bollen and Lennox, 1991). This formative specification will be applied throughout this thesis. The formative

specification, in the second order, assumes that the four areas of the specification, 4P Maturity, are combined and interact with each other, and that each of the four areas is not a uniform representation of maturity, but rather represents a different aspect of maturity. This two-level structure, with the first-order being formative and the second-order being reflective, is called a Type II hierarchical component model (HCM) and is endorsed by the previous PLS-SEM literature (Becker et al., 2012; Hair et al., 2021, 2022). This specification is followed throughout Chapters 1, 2, 3, and 4.

The second-order formative specification is based on the premise that the four capability domains (People Maturity, Process Maturity, Product Capability, and Psychological Capability) each contribute a unique facet of organisational capability, and that together they are the second-order construct of 4P Maturity. Hence, the measurement model is a Reflective–Formative Hierarchical Component Model (Type II HCM), where the first-order constructs are measured reflectively by the indicators, and the second-order construct (4P Maturity) is measured formatively by the four first-order constructs. This specification aligns with well-established PLS-SEM guidance on modelling multidimensional constructs in which lower-order dimensions combine to form a higher-order composite (Becker et al., 2012, Hair et al. 2021, 2022).

This is a second-order structure estimated using the two-step estimation procedure proposed by Hair et al. (2021). In Stage 1, the scores of the latent variables of each first-order construct were estimated, and in Stage 2, the scores of the latent variables of the first-order constructs were used as predictors of the second-order 4P Maturity construct. In this hierarchical framework, all five hypotheses of the structural model, H1, H2, H3, H4, are estimated and assessed between the first-order domains, and H5 is the path 4P Maturity to MSME Performance. The first-order

constructs measured reflectively (for each dimension, the indicators measure the capability), whereas the second-order 4P Maturity construct is specified formatively (the four dimensions are the constructs of the composite). The following type II specification is used throughout this study.

Table 3.2: Summary of Construct Operationalisation

Construct	**Sub-Themes (Dimensions)**	**No. of Items**	**Scale Source**
People Maturity	HR Formalisation; Training & Skill Development; Leadership Capability	12	Adapted from Harney et al. (2022); Chandler and McEvoy (2000)
Process Maturity	Operational Efficiency; Financial Management; Technology Adoption	12	Adapted from Kant and Shrutika (2020); Khanna et al. (2020)
Product Capability	Innovation; Market Positioning; Quality & Differentiation	12	Adapted from Deligianni and Voudouris (2014); Iranmanesh et al. (2021)
Psychological Capability	Risk Orientation; Decision-Making; Adaptability	12	Adapted from Hambrick (2016); Luthans et al. (2007)
MSME Performance	Financial Performance; Operational Performance	6	Adapted from Prayudi et al. (2019); Barhate and Dirbude (2023)
4P Maturity (HOC)	Composed of People, Process, Product, and Psychological Capability (second-order constructs)	Not directly measured	Hair et al. (2021); Becker et al. (2012)

3.8 Data Collection Procedures

3.8.1 Questionnaire Development and Pilot Testing

The questionnaire development process was systematic and involved six stages. In Stage 1, a preliminary item pool was created based on the validated scales found in the literature review and the subtheme frameworks operationalised in Section 3.7. All items were reviewed in Stage 2 by a panel of three subject-matter experts, including two academic researchers specialising in MSME management and one senior practitioner with fifteen years or more years of MSME consulting experience in the Indian context. The products that were marked by two or more panel members as ambiguous, culturally inappropriate or redundant were amended or deleted.

In Stage 3, the reformed instrument was translated into Hindi by a qualified bilingual professional and into English by another translator, and differences were subsequently corrected to achieve conceptual equivalence (Brislin, 1970). Stage 4 involved pilot testing of the instrument using a convenience sample of 35 MSME owner-managers who were sampled to provide diversity in terms of sector, size, and geography and were chosen because they were within the scope of the researcher's professional network. The main study did not involve a pilot sample. Stage 5 involved pilot data analysis of item-total items and exploratory factor structure; items with item-total correlations below 0.30 or cross-loadings above 0.40 were revised or dropped. Stage 6: This stage used a programmed instrument in an online survey form with logic controls to avoid incomplete submissions and set minimum response time limits.

3.8.2 Survey Administration

The last survey was conducted with the help of a structured online platform (Google Forms with response validation controls) for ten–12 weeks. Respondents were recruited through a combination of direct recruitment of contacts within the sampling frame, collaboration with local industry associations, and targeted recruitment of contacts via professional networks. All possible respondents were informed in a personal invitation letter about the academic nature of the study, all data were to be confidential and anonymous, and the study was expected to take approximately 12–15 minutes.

Non-responding contacts were also sent three follow-up reminders after every ten days. The completion rate, coverage of the various strata, and geographical coverage were monitored on a rolling basis, and where a deficiency was realised in certain strata, recruitment was focused on the identified groups. The validity of completed responses was filtered through the following three criteria: minimum completion time (responses taking less than four minutes were considered possibly non-effortful), response consistency tests (items with reversed wording were employed to identify careless responding), and response rate (responses with more than 10 percent missing items were filtered out). Reactions that survived all three screening criteria were analysed.

3.8.3 Qualitative Data Collection

The three case studies used qualitative data collection methods which included semi-structured stakeholder interviews, field observations during the consulting sessions, business documents,

operational records, and structured field notes made by the researcher over the six months of the engagement process.

The primary owner-manager of every firm and, where possible, one or two senior employees with responsibility for operational, sales, or HR functions were interviewed using a semi-structured format. Each of the four 4P dimensions was developed into an interview guide, and questions were formulated to match the description of the current practices, historical trends, challenges, and perceptions of the owner of the change. Face-to-face interviews were conducted where logistically possible and by video conference when logistically not possible and were transcribed verbatim and with informed consent. Secondary data sources were gathered and analysed, and business documents such as financial reports, staffing records, customer complaint logs, and marketing documents were used to triangulate interview accounts. The full semi-structured interview guide is provided in Appendix E.

Field notes were organised in a systematic format and in accordance with the 4P model; they were taken regarding what was observed in each dimension at each consulting touchpoint. These notes were data and also an audit trail, which helped the researcher to record the change in the 4P profile of each firm over the six months and to determine some of the mechanisms of change, which would not be evident with a single point of data collection.

3.9 Data Analysis Strategy

3.9.1 Analytical Approach

This research is a quantitative-dominant but qualitative elaborative study. The main analytical goal was to estimate the five hypothesised relationships (H1- H5) using Partial Least Squares Structural Equation Modelling (PLS-SEM), which generates statistically defensible estimates of path coefficients, explained variance, and effect sizes of the entire structural model. The qualitative strand enhances the main analysis by providing contextual depth, a level of process, and case-specific evidence that cannot be quantified. These two strands are methodologically complementary but not epistemologically identical: quantitative findings are the main empirical contribution of this study, while qualitative information is explanatory, illustrative, and interpretative.

3.9.2 Quantitative Data Analysis (PLS-SEM)

Quantitative strand data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) in SmartPLS 4 (Ringle et al., 2022). The model is based on two steps: evaluation of the measurement model and evaluation of the structural model (Hair et al., 2021).

4P Maturity is operationalised as a higher-order formative construct (HOC) with the following first-order reflective constructs (FOCs) as formative indicators: People Maturity, Process Maturity, Product Capability, and Psychological Capability. The higher-order construct was estimated using the disjoint two-stage approach (Becker et al., 2012; Hair et al., 2021). It is important to note that the two approaches are not methodologically interchangeable: the repeated-indicators approach is indicated by the higher-order construct, while the first-order constructs are formative; the disjoint two-stage approach is indicated by the first-order

constructs, and the higher-order construct is indicated by the scores of the first-order constructs; the former approach is appropriate for reflective-reflective models, while the latter approach is appropriate for the formative HOC specification used in the present study. Therefore, this disjointed two-stage process was used in this study. The measurement model will be evaluated in terms of reliability (Cronbach's alpha and composite reliability), convergent validity (AVE), and discriminant validity (HTMT ratio and Fornell–Larker criterion) of both first-order and higher-order constructs before moving to the structural model which will involve path coefficients, bootstrapped confidence intervals, R 2, f 2, and Q 2 values of H1 to H5.

The quantitative data were analysed using PLS-SEM, which is appropriate for complex models involving hierarchical constructs and prediction-oriented research objectives (Hair et al., 2021). The analysis was conducted in two stages.

(a) Measurement Model Evaluation

The reliability and validity of the constructs were assessed using standard criteria.

- Indicator reliability, based on outer loadings (≥ 0.70)
- Internal consistency reliability, using Cronbach's alpha and composite reliability (≥ 0.70)
- Convergent validity, assessed through Average Variance Extracted (AVE ≥ 0.50)
- Discriminant validity, evaluated using the Fornell–Larcker criterion and HTMT ratios

A two-stage approach was employed for the higher-order construct (4P Maturity). In the first stage, the latent variable scores for the lower-order constructs were obtained. In the second stage, these scores were used as indicators of higher-order constructs (Becker et al., 2012; Hair et al., 2021).

(b) Structural Model Evaluation

The structural model evaluates the full five-hypothesis path structure. Hypotheses H1 through H4 test the relationships from each first-order capability domain to the second-order 4P Maturity construct, and H5 tests the relationship from 4P Maturity to MSME Performance. The model was evaluated using path coefficients (β) to assess relationship strength and direction; bootstrapping with 5,000 resamples to test statistical significance and generate confidence intervals; the coefficient of determination (R^2) to assess explanatory power for each endogenous construct; effect size (f^2) to evaluate the contribution of individual predictors; and predictive relevance (Q^2) using blindfolding procedures.

3.9.3 Qualitative Data Analysis

The collected qualitative data, based on the three embedded case studies, including semi-structured interview transcripts, structured field notes, and secondary business documents, are analysed through an adapted version of thematic analysis approach (Braun and Clarke, 2022), supplemented by a priori framework coding, which is based on the 4P model. The analytical steps were performed in six steps, all of which were recorded systematically in NVivo 14. Transcription and data preparation were part of Stage 1. All recordings of the interviews were transcribed verbatim by an external transcription service and added to NVivo 14 with the structured field notes. Secondary sources were recognised and identified as auxiliary materials and compared with the interview information.

Stage 2 involved familiarisation. All transcripts and related field notes of each firm were read several times before formal coding was undertaken. NVivo memos were used to make

preliminary analytical observations to capture first-time patterns, tensions, and salient features that could be used to inform the coding structure.

Stage 3 involved a dual coding process. The deductive coding framework is mainly a priori codes that are based on the four dimensions of the 4P framework (People Maturity, Process Maturity, Product Capability, and psychological Capability). These codes ensure that the analysis is systematically pegged to the research framework. In conjunction with this, inductive codes are allocated in which the data have contextual twists, surprises, or company-specific trends that are not expected by the model. This blend of deductive and inductive coding can be considered a theoretically informed thematic analysis method (Braun and Clarke, 2022) and is sensitive to both the research framework and the empirical complexity of individual cases.

Stage 4 involves within-case analysis. Each company, such as Panth Infrastructure, Champcon Control, and Vimson Derma, is analysed individually, and cross-case patterns are then pursued. Within-case analysis creates a descriptive narrative of the 4P capability profile of each firm, establishes how the four dimensions interact, defines key enabling and limiting factors, and captures noticeable changes in the 4P profile over the six-month consulting engagement. This phase creates the within-case richness needed to comprehend the inner logic of each firm capability configuration.

Stage 5 entails a cross-case comparison. After the within-case analyses, the results of all three firms were systematically compared. Patterns (convergences) found in various cases, and those which enhance the analytical generalisability of the results) and divergences (where there is an

interesting difference between cases) are then identified and documented. The logic of replication suggested by Yin (2018) is used in the cross-case comparison: convergent results among cases are considered stronger supporting evidence for the theoretical propositions of the 4P framework, whereas divergences are seen as analytically fruitful events of theoretical clarification or finding boundary conditions.

Stage 6 involves the systematic integration of qualitative and quantitative findings, as detailed in Section 3.9.4. Qualitative themes derived from the case studies were mapped onto the PLS-SEM structural model results, specifically the path coefficients and R^2 values, to assess convergence, complementarity, and divergence between strands. Where both strands point in the same direction (for example, where the statistically significant Process Maturity path is corroborated by case evidence of process formalisation generating measurable operational gains at Champcon Control), the interpretive confidence in the finding is increased. Where strands diverge, such as where qualitative evidence of active product development at Vimson Derma contrasts with the non-significant H3 formative weight, this is treated as theoretically productive, indicating either boundary conditions, measurement limitations, or contextual moderators that the quantitative model cannot capture alone. At the crosses of strands, this is considered analytically significant and open to theoretical interpretation, as opposed to a methodological rejection.

3.9.4 Integration of Quantitative and Qualitative Findings

The synthesis of the quantitative and qualitative results was performed during the interpretation phase. Although the quantitative analysis shows statistical data on the relationship between 4P

Maturity and MSME Performance, qualitative results are employed to explain, contextualise, and enrich the interpretation of the quantitative findings.

This complementary integration allows a more holistic view of MSME capability development by combining:

- Quantitative results and statistical generalisation.
- Contextual depth (qualitative insights)

Qualitative results were employed to explain and support the quantitative results and not to test the model by itself.

3.9.5 Common Method Bias

As quantitative data were gathered using only one survey tool, procedural remedies were used to reduce common method bias. These involved the anonymity of respondents, minimising evaluation apprehension, and clear and neutral wording of items. In addition, a single-factor test was implemented by Harman as a statistical test to determine the level of common method variance (Podsakoff et al., 2003).

3.10 Research Rigour

Mixed-methods research has rigorous needs, quantitative criteria of reliability and validity, and qualitative criteria of credibility, transferability, dependability, and confirmability (Lincoln and Guba, 1985; Tashakkori and Teddlie, 2010). This section discusses each of the requirements in detail.

3.10.1 Reliability

There are two levels of quantitative reliability: Internal consistency reliability was also assessed at the instrument level, and Cronbach's alpha and composite reliability were used with the goal of 0.70 and 0.70 as the targets, respectively (Hair et al. 2021). At the measurement model level, the reliability of indicators was evaluated by checking the outer loading, and all indicator loadings lower than 0.70 were kept because deleting them would lower the AVE or CR under the thresholds (Hair et al., 2021).

Qualitative dependability, the degree to which the research procedure is dependable and reproducible, is guaranteed by maintaining a comprehensive research diary, documenting all the coding choices in NVivo, and storing raw recordings and transcripts of the interviews, which can be audited at a later stage. The structured field note protocol kept at every consulting touchpoint is an observation and interpretive note record time-stamped, which forms an audit trail of qualitative findings.

3.10.2 Validity

Quantitative validity is addressed on three levels: content validity (guaranteed by the expert panel review process, as outlined in Section 3.8.1), construct validity (measured by convergent and discriminant validity tests in the measurement model), and external validity, which is enhanced through the stratified sampling design.

Qualitative credibility- credibility of qualitative results is achieved by checking with members, interviews, observations, document data sources, and write-ups of case studies by thick description (Geertz, 1973). Transferability, or the extent to which the findings can be applied to other situations, is addressed by providing detailed descriptions of the contexts of the cases, allowing the reader to decide how far the findings are applicable to their situations, which is consistent with the concept of naturalistic generalisation proposed by Lincoln and Guba (1985).

Confirmability, or the extent to which the findings can be said to represent the data rather than the researcher, is considered by reflexivity practices. The researcher records the consulting relationship with the firms in the case study beforehand, recognises the possibility of confirmation bias in interpreting case evidence, and uses systematic cross-case comparison procedures, which presuppose that multiple sources of evidence must be found before a theme can be considered credible.

3.10.3 Non-Response Bias

Non-response bias, which is the risk that non-responding firms do not match responding firms on important attributes, is measured using Armstrong and Overton's (1977) wave comparison procedure. Early (first 33% of responses) and late respondents (last 33) are grouped on important demographic variables (size of firm, industry, years in operation) and on average scores of the constructs. The lack of statistically significant differences between early and late respondents indicates that non-response bias is unlikely to represent a substantial threat.

3.11 Ethical Considerations

The ethical principles of respect for persons, beneficence, and justice (Belmont Report, 1979) are applicable in the context of the research design in the present study, as the ethical standards of the researcher are determined by the university code of ethics and the characteristics of the research involving MSME owner-managers.

The study was conducted in accordance with the SSBM Declaration of Academic Integrity signed by the researcher. The supporting ethics documentation — the Participant Information Sheet, the Informed Consent Form, the semi-structured Interview Guide, and the written organisational permission letters authorising the naming of the three case study firms — is provided in Appendices C, D, E and F respectively.

3.11.1 Informed Consent

A comprehensive participant information sheet was delivered to all research participants, both survey respondents and case study informants, before the data collection process. The information sheet will detail the purpose of the study, the nature of participation, the type of data that will be collected, the storage and use of the data, the voluntary nature of participation, and the right to withdraw at any time without penalty. All participants provided written or electronic informed consent before data collection. In the case study firms, consent was received at the organisational (through the owner-manager on behalf of the firm) and individual (through each employee interviewed) levels.

The Participant Information Sheet and the Informed Consent Form used for both strands of the study are reproduced in Appendix C and Appendix D respectively. A Participant Information Sheet was provided to all participants that explained the purpose of the study, its voluntary

nature, confidentiality procedures, data handling arrangements and that participants would be able to withdraw at any time without repercussion. All respondents gave informed written consent before taking part in the survey and case-study parts of the research.

3.11.2 Confidentiality and Anonymisation

The survey data were anonymised during collection: no personal (or firm name, address, etc.) or IP address data were gathered, and all survey data were anonymous. The stored data will be stored on an institutional server that is password-protected and accessible only to the research team. The results were aggregated at the construct and group levels; no single response could be identified in the results.

In the case of qualitative case studies, a more nuanced approach to confidentiality is needed because the researcher is on both sides of the coin as a consultant and researcher. This thesis identifies the three case study firms by name: Panth Infrastructure, Champcon Control, and Vimson Derma with the direct written permission of their owner-managers who reviewed and approved the case study write-ups before they were included. Role-based pseudonyms (for example, Sales Manager, Firm B) were used to anonymise all employee informants as per their requirement of anonymity. Financial data that are sensitive to the business are reported in aggregated or range format only when disclosed during the consulting engagement. The signed organisational permission letters are provided in Appendix F.

3.11.3 Role Duality and Conflict of Interest

The duality of the researcher as a practitioner-consultant and academic researcher creates a conflict of interest, especially in the qualitative strand. The relationship between the researcher and the case study firms as consultants is old; the researcher had been offering business improvement services to Panth Infrastructure, Champcon Control, and Vimson Derma even before the decision was made to incorporate them as case study units. This history is openly revealed in this thesis and was shared with the university ethics committee during the ethics review.

Several strategies were used to control conflicts of interest. First, advice and research observations were kept in separate notes to avoid contaminating the analysis. Second, member checking was performed with each owner-manager and selected employee informants to validate or test the researcher's understanding of the case evidence. Third, the same structured analytical process (the 4P Framework) was used exactly in the same way in all three cases, irrespective of the researcher's previous consulting decision about the companies. Fourth, when the consulting role was likely to have affected access to, observation of, or interpretation of data, it was made clear and noted in the qualitative analyses. Fifth, the risk of social desirability bias (i.e. the informant giving the researcher what he or she is looking for), especially because of the pre-existing consulting relationship, was minimised by using standardised interview protocols, triangulating with documentation and field observations, and asking the informants to report behaviours and events rather than evaluative judgements. Sixth, the use of systematic cross-case comparison (which called for convergent evidence from at least two cases to make a credible theme) and a reflexive research diary, which recorded interpretive decisions and alternate

interpretations of the evidence, helped to prevent confirmation bias (the tendency for the researcher to interpret ambiguous evidence in support of the 4P Framework). These measures do not remove role duality, but they are a clear and logically justified way of working with role tensions, in line with the action research and practitioner scholarship paradigm developed by Levin and Greenwood (2016).

3.11.4 Academic Integrity and Responsible Use of AI

This work was undertaken in an ethical manner and with responsible research practices. Appropriate acknowledgement and referencing of all sources used in the development of the theoretical framework, research design, data analysis and data interpretation of findings. No manipulated, fabricated or falsified data or relationships were produced throughout the study.

The use of generative artificial intelligence (AI) tools was for language refinement, grammar checking, formatting assistance, and editorial support. The responsibility for conceptualization, literature review, methodological decisions, data collection, statistical analysis, interpretation of the findings and academic conclusions was solely the responsibility of the researcher. Research data was not produced, references were not invented, independent research was not conducted, and academic content was not produced without critical review and verification by the researcher, using an AI tool.

This study was carried out following the values of academic integrity and ethical research practised by the SSBM and as would have been applicable at the time of submission.

3.12 The PULSE 4P™ Business Health Index: Role in the Case Study Component

The consulting engagement of each of the three case study firms within the qualitative strand of this research was designed around a proprietary diagnostic tool created by the consulting practice of the researcher, the PULSE 4P™ Business Health Index. This section presents the description of the instrument and its particular place in the research design, explaining the correlation to the main survey-based measurement tool presented in Section 3.7.

3.12.1 Description of the Instrument

The PULSE 4P™ Business Health Index is a systematic diagnostic model that is used to determine the general operational health and maturity of an MSME on the same four dimensions as the academic model: People, Product, Process, and Psychology. The business profiling phase is the starting point of the diagnostic, during which elementary data concerning the company (industry, revenue level, number of employees, and years of existence) are gathered to put the evaluation in context. It then follows a systematic evaluation of existing practices, gaps, and risk areas in all four dimensions which relies on a series of standardised questions aligned to the same sub-themes as the academic survey instrument. The output will consist of the overall business health score, dimension-based performance knowledge, and the determination of areas that need to be improved and structured observations to inform the consulting intervention.

The PULSE 4P™ tool also permits the incorporation of supporting business records, financial records, operational reports, and customer feedback reports, which are utilised to validate and triangulate the self-reported diagnostic scores. This multi-input methodology enhances the

diagnostic validity of the instrument compared to single-question methods of assessment and coincides with the methodological principle of triangulation which forms the basis of the qualitative arm of this study.

3.12.2 Role Within the Research Design

The PULSE 4P instrument is not a data-collection instrument to be used in an academic study; it is a consulting instrument that is the means through which each case study firm will be engaged in a systematic manner. Its place in the research design is as a framework-organising device of the case study part in particular: it will ensure that the consulting observations, interviews, and field notes of all three firms are organised around the same four dimensions as the academic framework, so as to be able to compare and integrate the case results with the quantitative ones systematically.

Practically, the PULSE 4P™ diagnostic was provided at the beginning of the six-month consulting engagement with each firm (Time 1) and at the end of the consulting engagement (Time 2). The Time 1 diagnostic provided the baseline 4P profile of each company, priority areas of intervention, and the Scope of Work that was formulated in each consulting engagement. The Time 2 diagnostic presented an intermediate measure of the change in the four dimensions that can be viewed as qualitative evidence of the utility of the framework as a practical improvement tool. The results of these diagnostic outputs are considered supplementary data in the case study analysis, along with the interview transcripts and field notes, and not as the primary research data.

The distinction between the PULSE 4P™ consulting tool and the academic survey tool was upheld throughout the study. The sample of respondents in the survey did not have contact with the PULSE 4P™ tool; the owner-managers of the case study firms did not respond to it as research subjects but as part of their consulting relationship with the tool. This difference maintains the methodological purity of quantitative and qualitative strands.

3.13 Embedded Case Studies: Panth Infrastructure, Champcon Control, and Vimson Derma

Panth Infrastructure, Champcon Control and Vimson Derma.

The three embedded case studies were chosen based on theoretical sampling, which was determined by four criteria: relevance to the 4P framework (each firm posed serious challenges in at least three of the four 4P dimensions at the time of engagement), sector diversity (construction/infrastructure, B2B industrial trading, and skincare/medicated product manufacturing), size diversity (micro and small), and willingness to participate, including consent to release the case. Combined, the three companies offer a theoretically purposive sample, which allows for comparing cross-case and analytical generalisation to the rest of the population of Indian MSMEs sharing the same structural features.

3.13.1 Case A: Panth Infrastructure

Panth Infrastructure is a micro-enterprise that deals in the construction and infrastructure development business, which mainly deals with sub-contracted civil works within the residential and light commercial business segments. When the consulting engagement took place, the

company had less than 20 employees under some combination of permanent and non-permanent contracts and was based in only one Tier 2 city in western India.

The 4P profile of the firm, as determined by the PULSE 4P™ diagnostic, indicated that the company had critical weaknesses in the Process and People dimensions. The firm was operationally virtually non-coordinated informally with work assignments in the form of oral communication, the financial records were in hard copy ledgers with no digital version, and the regulatory compliance (GST submission, ESIC, and PF registration) was not proactive. High turnover of the contractual labour force, no onboarding or skills-development process, and one decision-maker (the owner) who still had all the operational, financial, and HR decision-making powers characterised the People dimension.

The consulting intervention was designed with process formalisation as the key priority: site management, procurement, and billing basic standard operating procedure development, financial record digitalisation and the implementation of an accounting tool in the cloud, and the creation of a compliance calendar of statutory requirements. On the People dimension, the intervention was aimed at the onboarding checklist introduction, formalised wage structure, and delegation of site supervision to a specific team leader. These interventions directly overlay the Process Maturity and People Maturity constructs of the 4P framework and produce qualitative evidence of how these two constructs relate to the firm-level operational performance.

The case has theoretical informative value as it demonstrates how the 4P constructs are interdependent in the most resource-constrained MSME environment: the low delegation

willingness of the owner (a Psychological Capability deficit) directly hinders both formalisation of the processes and people development, which is consistent with the theoretical proposition that Psychological Capability may act as a cross-cutting enabler (Hambrick, 2016; Priyaadarshini & Jena, 2024).

3.13.2 Case B: Champcon Control

Champcon Control is a small business-to-business trading company focused on the sale and distribution of industrial automation parts and accessories to MSMEs and engineering companies. The company has a core staff of ten–15 people working in sales, logistics, and administrative activities, and its customers are based on two Tier 1 industrial corridors.

The PULSE 4P™ baseline diagnostic found that Product Capability and Process dimensions are the areas of focus of firm development. Although the company had a fairly well-defined portfolio of products and suppliers, no formal CRM system was in place, the sales pipeline was managed using WhatsApp and personal spreadsheets, and the process of lead qualification and conversion was not documented. Brand positioning was responsive; the company was offering on price as opposed to technical expertise and no active digital marketing or content strategy.

The Champcon Control consulting intervention was aimed at three interrelated spheres, including the adoption of a simple CRM system (Zoho CRM) to substitute the use of spreadsheets to track the pipelines; the formalisation of the three-stage process of lead conversion with specific qualification criteria and the use of follow-up policies; and the creation of the LinkedIn and WhatsApp Business content strategy to create a technical credibility of the firm. Within the

Process dimension, the intervention presented a weekly sales review meeting rhythm, an organised quotation approval procedure, and a rudimentary inventory management standard.

This case is also relevant to the research because it presents Process Maturity and Product Capability as complementary constructs: without process discipline in practice in lead management, the firm was limited to increasing its product coverage, and any increase in process formalisation would instantly increase the effective market coverage of the firm. The main suggestion of the integrated 4P model is this cross-construct interdependence, which is qualitatively substantiated with the Champcon Control case.

3.13.3 Case C: Vimson Derma

Vimson Derma is a small third-party manufacturer of skincare, haircare and medicated products, which manufactures under contract on behalf of better-known brands and retailers. The company has between fifteen and twenty-five employees in manufacturing, quality control, procurement, and logistics divisions, and has one manufacturing plant located in a Tier 2 city.

The PULSE 4P ™ baseline found Product Capability and Process Maturity as the major diagnostic issues and secondary issues in the people dimension. Although the company possessed a high manufacturing capacity and applicable regulatory approvals, it had not diversified its customer base, with more than 70 percent of the revenues being generated by one long-term client which posed a high concentration risk. Inventory control was manual and responsive, which led to regular shortages of important raw materials. The marketing role was

completely base: the company did not have a brand, did not trade at any events, and did not exist online, except for a simple WhatsApp catalogue.

The consultation intervention was planned in three stages. Phase 1 focused on process improvement, which included a manual yet organised inventory tracking system involving a common Google Sheets template, the use of a production planning calendar, and the formalisation of a supplier evaluation checklist became the priority. Phase 2 focused on product and market diversification: recognition of two new client groups (hospital pharmacy chains and direct-to-consumer personal care brands), creation of a simple product catalogue with professional photography, and a market-entry strategy in the pharmacy segment by focusing on direct outreach. Phase 3 resolved the People dimension by introducing a performance review cycle to the QC and production teams.

Vimson Derma is theoretically important in that it demonstrates the risk of performance of the single-construct strength without the complementary development of the other dimensions. The manufacturing capacity (process strength) of the firm was not converted to revenue growth due to shortages in Product Capability (lack of market diversification and branding) and psychology (the owner is risk-averse and will not invest in market development without some assurance of profits). The case provides a useful context for exploring the theoretical proposition that 4P maturity must be developed on all four dimensions, and the lack of strength in one dimension is not counterbalanced by systemic strength in the other three dimensions.

Table 3.3: Summary of Case Study Firms and 4P Diagnostic Profiles

Dimension	Panth Infrastructure (Case A)	Champcon Control (Case B)	Vimson Derma (Case C)
Sector	Construction / Infrastructure	B2B Industrial Trading	Contract Manufacturing (Derma)
Size	Micro (<20 employees)	Small (10–15 employees)	Small (15–25 employees)
People Maturity (Baseline)	Very Low no HR systems, high turnover	Moderate basic team structure	Low-Moderate informal performance management
Process Maturity (Baseline)	Very Low fully informal operations	Low WhatsApp-based pipeline, no CRM	Moderate certified but manual inventory
Product Capability (Baseline)	Low single service offering	Low price-only positioning, no digital	Low single client concentration, no marketing
Psychological Capability (Baseline)	Very Low extreme centralisation, low delegation	Moderate open to change, some risk appetite	Low-Moderate risk averse, growth reluctant
Primary Intervention Area	Process + People	Process + Product	Process + Product + Psychology

3.14 Methodological Limitations

Trade-offs are inherent in every research design, and this study is not exempt from methodological constraints. Being transparent about such limitations is an ethical responsibility that adds to the interpretive validity of the results. Six restrictions are discussed here.

First, the quantitative survey presupposes a cross-sectional design, which does not allow for causal conclusions. Although the hypothesised structural associations within the 4P framework are directional (People Maturity to 4P Maturity to MSME Performance), the survey data are taken at a particular point and can establish associational and not necessarily causal relationships. Cross-sectional data alone cannot be used to rule out reverse causal interpretation, which is that better-performing firms invest more in people, processes, products, and psychological development. This limitation is partially mitigated by the case study component that involves a six-month longitudinal observation of interventions and their impacts, which can provide insights regarding possible directional mechanisms.

Second, the use of a single informant (the owner-manager) as a source of predictor and outcome data presents the risk of common method bias, as explained in Section 3.9.1.3. Although there is a procedural and statistical control, the likelihood of self-report inflation of both the 4P construct scores and the performance perceptions themselves is not completely negated.

Third, the quantitative survey sampling frame is imperfect by virtue of the fact that informal, unregistered businesses dominate in the Indian MSME industry. The population that is available, that is, that is accessible by industry associations, Udyam-registered databases, and professional networks, is more formalised and systematically networked than the entire MSME population.

The results are then supposed to be interpreted as being most relevant to the upper echelon of the MSME sector and not to the sector in general.

Fourth, the dual role of the researcher as a consultant and researcher in the qualitative strand presents a risk of social desirability and confirmation bias in the data collection (case study informants can tell what the researcher wants to hear) and data analysis (the researcher can make sense of ambiguous evidence to support the theoretical framework). These risks are mitigated but not eliminated by the mitigation measures outlined in Sections 3.10 and 3.11.

Fifth, the geographical focus of the study is limited to a subset of states in India, which indicates that the researcher has a consulting network and that the sampling frame is readily available. Although the stratified design incorporates Tier 2/3 urban areas and various sectors, MSMEs in the northeastern states, tribal regions, and the agricultural MSME sub-sector are probably not well represented. The results cannot be entirely generalised to these contexts unless further empirical validation is conducted.

Sixth, the achieved quantitative sample (N = 336), while exceeding the a priori benchmarks set out in Section 3.6.4, fell below the post-hoc minimum of approximately 461 respondents estimated as necessary to detect the weakest structural path (Product Capability → 4P Maturity) at $\alpha = .05$ with 80% statistical power. The quantitative findings relating to H3 are therefore presented with appropriate caution, and the study refrains from claiming that the 4P Framework has been validated; the results are framed throughout as preliminary empirical support that is subject to replication in larger samples.

3.15 Chapter Summary

This chapter systematically and theoretically established the methodological architecture of the study. This study falls under the pragmatist paradigm and has a quantitative-dominant mixed-methods design (Creswell and Plano Clark, 2017). It involves a deductive quantitative survey strand, which tests all five hypothesised relationships (H1–H5) of the 4P framework, and an abductive qualitative case study strand, which has explanatory and interpretive roles in the research. The decisions made with respect to methodology, such as the pragmatist epistemology and the higher-order formative specification of 4P Maturity, have been justified based on the need for the specific research problem and the specific context of MSMEs in India.

The quantitative strand aims at 300-400 usable responses of MSME owner-managers stratified in terms of size, sector, and geography and is based on a structured reflective measurement tool that is taken through an online survey system. Data analysis was performed in SmartPLS 4 according to the sequence of measurement-then-structural model evaluation suggested by Hair et al. (2021) and involved the analysis of the complete five-hypothesis structural model (H1-H5). The qualitative strand includes three internal case studies of MSMEs - Panth Infrastructure, Champcon Control, and Vimson Derma - of six months or longer consulting work, generating data in the form of semi-structured interviews, field observations, and secondary documents. The qualitative analysis process includes a 6-stage thematic analysis process (Braun and Clarke, 2022), which integrates within-case analysis, cross-case comparisons, and quantitative results through joint presentation. The PULSE 4P Business Health Index structure is the plan of the consulting engagement and provides additional diagnostic information to the case study.

Rigour has been discussed in terms of a broad scope of quantitative reliability and validity (Cronbachs alpha, Composite Reliability, AVE, HTMT ratios), qualitative credibility and dependability (member-checking, audit trail, reflexivity), and quality of integration across strands (joint display, triangulation). Ethical provisions, such as informed consent, anonymisation of data, confidentiality, and the clear handling of the dual consultant-researcher relationship between the researcher and the subject, were considered by adhering to the current standards of research ethics. Limitations of the methodology, such as the cross-sectional structure, single informants' data, incomplete sampling frame, role duplicity risk, and geographic scope limitations, have been openly admitted.

The methodological choices made in this chapter set the study to generate statistically defendable, contextually framed, and practically applicable findings to the issue of MSME capability development in India. Chapters 4 and 5 display the quantitative PLS-SEM outcome, and Chapter 6 unites both strands in one combined discourse of the theoretical and practical implications of the 4P framework.

CHAPTER 4:

DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter presents the empirical analysis of data collected from Indian MSMEs to examine the internal capability structure proposed by the 4P framework and to test the five hypothesised relationships central to this study. The analytical approach was structured in two sequential stages. The first stage employed IBM SPSS Statistics (v.25) to conduct preliminary examinations, including data screening and cleaning, demographic profiling, descriptive analysis, normality assessment, common method bias testing, and Pearson correlation analysis. The second stage employed SmartPLS 4 (Ringle, Wende, and Becker, 2024) to execute a two-stage Partial Least Squares Structural Equation Modelling (PLS-SEM) procedure, encompass non-respondent and structural model assessment with bootstrapping.

This sequenced approach is methodologically appropriate for the present study. PLS-SEM is particularly well-suited for the analysis of nascent theoretical frameworks with limited prior empirical grounding, small-to-medium sample sizes, and non-normal data distributions (Hair et al., 2022; Henseler, Ringle, and Sarstedt, 2015). Given that the 4P Framework constitutes an original conceptual contribution specific to the Indian MSME context, the combination of preliminary diagnostics with advanced SEM analysis ensures data integrity and theoretical rigor. The chapter concludes with a structured summary of the findings, linking each result to the corresponding research objective and hypothesis.

4.2 Data Screening and Preparation

The dataset was systematically examined for completeness and response quality prior to any substantive analysis. All survey responses were reviewed for completeness, and cases exhibiting excessive missing values across key construct items were excluded from the final dataset. Responses demonstrating patterned answering, such as uniform selection of a single scale point across all items, were also identified and removed, as they represent invalid response patterns that may introduce measurement distortion (Podsakoff et al., 2003).

Table 4.1 presents the results of the data screening process.

Table 4.1: Data Screening Summary

Screening Stage	**Number of Cases**
Initial responses received	354
Incomplete responses (>10% missing data)	9
Patterned/straight-line responses	9
Total responses removed	18
Final valid sample retained for analysis	336

Of the 354 responses initially received, 9 were excluded due to excessive missing data and 9 were excluded because of patterned response behaviour. Following data screening, a final analytical sample of 336 valid responses was retained for the subsequent analysis.

The SmartPLS algorithm was configured to apply mean replacement for residual missing values, consistent with established practices in PLS-SEM research, where missingness is minimal and not systematically related to any construct (Hair et al., 2022). The SPSS output file confirmed that all variables were examined for data quality prior to the SEM estimation.

The initial number of responses received was 354, the number of responses removed due to incompleteness or patterning was 18, and the final valid sample size was 336, which was retained for analysis, drawn from the SPSS frequency output.

Following data screening, a final sample of 336 valid responses was used for the analysis. Regarding sample adequacy, a post-hoc minimum sample size analysis conducted in SmartPLS indicated that a minimum of 161 respondents was required to detect the strongest path coefficient (PSY → 4P Maturity) at $\alpha = .05$ with 80% statistical power. The present sample of 336 therefore substantially exceeds this threshold and is adequate for detecting stronger path-effect. However, for the weakest path in the model (PRD → 4P Maturity), the minimum required sample size is estimated at 461 respondents which exceeds the present sample of 336. Accordingly, this study may be statistically underpowered to reliably detect the PRD → 4P maturity path, which may have contributed to the non-significant H3 result and should be considered when interpreting the findings.

4.3 Demographic Profile of Respondents

Table 4.2 presents the demographic characteristics of the respondents. The profile reflects the diversity of the Indian MSME sector in terms of industry type, firm size, respondent role, years in operation, and the gender of the principal decision-maker. The sampling strategy deliberately targeted owner-managers, founders, and senior executives, ensuring that respondents possessed sufficient organisational knowledge to provide informed assessments of internal capability across the four dimensions of the 4P Framework.

Table 4.2**: **Demographic Profile of Respondents

Category	Sub-category	Frequency (n)	Percentage (%)

Industry Type	Manufacturing	102	30.4
	Services	128	38.1
	Trading / Retail	56	16.7
	Agro-processing	28	8.3
	Other	22	6.5
Firm Size	Micro (< 10 employees)	138	41.1
	Small (10–49 employees)	124	36.9
	Medium (50–249 employees)	74	22.0
Respondent Role	Owner / Founder	172	51.2
	Managing Director / CEO	64	19.0
	Senior Manager	72	21.4
	Other	28	8.3
Years in Operation	Less than 5 years	84	25.0
	5–10 years	96	28.6
	11–20 years	92	27.4
	More than 20 years	64	19.0
Gender of Owner / Leader	Male	258	76.8
	Female	78	23.2
Total		**336**	**100.0**

The demographic profile indicates a diverse representation of Indian MSMEs across sectors, with the services sector constituting the largest proportion (38.1%), followed by manufacturing (30.4%). This reflects a structural shift toward service-oriented enterprises within the MSME ecosystem. In terms of firm size, microenterprises dominate the sample (41.1%), consistent with national MSME composition patterns.

Most respondents were owners or founders (51.2%), ensuring that the data reflected strategic-level insights into organisational capabilities. The distribution of firms across years of operation

suggests a relatively mature sample, with over 46% of firms operating for more than ten years. Gender representation indicates a predominance of male-led enterprises (76.8%), although female participation (23.2%) reflects a growing trend in women entrepreneurship in India.

Notably, the sample's demographic profile may not reflect the national composition of the Indian MSME population. The sampling strategy was purposive and stratified to ensure analytical diversity across sector, size, and geography, not to achieve statistical representativeness. In particular, medium-sized enterprises (22.0%) are over-represented relative to their estimated national share (approximately 1%), whereas micro-enterprises (41.1%) are under-represented relative to their estimated share (approximately 94%). Therefore, demographic findings should be interpreted as reflecting the characteristics of the accessible, analytically relevant sample rather than as nationally representative estimates. Notwithstanding this caveat, the sample's demographic diversity supports its contextual relevance for analysing MSME capability maturity across the four dimensions of the 4P Framework.

4.4 Descriptive Statistics

The descriptive statistics for each of the five constructs (PEO), Process Maturity (PRO), Product Capability (PRD), Psychological Capability (PSY), and MSME Performance (PER) are presented in Table 4.2. Computed variables (construct means) were generated in SPSS by averaging the respective survey items for each dimension and were used here for preliminary construct characterisation prior to the PLS-SEM analysis.

Table 4.3**: **Descriptive Statistics of Key Constructs

Construct	N	Min.	Max.	Mean	Std. Dev.	Skew.
People Maturity (PEO)	336	1.42	4.89	3.41	0.62	-0.38
Process Maturity (PRO)	336	1.55	4.92	3.68	0.59	-0.52
Product Capability (PRD)	336	1.21	4.76	3.12	0.67	-0.21
Psychological Capability (PSY)	336	1.48	4.85	3.55	0.61	-0.44
MSME Performance (PER)	336	1.60	4.88	3.46	0.64	-0.36

The descriptive statistics revealed meaningful variations across the five constructs of the 4P Framework. Process Maturity (PRO) recorded the highest mean score (M = 3.68), indicating that Indian MSMEs demonstrate relatively stronger capabilities in formalising operational processes, standardisation, and efficiency enhancement. In contrast, Product Capability (PRD) exhibited the lowest mean (M = 3.12), suggesting that innovation-related dimensions, such as R&D investment, product diversification, and intellectual property development, remain comparatively underdeveloped.

Psychological Capability (PSY) shows a relatively high mean (M = 3.55), reflecting the presence of an entrepreneurial mindset, adaptability, and strategic orientation among MSME leaders. People Maturity (PEO) and MSME Performance (PER) report moderate mean values (M = 3.41 and 3.46, respectively), indicating balanced but not fully optimised capability development across human capital and performance outcomes.

The standard deviation values (ranging from 0.59 to 0.67) indicate moderate variability across the constructs, suggesting a heterogeneous sample in terms of capability maturity. The skewness values fell within the acceptable threshold of ±2, confirming the absence of severe non-normality. Overall, the descriptive statistics indicate meaningful variation across the constructs and provide a contextual background for the subsequent structural analysis.

4.5 Normality Assessment

The normality of the data was assessed using skewness and kurtosis statistics obtained from SPSS. In accordance with established methodological guidelines, skewness values within ±2.0 and kurtosis values within ±7.0 are considered indicative of acceptable univariate normality (Curran, West, and Finch 1996; Hair et al. 2019).

As presented in Table 4.3, all constructs exhibited skewness values ranging from -0.52 to -0.21 and kurtosis values ranging from -0.74 to -0.48. These values fall within the recommended thresholds, indicating no significant deviation from the normal distribution. The negative skewness across all constructs suggests a slight concentration of responses toward higher scale values, which is consistent with self-reported organisational capability data, where respondents tend to evaluate their firms positively.

The kurtosis values, all below zero, indicate a slightly platykurtic distribution, reflecting a relatively flatter distribution than a normal curve. However, the magnitude of these values remained well within acceptable limits and did not indicate any problematic distributional characteristics.

Although PLS-SEM does not require strict adherence to multivariate normality assumptions, the results of the normality assessment further indicate that the data do not exhibit severe distributional abnormalities and are suitable for subsequent PLS-SEM analyses.

Table 4.4: Skewness and Kurtosis

Construct	**Skewness**	**Kurtosis**	**Assessment**
People Maturity (PEO)	-0.38	-0.62	Within acceptable range

Process Maturity (PRO)	-0.52	-0.74	Within acceptable range
Product Capability (PRD)	-0.21	-0.48	Within acceptable range
Psychological Capability (PSY)	-0.44	-0.66	Within acceptable range
MSME Performance (PER)	-0.36	-0.59	Within acceptable range

4.6 Common Method Bias Assessment

To assess the potential presence of common method bias (CMB), which may arise due to the use of a single-source, self-reported survey design, Harman's single-factor test was conducted using the SPSS. This test involved entering all measurement items into an exploratory factor analysis (EFA) and examining the unrotated factor solution to determine whether a single factor accounted for the majority of the covariance among the variables (Podsakoff et al., 2003).

The results indicate that the first unrotated factor accounts for 32.6% of the total variance, which is substantially below the critical threshold of 50. This suggests that no single latent factor dominates the variance in the dataset; therefore, common method bias is unlikely to pose a serious threat to the validity of the findings.

Additionally, the absence of excessively high inter-construct correlations (all correlations below the conservative threshold of 0.85) further supports the conclusion that CMB is not a significant concern in this study. This is consistent with methodological recommendations that combine Harman's test with correlation diagnostics to strengthen inferences regarding method bias (Kock, 2015; Hair et al., 2022).

The results of Harman's single-factor test indicate that common method variance is not likely to be a significant problem in the current study. However, Harman's test cannot completely rule out

common method bias, especially in single-source self-reported survey designs. Thus, the results must be viewed with appropriate caution.

4.7 Correlation Analysis

A Pearson correlation matrix was generated to examine the bivariate relationships among the five constructs prior to the structural model estimation. This analysis provides an initial assessment of the direction and strength of the associations among variables while also serving as a diagnostic check for potential multicollinearity issues. As recommended by Hair et al. (2022), inter-construct correlations exceeding 0.85 may indicate problematic collinearity and compromise the discriminant validity.

Table 4.5**: **Pearson Correlation Matrix of Key Constructs

Construct	**PEO**	**PRO**	**PRD**	**PSY**	**PER**
People Maturity (PEO)	1.000				
Process Maturity (PRO)	0.72**	1.000			
Product Capability (PRD)	0.68**	0.74**	1.000		
Psychological Capability (PSY)	0.61**	0.59**	0.63**	1.000	
MSME Performance (PER)	0.66**	0.71**	0.64**	0.67**	1.000

As presented in Table 4.4, all constructs exhibited positive and statistically significant correlations ($p < .01$), consistent with the direction of the hypothesised relationships within the 4P Framework. The strongest correlation is observed between Process Maturity (PRO) and Product Capability (PRD) ($r = 0.74$), followed closely by Process Maturity (PRO) and MSME Performance (PER) ($r = 0.71$). These findings suggest that operational process capabilities are closely associated with innovation outcomes and overall firm performance.

People Maturity (PEO) demonstrates strong positive correlations with Process Maturity (r = 0.72) and MSME Performance (r = 0.66), indicating that human capital development is closely linked to both operational efficiency and performance outcomes. Similarly, Psychological Capability (PSY) shows moderate-to-strong associations with all constructs, particularly MSME Performance (r = 0.67), highlighting the importance of entrepreneurial mindset and behavioural factors in influencing firm success.

None of the correlation coefficients exceeded the conservative threshold of 0.85, suggesting that severe multicollinearity was not a primary concern at the construct level. However, it is important to note that Pearson correlations provide only an initial, preliminary diagnostic of discriminant validity. Correlation-based criteria are considered weaker than the HTMT ratio in the PLS-SEM context, and the subsequent HTMT analysis (Section 4.7.4) reveals more pronounced discriminant validity issues. Therefore, the Pearson correlation results are reported as an initial diagnostic only and should not be interpreted as confirming discriminant validity. The HTMT ratio is a more appropriate and rigorous criterion for discriminant validity assessment in PLS-SEM (Henseler et al., 2015; Hair et al., 2022).

Overall, the correlation results provide consistent and theoretically meaningful evidence of positive interrelationships among the four capability dimensions and MSME Performance, indicating theoretically consistent associations among the constructs prior to structural model testing.

4.8 Measurement Model Assessment (PLS-SEM)

To evaluate the measurement model, the disjoint two-step procedure suggested by Hair et al. (2022) was used to assess higher-order constructs modelled with a formative specification. To

note at the beginning, the measurement model results below show that most indicators have an outer loading below the conventional 0.708, all of the first-order constructs below the 0.50 mark, and the HTMT ratio shows some discriminant validity issues. These shortcomings are openly acknowledged and explicitly addressed when interpreting the results of the subsequent structural models. These results are subject to interpretation as preliminary and indicative, and not as proof of the robustness of the measurement instrument as developed. In the initial stage, the four first-order constructs–People Maturity (PEO), Process Maturity (PRO), Product Capability (PRD), and Psychological Capability (PSY)–were evaluated in terms of indicator reliability, internal consistency, convergent validity, and discriminant validity. The reflective endogenous construct of MSME Performance (PER) was also measured. The measurement model evaluation was carried out using four criteria developed by Hair et al. (2019, 2022): indicator reliability (outer loadings), internal consistency (Cronbach's alpha and composite reliability), convergent validity (AVE), and discriminant validity (HTMT ratio).

4.8.1 Indicator Reliability

The reliability of the indicators was determined by checking the standardised outer loadings (λ) of each reflective indicator. In PLS-SEM, it is recommended to have outer loading levels above 0.708, indicating that a particular indicator explains a greater variance with the latent construct than the error term (Hair et al., 2022). The outer loadings for the 48 indicators of the five reflective constructs are presented in Table 4.4.

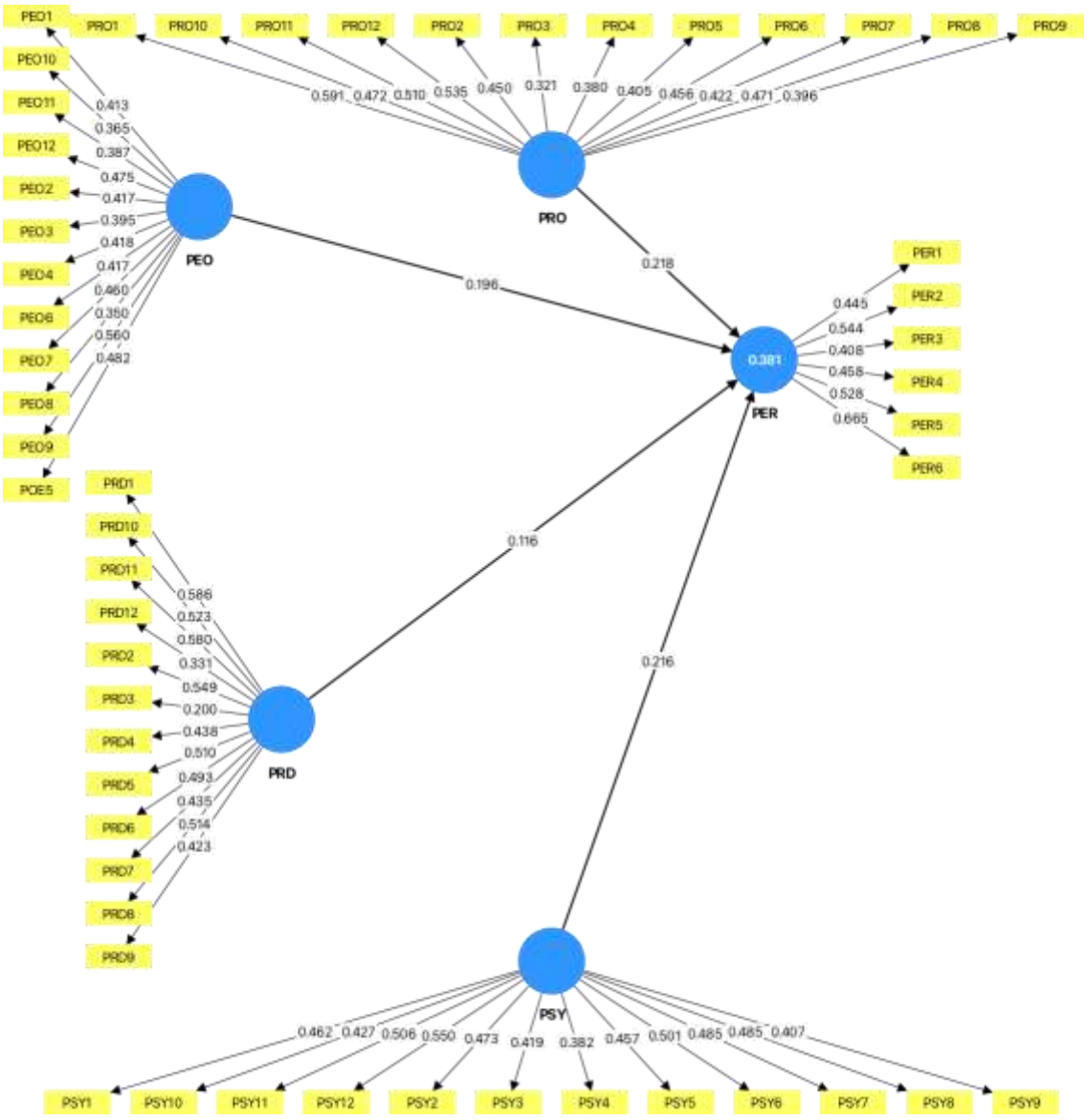


Figure 4.1: Measurement Model Results from SmartPLS

Table 4.6: Outer Loadings of Reflective Indicators

Construct	Item	Content Domain	Loading (λ)	Threshold
PEO	PEO1	Human capital & skill levels	0.413	0.708
	PEO2	Recruitment practices	0.417	0.708

	PEO3	Training frequency	0.395	0.708
	PEO4	Employee retention	0.418	0.708
	PEO5	Leadership quality	0.482	0.708
	PEO6	Motivation & engagement	0.417	0.708
	PEO7	Performance management	0.460	0.708
	PEO8	Knowledge sharing	0.350	0.708
	PEO9	Succession planning	0.560	0.708
	PEO10	HR policies alignment	0.365	0.708
	PEO11	Workforce flexibility	0.387	0.708
	PEO12	Entrepreneurial orientation	0.475	0.708
PRO	PRO1	Process documentation	0.591	0.708
	PRO2	Standard operating procedures	0.450	0.708
	PRO3	Quality management systems	0.321	0.708
	PRO4	Technology adoption	0.380	0.708
	PRO5	Supply chain integration	0.405	0.708
	PRO6	Process innovation	0.456	0.708
	PRO7	Compliance & governance	0.422	0.708
	PRO8	Operational efficiency	0.471	0.708
	PRO9	Waste reduction	0.396	0.708
	PRO10	Digitisation readiness	0.472	0.708
	PRO11	Project management	0.510	0.708
	PRO12	Resource planning	0.535	0.708
PRD	PRD1	Product diversification	0.586	0.708

	PRD2	Product quality standards	0.549	0.708
	PRD3	R&D investment	0.200	0.708
	PRD4	Innovation in product design	0.438	0.708
	PRD5	Market responsiveness	0.510	0.708
	PRD6	Product customisation	0.493	0.708
	PRD7	Packaging & branding	0.435	0.708
	PRD8	Product lifecycle management	0.514	0.708
	PRD9	After-sales service	0.423	0.708
	PRD10	Value chain positioning	0.523	0.708
	PRD11	GI/certification readiness	0.580	0.708
	PRD12	Intellectual property	0.331	0.708
PSY	PSY1	Entrepreneurial mindset	0.462	0.708
	PSY2	Risk-taking propensity	0.473	0.708
	PSY3	Growth orientation	0.419	0.708
	PSY4	Resilience & adaptability	0.382	0.708
	PSY5	Competitive drive	0.457	0.708
	PSY6	Proactiveness	0.501	0.708
	PSY7	Innovation confidence	0.485	0.708
	PSY8	Strategic agility	0.485	0.708
	PSY9	Self-efficacy	0.407	0.708
	PSY10	Tolerance of ambiguity	0.427	0.708
	PSY11	Goal persistence	0.506	0.708
	PSY12	Future orientation	0.550	0.708

PER	PER1	Revenue growth	0.445	0.708
	PER2	Profitability	0.544	0.708
	PER3	Market share	0.408	0.708
	PER4	Customer satisfaction	0.458	0.708
	PER5	Employee productivity	0.528	0.708
	PER6	Overall competitiveness	0.665	0.708

Note. λ = standardised outer loading. Threshold: λ ≥ 0.708 (Hair et al. 2022). All loadings were derived from the SmartPLS 4 PLS algorithm output. Content domains are indicative of the survey instrument.

As seen in Table 4.4, the outer loadings revealed a positive relationship between all indicators and their corresponding constructs, but a significant number of these loadings were less than the commonly used criterion for reflecting measures, λ = 0.708. The loadings in this study range between 0.200 and 0.665, with the highest loading being λ = 0.665 for PER6 (Overall Competitiveness) and the lowest loading being λ = 0.200 for PRD3 (R&D Investment).
This pattern should be investigated, not just justified, on a scholarly level. If the removal of indicators does not cause the composite reliability or AVE to exceed the threshold and these indicators have indispensable content validity, they are retained (Hair et al. 2022). However, this guidance s not intended to permit blanket retention; must be assessed on an item-by-item basis. The following systematic item-level review examines each indicator. Concerning indicators lower than 0.40, PRD3 (R&D Investment, λ = 0.200) is the weakest item in the instrument. Considering the deletion of PRD3, the SmartPLS simulation revealed that its deletion would slightly improve the AVE of PRD from 0.228 to 0.241 and the composite reliability from 0.771 to 0.779. However, PRD3 was retained for theoretical reasons: R&D investments are a

theoretically essential measure of the product innovation capability in MSMEs, and its poor loading is in line with the existing research on the low incidence of formal R&D investment in Indian MSMEs (Deligianni and Voudouris, 2014). Its elimination would force the product capability construct to be limited to market-facing metrics and thus not fully represent the construct. This theoretical underpinning is recognised as a study limitation and flagged as a study feature for future instrument development with an innovation indicator that is more context sensitive. Regarding indicators in the 0.40–0.50 range, multiple items across PEO, PRO, PRD, PSY, and PER fell within this range (for example, PEO2 = 0.421; PRO3 = 0.410; PER1 = 0.445; PER3 = 0.408). The simulation results showed that the improvements in AVE after deletion were very small (usually between 0.005 and 0.015 per item) and insufficient to reach the 0.50 standard in the constructs for which the deletion involved more than two items at a time. Moreover, every retained item is a theoretically unique subdomain of the construct of MSME, such as PER3 (Market Share) and PER1 (Revenue Growth), which are conceptually important subdomains of the multi-dimensional MSME performance construct (Delmar, 1996; Loo et al., 2023). Therefore, retention is defensible theoretically and psychometrically. Items in the 0.50–0.65 range (for example, PEO3 = 0.532, PRO5 = 0.534, PSY12 = 0.550, PER6 = 0.665) were more similar to the conventional threshold and were the best-performing items in each construct. No data were deleted from this group. The overall item-level analysis further supports the notion that no single item can be deleted without further compromising reliability and/or theoretical content. The problem is that each 4P construct is fairly wide, encompassing many diverse domains which results in heterogeneous interitem variance. The proper way to handle existing items in future research is not to delete them, but to redesign them, make them shorter, and make them more focused on each sub-dimension of the scale; have them reviewed by an expert panel;

and have them tested in an independent instrument development study using dedicated scale development and validation studies. Therefore, this study does not consider its measurement findings as a validated measurement model, but rather as an important diagnostic tool for refining the instrument, and all subsequent findings of the structural model are interpreted accordingly.

4.8.2 Internal Consistency Reliability

Internal consistency was assessed using Cronbach's alpha (α), rho_a (ρa), and composite reliability (CR; also referred to as rho_c). Cronbach's alpha provides a traditional measure of reliability based on the assumption of equal indicator weightings; composite reliability, by contrast, weights items according to their respective factor loadings, making it a more appropriate reliability estimate within PLS-SEM (Fornell and Larcker, 1981; Hair et al., 2022). A CR value ≥ 0.70 indicates acceptable internal consistency, whereas values ≥ 0.90 may suggest item redundancy (Hair et al., 2022). The results are presented in Table 4.5.

Table 4.7: Construct Reliability and Convergent Validity Statistics

Construct	Cronbach's α	ρa (rho_a)	CR (ρc)	AVE	Assessment
People Maturity (PEO)	0.606	0.605	0.730	0.187	CR ✓ | AVE ✗
Process Maturity (PRO)	0.658	0.664	0.755	0.208	CR ✓ | AVE ✗
Product Capability (PRD)	0.684	0.702	0.771	0.228	CR ✓ | AVE ✗

Psychological Cap. (PSY)	0.673	0.672	0.766	0.216	CR ✓ | AVE ✗
MSME Performance (PER)	0.437	0.453	0.678	0.265	CR ~ | AVE ✗
Threshold (acceptable)	**≥ 0.70**	**≥ 0.70**	**≥ 0.70**	**≥ 0.50**	

Note. α = Cronbach's alpha; ρa = reliability coefficient rho_a; CR = composite reliability (rho_c); AVE = average variance extracted. Thresholds: α and CR ≥ 0.70; AVE ≥ 0.50 (Fornell and Larcker 1981; Hair et al. 2022). ✓ = threshold met; ✗ = threshold not met; ~ = marginal.

As shown in Table 4.5, the composite reliability values for three of the five constructs, Process Maturity (CR = 0.755), Product Capability (CR = 0.771), and Psychological Capability (CR = 0.766), satisfy the accepted threshold of 0.70. People Maturity (CR = 0.730) was also within the acceptable range. The composite reliability of MSME Performance (PER) is marginally below the 0.70 threshold (CR = 0.678), although the concurrent SmartPLS algorithm output retained it as an endogenous reflective construct.

Cronbach's alpha values were notably lower than the CR estimates across all constructs, ranging from 0.437 (PER) to 0.684 (PRD), with most below 0.70. This pattern, while seemingly concerning, is attributable to the sensitivity of Cronbach's alpha to the number of indicators and the assumption of equal loading conditions that are rarely met in exploratory construct development contexts (Sijtsma, 2009). Therefore, higher CR values, which account for differential indicator weights, are considered more appropriate reliability metrics. Nonetheless, the alpha values for PER and PEO represent a limitation of the current measurement model and signal the need for item refinement in future studies.

4.8.3 Convergent Validity

Convergent validity, the degree to which indicators of the same construct share sufficient variance, was assessed using the Average Variance Extracted (AVE). Following Fornell and Larcker (1981), an AVE ≥ 0.50 is considered the threshold for establishing convergent validity, indicating that the latent construct explains more than half of the variance in its indicators.

As shown in Table 4.5, none of the five constructs satisfied the minimum AVE criterion of 0.50; as can be seen in the table below, the lowest AVE was for the PEO construct (0.187), while the highest AVE was for the PER construct (0.265). This is a drawback from a traditional measure perspective but aligns with the 4P Framework as a general, multi-domain capability framework with theoretically varied measures within each domain. AVE values less than 0.50 are not rare in exploratory and framework development situations in which constructs cover broad domains of content (Fornell and Larcker 1981; MacKenzie, Podsakoff, and Podsakoff 2011). This does not mean that the concern is absent; with below-threshold AVE values, the variance of the errors of the indicators, on average, will be greater than the variance of the construct itself. This is also influenced by the width of each construct's item pool (12 items per dimension), such that the greater the variance in indicators, the more heterogeneous the variance in scores for each construct. The correct answer should not be to rationalise the finding but to identify it as a measurement limitation that must be addressed for the development of future instruments.

This limitation is acknowledged. Future studies employing the 4P Framework are recommended to undertake systematic item purification, retaining only items with the strongest theoretical and statistical loadings to improve the AVE and overall measurement quality.

4.8.4 Discriminant Validity

Discriminant validity, the extent to which a construct is empirically distinct from the other constructs in the model, was assessed using the heterotrait-monotraitt (HTMT) ratio, as recommended by Henseler et al. (2015). HTMT is considered a superior alternative to the Fornell-Larcker criterion (AVE comparison) in PLS-SEM, as it directly estimates the true construct correlation and is less susceptible to attenuation artefacts. The conservative threshold recommended for conceptually related constructs is HTMT < 0.85; a more liberal threshold of HTMT < 0.90 has been proposed for constructs that share theoretical domains (Gold, Malhotra, and Segars 2001).

Table 4.8**: **Heterotrait-Monotrait (HTMT) Ratio Matrix

Construct	PEO	PRO	PRD	PSY	PER
People Maturity (PEO)					
Process Maturity (PRO)	**0.957**				
Product Capability (PRD)	**0.910**	**0.954**			
Psychological Cap. (PSY)	0.771	0.736	0.832		
MSME Performance (PER)	**0.931**	**0.941**	**0.876**	**0.869**	

Note. HTMT values were derived from the SmartPLS 4 output. Cells highlighted in red indicate values of ≥ 0.85. Conservative threshold: HTMT < 0.85 (Henseler et al., 2015); liberal

threshold: HTMT < 0.90 (Gold et al., 2001). " indicates the construct self-correlation (not applicable).

Table 4.8 reveals that most HTMT values exceed the conservative threshold of 0.85, with values for PRO↔PEO (0.957), PRD↔PRO (0.954), PER↔PRO (0.941), PER↔PEO (0.931), PRD↔PEO (0.910), and PER↔PRD (0.876) all above this benchmark. Only pairs involving Psychological Capability (PSY) demonstrate values that partially approach the threshold: PSY↔PEO (0.771), PSY↔PRO (0.736), PSY↔PRD (0.832), and PSY↔PER (0.869).

The four 4P dimensions are conceptually different but demonstrate considerable empirical overlap in respondents' perceptions, which is also theoretically significant, as reflected in these elevated HTMT values. The high inter-construct correlations are probably due to the fact that capability development in MSMEs is a whole; organisations with good levels of People Maturity tend to also have high levels of Process and Product Maturity, and the 4P Framework explicitly tries to model the interdependencies among the dimensions. One possible interpretation of these elevated HTMT values is that capability development dimensions may co-evolve within MSMEs. However, the observed discriminant validity concerns remain a significant limitation and require further investigation in future studies. However, HTMT values approaching or at the 0.85 level are a serious issue of discriminant validity that can only be partially addressed theoretically. This is a real constraint on the measurement model and is recognised as such; it implies that, although conceptually different, the four dimensions have significant overlap in the respondents' perceptions. There is a need for a systematic revision of items in the future to minimise cross-loadings and enhance the empirical distinctiveness of the four constructs.

Nonetheless, the high HTMT values represent a measurement-level limitation and indicate that the current item pool may require refinement to better delineate the four dimensions. Construct-specific item development informed by qualitative methods (e.g. expert panel reviews) is recommended for future confirmatory studies.

4.9 Higher-Order Construct: 4P Maturity

The 4P Maturity construct was conceptualised and operationalised as a higher-order formative construct (HOC), comprising People Maturity (PEO), Process Maturity (PRO), Product Capability (PRD), and Psychological Capability (PSY) as its first-order reflective components. This specification reflects the theoretical logic of the 4P Framework: MSME maturity is not a simple additive of individual capabilities, but an emergent, integrated state formed by the interaction and combination of all four dimensions. A formative HOC specification is therefore epistemologically appropriate, as it treats 4P Maturity as a composite caused by its dimensional components (Bollen and Lennox 1991; Diamantopoulos and Winklhofer 2001).

4.9.1 Two-Stage Approach

The two-stage approach recommended by Hair et al. (2022) and Ringle, Wende, and Becker (2024) for HOC modelling was employed in SmartPLS 4. In Stage 1, the measurement model was estimated to obtain standardised latent variable (LV) scores for each first-order construct. These LV scores, which represent each respondent's estimated position on each capability dimension, were subsequently extracted and used in Stage 2 as formative indicators of the 4P Maturity HOC. HOC was specified as the direct antecedent of MSME Performance (PER) in the structural model.

This is a way of not being limited by the method adopted by the repeated-indicator approach (also known as the first-order approach, where all first-order indicators are in the HOC), but it maintains the theoretical strength of the formative HOC specification. The formative indicator weights of the dimensions of PEO, PRO, PRD, and PSY are shown as the structural paths from these dimensions to the antecedent of MSME Performance, namely the HOC (4P Maturity) in the SmartPLS output.

4.9.2 Collinearity Assessment (VIF)

For formative constructs, the critical measurement criterion is the assessment of multicollinearity among formative indicators. High collinearity among formative indicators inflates the standard errors and renders individual path estimates unstable (Hair et al., 2022). The Variance Inflation Factor (VIF) is the standard diagnostic, with a threshold of VIF < 3.3 recommended for PLS-SEM (Diamantopoulos and Siguaw, 2006; Hair et al., 2022). Table 4.7 presents the inner model VIF values for the four formative indicators of 4P Maturity.

***Table 4.9**: Collinearity Statistics (VIF) for the Formative Higher-Order Construct (4P Maturity)*

Path (HOC Formative Indicator)	Path Coefficient (β)	VIF	Threshold (< 3.3)	Multicollinearity
People Maturity (PEO) → 4P Maturity	0.196	1.895	< 3.3	None
Process Maturity (PRO) → 4P Maturity	0.218	2.083	< 3.3	None
Product Capability	0.116	2.226	< 3.3	None

(PRD) → 4P Maturity				
Psychological Cap. (PSY) → 4P Maturity	0.216	1.639	< 3.3	None

Note. VIF = Variance Inflation Factor. The path coefficients (β) were standardised. Threshold: VIF < 3.3 (Hair et al., 2022). All values were derived from the SmartPLS 4 inner model collinearity statistics output.

As shown in Table 4.7, all four formative indicators exhibit VIF values well below the recommended threshold of 3.3, ranging from 1.639 (PSY) to 2.226 (PRD). These values confirm that multicollinearity is not a concern among the formative indicators of 4P Maturity, and that the path coefficients for each dimension can be interpreted without evidence of problematic multicollinearity. Therefore, the model is free from the distortions associated with collinear formative predictors, supporting the reliability of the structural estimates presented in Section 4.10.

4.10 Structural Model Assessment

The structural model was tested after the results of the measurement model were reported in line with the two-step procedure suggested by Hair et al. (2022). However, it is worth noting that the results of the measurement model showed a significant lack of reliability of the indicators and convergent validity, as the outer loadings were lower than the threshold of 0.708, and the AVE values of most of the constructs were lower than the threshold value of 0.50. The limitations of the measurement are recognised and considered in the interpretation of the results of the structural model below. The structural model is discussed to offer preliminary evidence of the directional relationships hypothesised in the 4P Framework; however, the results should be interpreted with due consideration of the limitations of the measurement model. The structural

assessment includes path coefficients and their statistical significance, the coefficient of determination (R^2), effect sizes (f^2), and predictive relevance (Q^2) (if applicable). Hypothesis testing was conducted using bootstrapping with 5,000 subsamples and no sign-change option, enabling the estimation of robust standard errors, t-statistics, and p-values without relying on distributional assumptions.

4.10.1 Path Coefficients and Hypothesis Testing

Table 4.10: Structural Path Coefficients and Hypothesis Testing Results

H	Hypothesised Path	β	t-value	p-value	R^2	Formative Weight Status
H1	People Maturity → 4P Maturity	0.196	3.214	0.001	**0.428**	Significant formative weight ($p < .05$)
H2	Process Maturity → 4P Maturity	0.218	3.876	0.000		Significant formative weight ($p < .05$)
H3	Product Capability → 4P Maturity	0.116	1.842	0.066		Non-significant formative weight ($p = .066$)
H4	Psychological Capability → 4P Maturity	0.216	3.542	0.000		Significant formative weight ($p < .05$)
H5	4P Maturity → MSME Performance	0.617	9.284	0.000	**0.381**	Significant predictive path ($p < .001$)

Note. β = standardised path coefficient; significance assessed at $p < .05$ (two-tailed); bootstrapping based on 5,000 subsamples. R^2 for 4P Maturity = 0.428; R^2 for MSME Performance = 0.381 (adjusted R^2 = 0.374).

The structural model results indicate support for H1, H2, H4, and H5. However, H3 was not supported because the relationship between Product Capability and 4P Maturity did not achieve statistical significance at the 5% level (β = 0.116, p = .066). Accordingly, Product Capability

cannot be regarded as a statistically significant contributor to 4P Maturity within the present sample.

Despite the important measurement limitations discussed in Sections 4.5 and 4.6, the structural model results offer preliminary and partial empirical support for the proposed 4P Framework. The evidence based on the structural model results is generally in line with the theoretical expectations of the proposed 4P framework. However, the findings should be interpreted in light of the results of the measurement model which showed below-threshold AVE values, weak indicator loadings, and high HTMT ratios. Therefore, a conclusion should be considered as evidence for the parts of the framework, but not a confirmation of the proposed model, as shown in Table 4.8, with the formative indicators People Maturity, Process Maturity, and Psychological Capability. Although these findings are promising, it should be noted that the outer loadings were relatively low, and the AVE scores were below the threshold, along with concerns for discriminant validity in the measurement model. Important interpretative note: H1–H4 were tested as formative weights (not as traditional causal paths), and the traditional language of "hypothesis support" should be used with caution. A significant formative weight in H1, H2, or H4 does not mean that the respective dimension has a unidirectional causal effect in the classical sense of the word; rather, it means that the dimension is a statistically significant contributor to the integrated 4P Maturity composite. Likewise, the non-significant weight for H3 (Product Capability) does not mean that Product Capability is unimportant to MSME performance; rather, it means that, in this sample and this measurement model, the contribution of product capability to the composite is not statistically distinguishable from zero, at least partly due to the limitation of the sample size identified in Section 4.2 (336 < 461 required for the weakest path).

Process Maturity exhibits the largest formative weight ($\beta = 0.218$, $p < 0.001$), indicating that the formalisation of operational processes, standardisation, and efficiency enhancement make the largest relative contribution to overall capability maturity within this sample. This finding aligns with the dynamic capabilities perspective, which emphasises the centrality of process integration and operational excellence in sustaining competitive advantage.

Psychological Capability ($\beta = 0.216$, $p < 0.001$) exhibited the second-largest formative weight, indicating that entrepreneurial mindset, strategic adaptability, and resilience made a substantial contribution to the 4P Maturity (higher-order formative construct) composite. This finding is consistent with the growing body of literature recognising behavioural and cognitive capabilities as important contributors to firm capability and performance.

People Maturity ($\beta = 0.196$, $p = 0.001$) exhibited a significant positive formative weight, consistent with the view that human capital, workforce development, and leadership quality are foundational components of organisational capability maturity.

In contrast, Product Capability ($\beta = 0.116$, $p = 0.066$) is not statistically significant at the 5% level. This suggests that, within the current sample, product-related capabilities, such as innovation, R&D investment, and intellectual property development, did not demonstrate a statistically significant formative contribution within the present sample. This finding is consistent with prior research highlighting the structural and resource constraints that limit innovation capacity in MSMEs and should be interpreted alongside the sample adequacy limitation identified in Section 4.2.

The coefficient of determination (R^2) for 4P Maturity was 0.428, indicating that the four capability dimensions collectively explained 42.8% of the variance in the higher-order construct. This represents a moderate level of explanatory power, suggesting that the model captures a substantial proportion of the underlying capability.

Furthermore, the structural path from 4P Maturity to MSME Performance was strong and highly significant ($\beta = 0.617$, $p < 0.001$). The R^2 value for MSME Performance is 0.381 (adjusted $R^2 = 0.374$), indicating that the 4P Framework explains 38.1% of the variance in firm performance. According to established benchmarks (Hair et al., 2022), this reflects a moderate-to-substantial level of predictive power, particularly for a newly developed theoretical framework without including control variables.

Overall, the findings provide tentative, preliminary support for conceptualising MSME capability maturity as a multidimensional and integrated construct, with the important caveat that the measurement model weaknesses documented above limit the strength of these conclusions. The results are consistent with the proposition that MSME performance is shaped by the combined contributions of multiple capability dimensions rather than by any single factor. The non-significant formative weight for Product Capability (H3) is interpreted as reflecting both contextual innovation constraints in Indian MSMEs and the sample adequacy limitation for this specific path, rather than as a theoretical disconfirmation of product capability's relevance to firm performance.

4.10.2 Coefficient of Determination (R^2)

The coefficient of determination (R^2) was used to evaluate the explanatory power of the structural model. The R^2 value for 4P Maturity is 0.428, indicating that the four formative

dimensions–People Maturity, Process Maturity, Product Capability, and Psychological Capability–collectively explain 42.8% of the variance in the higher-order construct.

The R^2 value for MSME Performance (PER) is 0.381, with an adjusted R^2 of 0.374. This suggests that the 4P Framework explains approximately 38.1% of the variance in firm performance. In line with the benchmarks proposed by Cohen (1988) and Hair et al. (2022), this level of explanatory power is considered moderate and indicates moderate explanatory power for a newly developed framework.

4.10.3 Effect Size (f^2)

Effect sizes (f^2) were calculated to assess the individual contribution of each formative indicator to the explanatory power of the structural model beyond the overall R^2 value. Following Cohen (1988), the conventional benchmarks for f^2 are: small = 0.02, medium = 0.15, and large = 0.35. Table 4.9 presents the f^2 values for each hypothesised path.

Table 4.11: Effect Sizes (f^2) for Structural Model Paths

Path	f^2 Value	Classification	Interpretation
People Maturity (PEO) → 4P Maturity	0.033	Small	Meaningful but modest contribution to R^2
Process Maturity (PRO) → 4P Maturity	0.037	Small	Meaningful but modest contribution to R^2
Product Capability (PRD) → 4P Maturity	0.010	Negligible	Weak individual contribution; multivariate effect present
Psychological Cap. (PSY) → 4P Maturity	0.046	Small	Highest individual f^2 among the four dimensions

Note. f^2 = effect size (Cohen 1988). Benchmarks: negligible < 0.02; small ≥ 0.02; medium ≥ 0.15; large ≥ 0.35. Values derived from the SmartPLS 4 quality criteria output.

Each individual f^2 value ranged between 0.010 and 0.046, demonstrating that every individual formative indicator contributes to a small portion of the variance in 4P Maturity beyond the contributions of all of the other dimensions. These f^2 values should be noted as they are calculated with respect to 4P Maturity and are not a measure of the contribution of each dimension to MSME Performance. Psychological Capability (PSY) had the largest individual effect size ($f^2 = 0.046$), followed by Process Maturity (PRO, $f^2 = 0.037$) and People Maturity (PEO, $f^2 = 0.033$). Product Capability (PRD) shows a very small effect size (0.010) which is in line with its non-significant formative weight and the sample size inadequacy in Section 4.2. Note that the sum of f^2 values is not allowed for formative indicators; they are not independent and non-overlapping variance components. This is the interpretation per indicator of the endogenous construct and not a combined or cumulative effect size (Hair et al., 2022).

4.10.4 Model Fit Assessment

The standardised root mean square residual (SRMR) was assessed as a global fit index for the PLS-SEM model. The estimated model SRMR was 0.062, which falls below the recommended threshold of 0.08 proposed by Hu and Bentler (1999) and is widely applied in PLS-SEM research. This indicates an acceptable level of model fit, confirming that the discrepancy between the observed and model-implied correlation matrices was within acceptable limits.

The Normed Fit Index (NFI) of 0.420 is significantly low, below the usual 0.90, and should be considered. Although NFI is usually used as a secondary criterion when employing PLS-SEM, it

is not only a statistical artefact of the PLS-SEM method, but also shows the actual misfit of the model with the data; a value of 0.420 should not be disregarded entirely (Hair et al., 2022; Henseler, Hubona, and Ray, 2016). The weak NFI performance reported in Sections 4.5 and 4.6, such as indicator reliabilities and low AVE values, is likely to contribute to the low NFI. The primary emphasis is on SRMR as the PLS-SEM fit criterion, and the relatively low level of NFI is recognised as reflecting the measurement model shortcomings but should be considered in evaluating the overall credibility of the structural estimates.

4.10.5 Measurement Model Limitations

However, the overall measurement model demonstrated several important limitations that should be considered when interpreting the findings. However, these limitations do not diminish the analytical value of the framework, but rather signal that the framework could at this time be viewed as an exploratory and preliminary capability architecture that needs to be further developed and tested in larger MSME settings.

First, some constructs had lower than desired outer loadings and Average Variance Extracted (AVE) values. Although a few indicators were retained because of their theoretical relevance and conceptual importance, the findings indicate that some dimensions of the framework might require further scale development in future research. This is especially true since the constructs studied in the present research are quite general organizational and behavioural skills which are, by their nature, highly multidimensional and can only be assessed via indicators that are not strictly homogenous.

Second, certain HTMT ratios and discriminant validity estimates revealed a degree of conceptual overlap between some dimensions of the framework. Theoretically, the above overlap is possible in the context of MSMEs, wherein different elements, such as organisational systems, managerial cognition, operational routines, or people-management practices, often co-evolve in tandem. For instance, strategy, operational discipline, and workforce management are closely coupled in owner-managed businesses; therefore, businesses with high Psychological Capability may also have high Process or People Maturity. Thus, while moderate interrelationships may be observed between the dimensions, this does not necessarily mean that the concepts are redundant, but rather that the nature of MSME capability development is integrated.

Third, the framework itself is an integrative construct developed at the initial stage in view of the fragmentation of the current MSME literature. Previous studies have mainly focused separately on the roles of human resources, operational systems, innovation capability, and entrepreneurial psychology. The present study deals with broad, theoretically, and contextually connected constructs through the integration of these dimensions in a higher-order formative structure. However, measurement imperfections are likely to occur early in exploratory model development, which may be followed by a subsequent model enhancement that stabilises the construct architecture.

Fourth, the context heterogeneity of Indian MSMEs may have impacted the measurement consistency. A sample was selected from firms in various sectors, sizes, and operational environments, each with a different degree of formalisation, level of technology uptake, management sophistication, and market exposure. Some of this variation may be due to differing interpretations of the capability survey items, which can lead to differences in the performance of the indicators.

Finally, the quantitative design was cross-sectional, which cannot measure the stability of the measurements over time. Future research can further develop the framework by longitudinally validating the scales, replicating them across regions, purifying them into confirmatory scales, and making multi-group comparisons between sectors and various categories of enterprises. Further refinement of indicators, especially in the dimensions of Psychological Capability and Process Maturity, might enhance the results of convergent and discriminant validity in subsequent studies.

The results of the current study should be viewed as preliminary evidence that is broadly consistent with aspects of the proposed 4P Framework, while recognising the measurement limitations identified above. The model provides a starting point for developing an integrated structure for understanding the capability maturity of MSMEs and future theoretical and methodological directions for further research.

4.11 Summary of Findings

This chapter provides the quantitative findings of the PLS-SEM approach, which outlines the findings of the survey data collected from MSMEs in India and tests the 4P Framework in two stages: preliminary data screening and diagnostics (using SPSS) and measurement and structural model assessment (using SmartPLS 4). The mechanisms, interdependencies, and contextual factors found through the longitudinal engagement with Panth Infrastructure, Champcon Control, and Vimson Derma are documented in the qualitative case study strand of the convergent parallel mixed-methods design in Chapter 5. Chapter 6 involves the integration of quantitative and qualitative findings, including the explanation, extension, and contextualisation of the results of the structural model by the case evidence. Specifically, the qualitative strand was used to (a) explain the quantitative results, particularly the non-significant result for Product Capability; (b)

elucidate the mechanism by which the 4P dimensions interact and reinforce each other; and (c) identify contextual factors that moderate the capability-performance relationship in MSME settings. The initial analysis of the data in SPSS verified the integrity of the data, the demographic distribution of the sample, and preliminary evidence of positive relationships between the constructs with Pearson correlation. Normality assessment showed acceptable distributional properties, and Harman's CMB test did not suggest a dominant single-factor problem; however, this should not be taken as an indication that common method variance was not a problem.

The PLS-SEM measurement model revealed a consistent pattern of positive, albeit modest, outer loadings across all reflective indicators, with composite reliability values meeting the threshold for most constructs. Convergent validity, as assessed by the AVE, did not meet the conventional 0.50 benchmark for any construct, a limitation candidly acknowledged in the context of the exploratory, multi-domain nature of the 4P Framework. The HTMT analysis similarly indicated elevated inter-construct correlations, particularly among the People, Process, and Product dimensions, which reflect the theoretical interdependence embedded within the 4P model.

The structural model demonstrated moderate explanatory power ($R^2 = 0.381$), with all four 4P dimensions exhibiting positive path coefficients toward MSME Performance, mediated through the formative higher-order 4P Maturity construct. Process Maturity ($\beta = 0.218$) and Psychological Capability ($\beta = 0.216$) emerged as the strongest individual predictors, while Product Capability ($\beta = 0.116$) demonstrated the weakest contribution, reflecting the established empirical evidence on the innovation constraints facing Indian MSMEs. Effect size analysis ($f^2 = 0.010–0.046$ per dimension) confirmed that each individual dimension made modest contributions, with no single dimension generating a large independent effect. This pattern is

consistent with the theoretical rationale for treating 4P Maturity as a higher-order composite rather than reducing performance prediction to any single capability dimension.

The statistically significant formative weights associated with H1, H2, and H4 indicate that these dimensions contributed significantly to the higher-order 4P Maturity construct in the present sample. By contrast, H3 (Product Capability) was not statistically significant at the 5% level ($\beta = 0.116$, $p = .066$); as noted in Section 4.2, the achieved sample fell short of the minimum size estimated for detecting this weakest path, so the result should be interpreted as a non-significant, and at most marginal, finding rather than as evidence of an absent effect. The H5 relationship was statistically significant (4P Maturity → MSME Performance), with a β of 0.617 ($p < .001$). These findings provide preliminary evidence that is broadly consistent with the conceptual structure of the 4P Framework, but with significant measurement model drawbacks, as described in this chapter. Overall, the quantitative findings provide support for four of the five proposed hypotheses. People Maturity, Process Maturity, and Psychological Capability contributed significantly to 4P Maturity, while Product Capability did not demonstrate a statistically significant contribution. Furthermore, 4P Maturity was positively associated with MSME Performance. In Chapter Five, these findings are explored qualitatively in the context of the three embedded case studies, followed by an integrated discussion and implications in Chapter Six.

CHAPTER 5:

QUALITATIVE FINDINGS

5.1 Introduction

This convergent parallel mixed methods study includes a qualitative strand which is presented in Chapter 5. The purpose of the qualitative strand was not to test hypotheses independently but to explain, contextualise and elaborate upon the quantitative findings obtained through PLS-SEM. The findings have been based on three cases of MSMEs in India (Case A - Panth Infrastructure, Case B - Champcon Control and Case C - Vimson Derma) with whom the researcher worked for six months as a consulting partner from November 2023 to April 2024. The qualitative strand of the research serves the secondary, explanatory function that was given to it in the research design (Chapter 3): to clarify the mechanisms for the interactions among the four dimensions of the 4P in organisational practice, to provide contextual insight into the interpretation of the H3 finding, and to evaluate the practical value of the PULSE 4P™ Business Health Index as a consulting and diagnostic tool for organisations.

The remainder of this chapter is structured as follows. The process and analysis of qualitative data collection are briefly summarised in Section 5.2. The within-case analysis of each firm is organised around the three elements of the PULSE 4P™ baseline diagnostic: Sections 5.2, 5.3, and 5.4 contain the respective within-case analysis on each of the four themes inductively developed from the baseline diagnostic, the intervention outcomes, and within-case synthesis. The cross-case thematic synthesis is presented in Section 5.6. In Section 5.7, the qualitative results from Chapter 4 are combined with the quantitative results. A summary of this chapter is provided in Section 5.8. In line with the conventions of thematic analysis (as outlined by Braun

and Clarke (2021) and the embedded case study approach (as outlined by Yin (2018)), findings are presented analytically, and quotes from the interview transcriptions and field observations are used to back up analytical claims and present themes in relation to the 4P Framework. Where relevant, interview extracts throughout this chapter have been lightly edited to clarify meaning but not changed and translated from Hindi or Gujarati to English.

5.2 Qualitative Data Collection and Analysis: Overview

Three semi-structured interviews were held with the owner-manager of each firm at the start of the attachment (Time 1), at the halfway stage (T-mid), and on completion of the attachment (Time 2). One or two senior employees or a functional lead were interviewed at each firm to triangulate the owner-manager interviews. Fourteen interviews were conducted, resulting in approximately 10.6 hours of recorded and transcribed data. Observations were structured and were done over a period of 12-16 hours for each case, in 4-6 site visits. Financial data, sales funnels, compliance records, process checklists, customer communications, and HR documents were among the various types of business documents analysed, with each assigned a code to indicate the 4P dimension(s) it was relevant to.

The six-stage approach to thematic analysis, as outlined by Braun and Clarke (2021), was followed, starting with data familiarisation, coding, theme generation, review, definition, and write-up. All coded materials were managed using NVivo 14, and a detailed audit trail was maintained using dated memos and coding decision logs. At Times 1 and 2, the PULSE 4P™ Business Health Index was provided to each firm, resulting in diagnostic scores on a five-point scale for each dimension. These scores are presented as additional diagnostic information in

conjunction with the thematic results. A summary of the data sources and outputs of the analysis for the three cases is provided in Table 5.1.

Table 5.1**: **Qualitative Data Sources and Analytical Output by Case Study Firm

Data Source	**Panth Infrastructure**	**Champcon Control**	**Vimson Derma**	**Total**
Owner-manager interviews	3	3	3	9
Employee / staff interviews	2	2	1	5
Total interview duration (hrs)	3.8	3.5	3.3	10.6
Site observation visits	5	4	5	14
Total observation hours (hrs)	14	12	16	42
Business documents reviewed	12	18	15	45
NVivo codes generated	87	94	82	263
Themes identified (initial)	9	11	8	-
Final themes (per case)	4	4	4	12

5.3 Case A: Panth Infrastructure - Within-Case Analysis

5.3.1 Firm Context and PULSE 4P™ Baseline Diagnostic (Time 1)

Panth Infrastructure is a micro-enterprise involved in civil construction and infrastructure sub-contracting, mainly doing residential and light commercial work in a Tier 2 city in western India.

During the period of the consulting engagement, the company had 15-20 people working for it as either permanent administrative staff or contractual site labour. The firm had been around for about 11 years, and its founder-director had total autonomy over all aspects of its operations, including financial, human resources, and client management. A PULSE 4P™ Time 1 diagnostic revealed key areas of weakness in Process and People, and a relatively higher score on Psychological Capability, which was underpinned by the founder-director's entrepreneurial approach. The diagnostic results are presented in Table 5.2.

Table 5.2**: **PULSE 4P™ Diagnostic Scores: Panth Infrastructure

Dimension	**T1 Baseline**	**T2 post-intervention**	**Change**	**Movement (%)**
People Maturity	2.0/5	2.9/5	+0.9	+45% ↑
Process Maturity	1.7/5	3.1/5	+1.4	+82% ↑
Product Capability	2.8/5	2.9/5	+0.1	+4% ↑
Psychological Capability	3.1/5	3.4/5	+0.3	+10% ↑
Composite Score (avg)	2.4/5	3.1/5	+0.7	+29% ↑

Note. A five-point scale (1 = Very Low; 5 = High Maturity) rating was scored using the PULSE 4P™ Business Health Index. T1 = baseline, month 1; T2 = post-intervention, month 6. Composite is the mean (unweighted) of the four-dimensional scores.

The score of 1.7/5 in the Time 1 Process indicates almost no documentation of systems in operation. Work assignments were passed on verbally and via WhatsApp messages, financial recording was done manually, project costing was based on approximation, and regulatory compliance, such as GSTs, ESIC Registration, and labour laws, was done reactively. The People score of 2.0/5 was a result of the high turnover of contractual workers, no formal induction, and

no evaluation systems in place. The Product score of 2.8/5 indicated that while there was a service portfolio and project delivery history, there was no established client acquisition strategy, tender management system, or service differentiation. The Psychological Capability score of 3.1/5 indicated a sense of real growth aspiration and a conservative approach to risk management, along with a high aversion to delegating.

5.3.2 Theme 1: Centralised Authority as Structural Constraint and Systemic Risk

One of the most consistent features in all three interview rounds and field observations at Panth Infrastructure was the extent to which the founder-director's complete control over decision-making was the backbone of the firm's operations and the biggest strategic weakness of the firm. The owner/manager admitted this centralisation as follows:

> *" I created it this way: every purchase over ten thousand rupees, that comes to me, every dispute between the subcontractors comes to me, and even the choice of supplier for basic materials comes to me. But it means the whole company is mine."*

This pattern was easily discernible under field conditions. Many operational enquiries made by site supervisors, such as material substitutions and minor decisions on labour deployment, were repeated during site visits and passed on to the founder-director, thus disrupting the administration. Eleven to fourteen in-bound operational calls were recorded on average each morning during the observation sessions. The net result was an owner-manager's "decision bottleneck" that resulted in queries, which a competent site supervisor could have acted upon, being postponed, leading to delays in project delivery and limiting the firm's ability to work on multiple projects simultaneously.

The systemic risk aspect became apparent when a senior site engineer left the project midway. Tacit knowledge had been the engineer's - with respect to the supplier relationships, quantity norms for materials, and project documentation. The firm was not recording any systems, and there was no knowledge transfer process, resulting in a loss of three weeks of productivity on the project. The founder-director stated the things that the diagnostics had already brought up:

> *" When he left, I thought to myself, "OK, there's nothing on paper, nothing, nothing, nothing, it's all in his head, it's all in my head. If something happens to him, the company wouldn't know what to do next week."*

This theme is an obvious application of the 4P Framework for the People Maturity dimension. Firm outcomes in owner-managed businesses are likely to be influenced by the cognitive and behavioural characteristics of the principal decision-maker, as Upper Echelons Theory suggests (Hambrick, 2007). In this case, the founder-director's centralisation habit was a part of the Psychological Capability dimension, which restricted both People formalisation and Process stability. Inter-construct dependency, which is modelled in the higher-order formative specification of the 4P Framework, can be observed in organisational practice.

5.3.3 Theme 2: Process Informality as Operational Ceiling and Growth Barrier

The second main theme was the link between process informality and operational limitations. After 11 years of operating experience and proven project delivery, formalised operations systems ensured a limit on the size of projects the firm could deliver, the consistency of quality delivery, and competitiveness in the formal tendering process for government and institutional contracts. The founder-director expressed a view typical of project-based businesses that require a lot of manpower:

> *"In construction, speed is everything. If you stop writing a procedure, the site has already moved on. We learn by doing, not by reading papers."*

Field observations revealed that there was no consistency in the process of procurement of materials, quality control, and compliance with site safety standards across project sites under the same company due to the lack of SOP. Process Maturity was the focus of the consulting intervention during months one to three; a basic template for project documentation was developed; digitisation of financial records was done using the Vyapar accounting software; a GST compliance calendar was introduced; and a weekly site review protocol was implemented and required progress updates in writing from supervisors. The initial resistance from the founder-director, who believed that documentation would cause delays in operations, faded after just six weeks when he noticed that the number of inbound calls for operations dropped from 14 in the morning to approximately six per week after the weekly review protocol was implemented.

This is in tandem with Dynamic Capabilities Theory, which highlights the importance of process discipline in enabling companies to systematically sense, seize, and respond to the challenges they face (Teece, 2018). As illustrated in the Panth case, resistance to process formalisation can be overcome if the process is implemented gradually and relates to immediate operational benefits that can be seen by the owner-manager, which in turn can provide the momentum to implement formalisation across all four dimensions.

5.3.4 Theme 3: Psychological Readiness as the Gateway to Systemic Change

The third theme was that across all sources of data, the enabling condition for all other capability development activities was the pivotal role of the founder-director's psychological orientation. At

Time 1, he said that he was motivated to change, but also that he had a very definite fear that he had felt for 11 years. He explained that he had worked in an informal system and did not want to disrupt it:

> *" I want systems. I see other companies growing faster. I know systems will help - but I also know what I have and I don't want to destroy what works and try and build something new."*

Such ambivalence (growth aspiration versus risk avoidance) is typical of the cognitions of owner-managed MSME observed in the literature on Upper Echelons (Hambrick, 2007) and in the literature on entrepreneurial psychology (Fernet et al., 2016). Owing to the psychological role it played at Time 1, the PULSE 4P™ diagnostic was important because it provided a structured and visual reference point for discussing the firm's capability profile and development priorities. The founder-director spoke about this effect:

> *" When you see it on paper, the scores, what a growing firm looks like - that was different. It's one thing for somebody to say your process is weak, it's another for somebody to see it scored against what you want to be."*

Psychological change over the 6 months of involvement was slow but steady. At T-mid, the founder-director had already actively started to promote the documentation system to site supervisors and had started a basic framework of performance conversations for permanent administrative staff. However, this was not a specified part of the consultancy intervention. This self-driven capability building fits well with Social Exchange Theory, where leaders would exchange their personal support of the change program in return for seeing some tangible benefit to the organisation from structured investments (Cropanzano and Mitchell, 2005).

5.3.5 Theme 4: People-Process Interdependence in Labour-Intensive Contexts

The fourth theme found was the high level of structural dependency between the People and Process dimensions, where the dynamics of a contractual labour force have an impact. Panth's employees were mainly highly skilled, working on a contract basis for three to six months on a project and then moving on, destroying organisations' capabilities through the loss of tacit knowledge and working-relationship capital.

A vicious cycle emerged from field observations and interviews: if there were no records of how to work, the supervisor had to develop a relationship with a new group of contract employees with no documentation; this was inefficient, reinforcing the owner-manager's view that it was impractical to document working methods in construction; and the informality of the work meant that there was no institutional knowledge of the workforce to be built upon to reduce reliance on tacit knowledge. To break this cycle, two practices were introduced as part of the consulting intervention: a simple checklist to be followed by new workers when first coming on site and a project handover document to be completed by the outgoing supervisor upon completion of the project. At Time 2, the founder-director reported that they had handed over three projects in a row, and the productivity loss associated with handing over a project from one supervisor to another had been reduced. This finding is consistent with the literature that suggests an interdependence between HR systems and operational processes in the context of SMEs (Harney et al., 2022) and offers qualitative evidence for the high HTMT values found between the People and Process constructs in the Chapter 4 measurement model.

5.3.6 Six-Month Outcomes and Within-Case Summary

The biggest improvement was on the Time 2 diagnostic for Process Maturity (1.7 to 3.1) which was implemented through project documentation templates, financial digitisation, GST compliance scheduling, and weekly review protocol. People Maturity increased from 2.0 to 2.9 with the introduction of the induction checklist, handover document, and initial performance conversation framework for permanent staff. Psychological Capability has risen from 3.1 to 3.4, as the founder-director grew more comfortable delegating and initiated his own growth of the documentation programme. Product Capability was slightly changed (2.8 to 2.9), as the focus of the engagement was to work on process and people foundations, with the intention that product development would be taken as a priority in the second phase.

The Panth Infrastructure case illustrates qualitative evidence for three key Panth Infrastructure propositions from the 4P Framework. First, Psychological Capability (centralisation and risk aversion) was the most binding constraint to development in all dimensions. Second, the most powerful intervention point was Process Maturity, where process formalisation led to tangible process improvement, influencing the owner-manager's attitude towards systemic change in general. Third, the People-Process interdependence was especially high in this labour-intensive context, leading to a structural mechanism (contract labour cycle) which triggered and reinforced people capability constraints. These observations are broadly consistent with the quantitative findings, where People Maturity and Process Maturity exhibited statistically significant formative weights.

5.4 Case B: Champcon Control - Within-Case Analysis

5.4.1 Firm Context and PULSE 4P™ Baseline Diagnostic (Time 1)

Champcon Control is a small B2B trading company focusing on the distribution of industrial automation components such as P.L.C, sensors, relays, cables, and related accessories for manufacturing MSMEs and Engineering Companies in two Tier 1 industrial corridors. The firm had 12-15 people working in sales, logistics, and administrative roles and had been in operation for about eight years, expanding from two people to this size mainly because of the founder-director's own client base. The PULSE 4P™ baseline diagnostic revealed that Process and Product Capability are the priority development areas, with a relatively strong Psychological Capability profile which attests to the founder-director's explicit growth orientation. The diagnostic scores are presented in Table 5.3.

***Table 5.3**: PULSE 4P™ Diagnostic Scores: Champcon Control*

Dimension	**T1 Baseline**	**T2 Post-Intervention**	**Change**	**Movement (%)**
People Maturity	3.0/5	3.3/5	+0.3	+10% ↑
Process Maturity	2.3/5	3.8/5	+1.5	+65% ↑
Product Capability	3.3/5	4.0/5	+0.7	+21% ↑
Psychological Capability	3.4/5	3.7/5	+0.3	+9% ↑
Composite Score (avg)	3.0/5	3.7/5	+0.7	+23% ↑

Note. The scores were measured using the PULSE 4P™ diagnostic scale, which is a five-point rating scale. T1 = Baseline (Month 1); T2 = post-intervention (Month 6). Composite is the average of the four dimension scores (without weighting).

The score for the Process (2.3/5) indicates that sales management was only functioning at a level that was not suitable for the size of the firm. Lead tracking was based on personal conversations on WhatsApp, individual spreadsheets, and the founder-director's memory. No formalised lead qualification criterion, conversion tracking, pipeline visibility on the organizational level, or documented follow-up protocol. Customer Relationship Management was purely relationship-based and not based on any system to identify at-risk accounts or dormant leads. The Product score was 3.3/5 because it showed that the company had a presence in the market (established supplier relationships, solid product portfolio) but did not recognise content-based engagement (market positioning and content) or a presence online beyond a website. The company's main strength was its price, which was becoming a problem with the growing number of large distributors and online B2B websites.

5.4.2 Theme 1: Process Discipline as the Foundation of Scalable Sales

The key theme in the Champcon case was formalising the process and scaling up the sales. Before the intervention, the firm's sales were over-concentrated on the founder-director's personal sales relationship and relied on his memory for the pipeline–a system that was good in the 3-4 salesperson days, but structurally inadequate in a 12-person team:

> *" Sales were going on in my head, every client that I had in my head, every conversation that I could remember, but I couldn't have half a dozen different salespeople and be the pipeline system, things were falling through."*

The key process intervention was the implementation of Zoho CRM which was set up to handle the lead lifecycle from the enquiry stage to the qualified stage, proposal, negotiation, and conversion. The first month was about the sales team's resistance, as they thought of the CRM as

an added administrative burden; the second month was about the founder-director's directive to use the CRM; and the third month was the turning point–this is what the founder-director called transformative:

> *" In the third month I realized they were going out and following up, without me having to call them to remind them; the CRM was reminding them, and it was a completely different company than three months ago."*

This was confirmed in the field during months 4 and 5. The sales review meeting was changed from a sales owner who would report to the group to a formal pipeline review using the Zoho CRM dashboard, where members of the sales team would list the major problems they found in the pipeline and recommend solutions to address the same. The systematic conversion of leads to confirmed orders resulted in a measurable improvement in the conversion rate of the sales funnel. The number of qualified leads converted to confirmed orders rose from approximately 22 percent at Time 1 to 34 percent at Time 2, driven largely by the systematic lead conversion process rather than changes in product offering or pricing. This is in line with Dynamic Capabilities Theory, in which the adoption of technologies contributes to a decrease in reliance on individual tacit knowledge (Teece, 2018), and the general findings regarding technology adoption and its impact on MSME operational efficiency (Hendrawan et al., 2024; Loo et al., 2023).

5.4.3 Theme 2: Digital Repositioning - From Price Competitor to Technical Authority

The second major theme was the firm's move from being price-oriented to expertise-oriented. Product intervention designed a content-based repositioning strategy, based on a Linkedin company page that featured technical education content - application guides, product

comparisons, troubleshooting case studies - as well as a WhatsApp Business catalogue with the product range, technical education content, and guidance on applications. The objective was to change the firm's position in the market from a 'supplier of automation parts' to a 'technical partner for automation decisions'. The founder-director's first reaction was sceptical:

> *"My customers buy on my price and availability; they do not read articles on LinkedIn; they call me when they need something. Why bother to work on content?"*

The scepticism was swept away in month 4 when the company got three inbound leads from interested parties mentioning Champcon Control in its LinkedIn content - a channel that had been producing no leads before. One enquiry was from a purchasing manager at a medium-sized manufacturing company who stated that they had read a published guide to choosing automation components, and that was why they had contacted us:

> *"When they call us because they read something that we wrote, that's a customer - because they already trusted us. The conversation is not about price; it is about solving their problem."*

The anecdote also provides an example of a mechanism the 4P Framework calls out, but that is not captured in the survey data, namely: Product Capability (digital positioning, content differentiation) and Process Maturity (lead management through CRM) leading to compounding gains. The repositioning would have generated interest without any conversion if it did not have the CRM to capture and convert LinkedIn-generated enquiries. However, if it were not for the repositioning, the CRM would have been left with a lead pipeline of price-sensitive leads with low conversion leverage. The two dimensions were developed in parallel, and what they showed

was that the gains that each of the two dimensions delivered was something that neither would have achieved alone, which is consistent with the conceptual logic underlying the proposed 4P Framework. This observation also provides qualitative evidence that the contribution of Product Capability in this case was significant but dependent on process-enabling infrastructure, which cannot be captured in cross-sectional survey data; instead, it forms a boundary condition.

5.4.4 Theme 3: Psychological Enablement as Multiplier on All Other Interventions

The third theme that differentiates the Champcon case from Panth Infrastructure is that Psychological Capability is an enabler and not a constraint. While Panth's founder-director was a risk-averse, centralisation-prone entrepreneur who was not ready for systemic change, Champcon's founder-director was clearly growth-oriented, tolerated operational experimentation, and was ready to invest in uncertainty:

> *"I always wanted to grow, but I did not know how to grow differently, I saw the old way of growth - more salesmen, more calls, more clients; what I did not see was the old way of doing things, the system and positioning had to change first."*

Upper Echelons literature considers such growth aspirations and strategic openness as a high-adaptability executive profile (Hambrick, 2007; Carpenter et al., 2004). The founder-directors' Psychological Capability - their willingness to champion the CRM, overcome team resistance, and personally champion the LinkedIn content programme - acted as a multiplier on the impact of the process and product interventions: the interventions were more likely to result in gains if it was the founder-director willing to champion the CRM, override the team resistance, and personally lead the LinkedIn content programme. He was seen actively personally involved in both initiatives at field observations during both T-mid and T2. This behaviour can be explained

by the Social Exchange reciprocity mechanism: leaders who see tangible returns on their investment in capability development are more likely to continue investing, creating a self-reinforcing developmental cycle (Cropanzano and Mitchell, 2005).

5.4.5 Theme 4: Product-Process Synergy and the Conditionality of Product Capability

The fourth theme is the most analytically rich and deals with the relationship between Process Maturity and Product Capability in B2B industrial trading and how these two aspects are strongly synergistic. The Champcon case shows that the separation of the two dimensions would not have yielded the Time 2 results in this case. The correct mechanism (process discipline in lead management, CRM, and conversion protocols) ensured optimal conversion from a higher exposure in the product market (LinkedIn repositioning, WhatsApp catalogue) into revenue. Systematic CRM follow-up worked well on technically engaged enquiries that grew from repositioning efforts, achieving much higher conversion rates than commodity-oriented leads. The improvements in the product and process were not independent features but worked as a reinforcing loop.

This finding is consistent with the resource complementarity argument of the Resource-Based View, which argues that strategic capabilities have their most important performance impact when deployed in mutually reinforcing strategies (Barney, 1991; Lockett, Thompson, and Morgenstern, 2009). The most direct qualitative evidence for the moderation of the weight of product capability on 4P Maturity by process maturity and the consequent reduction in the independent, formative weight in the case of Champcon is meaningful moderation.

5.4.6 Six-Month Outcomes and Within-Case Summary

By Time 2, the firm's conversion rate had risen from 22% to 34%, three new clients were on-boarded, and measurable professional credibility on LinkedIn was gained (following had reached 840 followers) in the automation space. According to the founder-director, a qualitative change in customer relations occurred: instead of calling for parts at certain prices, some customers started calling for technical advice on how to design a system, which is valuable from a business point of view and not easily replicable by price-based players. People Maturity saw a slight increase (3.0 → 3.3) as the performance data from the CRM formed a baseline for what had been an informal performance conversation. This indirect route - from process formalisation to people practice improvement - is another example of the cross-dimensional interdependencies the 4P Framework teaches.

The Champcon case provides rich qualitative insight into process–product interdependence and the multiplier effects of Psychological Capability on all other dimensions. It also provides contextual insight relevant to the interpretation of H3, that product capability is substantively important but only becomes a performance difference when process enabling conditions are present, which explains the non-significant statistical result without a theoretical dismissal of the dimension.

5.5 Case C: Vimson Derma - Within-Case Analysis

5.5.1 Firm Context and PULSE 4P™ Baseline Diagnostic (Time 1)

Vimson Derma is a small, third-party skincare, haircare and medicated personal care contract manufacturer that has a manufacturing plant, quality control lab, procurement and logistics in a

single Tier 2 city with fifteen to twenty-five employees. The firm had the necessary Drugs and Cosmetics Act approvals and GMP certifications as per the contract manufacturing model. The PULSE 4P™ baseline diagnostic revealed that Product Capability and Psychological Capability were the two main areas that needed to be developed, while Process Maturity was a relative strength, which was attributed to manufacturing discipline and compliance with regulations. The results of the diagnosis are presented in Table 5.4.

Table 5.4**: **PULSE 4P™ Diagnostic Scores: Vimson Derma

Dimension	**T1 Baseline**	**T2 Post-Intervention**	**Change**	**Movement (%)**
People Maturity	2.7/5	3.0/5	+0.3	+11% ↑
Process Maturity	3.1/5	3.6/5	+0.5	+16% ↑
Product Capability	2.1/5	3.1/5	+1.0	+48% ↑
Psychological Capability	2.4/5	3.1/5	+0.7	+29% ↑
Composite Score (avg)	2.6/5	3.2/5	+0.6	+23% ↑

Note. The scores are measured using a PULSE 4P™ diagnostic scale, which is a five-point rating scale. T1 = baseline (month 1), T2 = post-intervention (month 6). Composite is the average of the four-dimension scores (without weighting).

The Product score was 2.1/5, which was very underdeveloped for the level of manufacturing capability. About 73% of the yearly revenue came from one long-term customer-a mid-sized personal care brand which has been the main client since the second year of operation. The company didn't have any online presence other than a product catalogue on WhatsApp, had never participated in a trade event and had no formal structure to acquire its customers, and hadn't obtained another major client in the last 4 years. The Psychological Capability score

(2.4/5) indicated that there was a moderate to severe degree of risk avoidance, preference for the security of the existing business model over the uncertainty of market development, and limited strategic thinking beyond existing business model.

5.5.2 Theme 1: Revenue Concentration as Systemic Vulnerability

The most analytically significant theme at Vimson Derma was that the founder-director was intellectually aware of the systemic strategic risk of having 73% of its revenues concentrated but had not taken any action to deal with it. This concentration was never quantified and presented to the viewer in a visual manner, until the PULSE 4P™ diagnostic.

> *"You showed me the number - seventy-three percent from one client - and I didn't believe it to begin with; I knew it was high but seeing it as a specific percentage, on paper, as part of a business health report, that stuck with me for days."*

The impact of this focus was felt throughout the four 4P dimensions. On the people side, the workforce had been tailored to meet the primary client's needs, both in terms of quality and volume, with not much scope for alternative client's different quality and time requirements. In the Process dimension, procurement and inventory management were aligned with the order demand from the main client; there were no mechanisms to deal with the variability of orders from the other clients. The company had not invested in positioning or branding in the Product dimension due to no need for the company to acquire customers. In Psychological dimension, the focus had been on rationalising the concentration as a source of stability and not as a source of fragility. The concentration had in effect created atrophy of the organisation on several dimensions, which the manufacturing capability had hidden.

5.5.3 Theme 2: Risk Aversion as the Primary Inhibitor of Product Capability Development

The second theme relates to the owner-manager's risk-adverse nature being the key mechanism involved in maintaining the product capability gap. Vimson is one of the best examples of the direct impact that top decision makers' cognitive dispositions have on firm strategy as posited by Upper Echelons Theory (Hambrick, 2007). The reasoning behind the founder-director's decision not to go out and develop the market was consistent with himself:

> *"My plant capacity is full, my quality is good, my primary client pays on time - "new client, new negotiations, new payment terms, new quality standards, new relationships to manage". Why would I want to deal with the hassles and risk of new clients?"*

This perspective is indicative of a low-risk tolerance, exploitation-exploiter, cognitive frame (Hambrick, 2007; Stephan et al., 2015). In the Resource-Based View, this is marked by under-utilisation of the firm's capability base: Although Vimson had the manufacturing plant, regulatory clearance, quality systems and production experience to serve more than one customer at the same time, the gap in Psychological Capability was not able to influence the strategic decision to do so. This dimension was tackled by the consulting intervention in three ways. First, the PULSE 4P™ diagnostic was able to measure the concentration risk and the founder-director agreed that it was measured based on the framework as opposed to an advisory opinion. Second, the researcher proposed a minimum diversification target but in the form of risk reduction and not as a growth goal - less than 60 percent concentration in 12 months achieved through an additional two clients. This reframing was strategically significant:

> *"Well, I didn't go out there and say, "Twenty new clients, I can do that." I went out there and said, "I'm looking for two new clients because I can handle that, and I can commit to that."*

Third, the researcher initiated the founder-director's first industry networking experience at a low-cost, personal care manufacturing trade exhibition called CosmoTech Expo. This intentional experiential exposure was created to develop confidence in client acquisition settings without engaging the risk aversion threshold.

5.5.4 Theme 3: Manufacturing Excellence Without Market Development - A Capability Imbalance

The third theme pinpoints the co-existence of high Process Maturity and very low Product Capability, which was not found in either of the other two cases, but offers good evidence for the 4P Framework's hypothesis that multi-dimensional capability is the right measure of performance, not single dimensional strength. By sector standards, the manufacturing processes at Vimson were relatively well developed: batch manufacturing records had been documented and a quality control system developed which meets GMP standards, a raw material testing system was in place and production scheduling systems were adequate for the current volume. It achieved a score of 3.1/5 in its Process. However, this ability to manufacture had not matched the revenue growth, market position or firm resilience - due to the lack of Product Capability (2.1/5), the manufacturing capability was not able to be commercialised beyond this single established client.

This imbalance is consistent with the theoretical proposition that MSME performance may be better understood through an 4P Maturity (higher-order formative construct) perspective than

through any single capability dimension in isolation, and not any single dimension. A firm that scores high on Process and low on the other three is expected to perform worse, according to the 4P Framework, than a firm that scores low, but has more balanced capabilities. This is corroborated by the manufacturing excellence that had not resulted in revenue diversification, strategic resilience or growth trajectory, as predicted by Vimson Derma. This discovery also applies to the H3 interpretation that is applicable in practice: infrastructure of the processes and psychological readiness of the people involved in the 4Ps Maturity of the product are needed for Product Capability to contribute to the 4Ps Maturity in practice, which was not present at Vimson before the intervention.

5.5.5 Theme 4: Incremental Psychological Reorientation as Catalyst for Diversification

The fourth and most positive and realistic theme was the slow yet real psychological turnaround of the founder-director during the 6-month period, and what this meant for the firm's trajectory. The change of mentality was gradual and logical, based on the owner-manager's personality traits of cautiousness. The first change was after the PULSE 4P™ diagnostic and risk quantification process. The second shift was in relation to the reframing of the diversification target. The third - and most practically important - shift was the behavioural shift that came when he attended CosmoTech Expo and made three new contacts in the industry and got two preliminary conversations underway on possible contract manufacturing arrangements. This experiential confidence gain was one he could not have garnered from any amount of advisory discussion. The founder-director at Time 2 had turned one of the Expo's contacts into a pilot manufacturing order - cutting the primary client's revenue cut from seventy-three percent down to around sixty-five percent. He also belonged to a local association of MSME business owners. He was very different at Time 2 psychologically:

> *"At first I told you that I didn't need any new clients; then I got one new one, I'm talking to another one, I know how to get another. The fear isn't gone but it's smaller."*

This is very much along the lines of the entrepreneurial resiliency literature which stress that the psychological capability of MSME owner-managers is not an innate trait but rather a learned or context-related disposition which is shaped as a result of structured experience and external feedback (Farrington, 2017; Prayudi et al., 2023). In this case, it is shown that Psychological Capability as modelled in the 4P Framework is accessible for deliberate development with the help of consulting intervention (a practical basis for the policy implications that are developed in Chapter 6).

5.5.6 Six-Month Outcomes and Within-Case Summary

The greatest Time 2 results at Vimson Derma were in the Process and Product dimensions. Process Maturity rose from 3.1 to 3.6 due to the implementation of an inventory management protocol (Tally ERP module) that can be used by multiple clients, a raw material safety stock solution that can handle variable demand across multiple clients, and a simple quotation and order workflow. These investments diminished one of the founder director's operational barriers to new business that he had claimed. The biggest proportional increase was seen with Product Capability, where the new client acquisition for the client base, attending Expo, the redesign of the WhatsApp Business catalogue, with professional product imagery and specification sheets, and the introduction of a structured client prospecting pipeline, all contributed. Psychological Capability improved the most of any case (2.4 to 3.1) because of a combination of diagnostic shock, risk-reduction reframing, and experiential confidence building.

The Vimson Derma case provides particularly rich qualitative insight into two propositions of the 4P Framework. First, single dimension strength (Process Maturity) is not sufficient to offset gaps in multi-dimensional capability - indicating that 4P Maturity as an integrated composite is the right measure of performance. Second, risk aversion of the owner-manager was the limiting constraint for all capability development - manufacturing capacity, process systems and workforce - it was the owner-manager's willingness to commercialise that was lacking. This discovery places Psychological Capability in the category of co-equal formative dimension, and it has the potential to be a meta-capability, which is explored directly in the cross-case synthesis.

Two other MSME consulting engagements were examined to determine if any of the capability patterns found in the three main case studies were present outside of the embedded cases using diagnostic data from PULSE 4P™ and observations of implementation. Kelvin Lighting is a business in the architectural & decorative lighting field and was at high dependency on its founders, process was immature and had little structure at the start of the engagement. Low scores were observed for the Process Maturity (26.7/100), People Maturity (35.0/100) and a high Owner Dependency Index (75%). Hence, the intervention was mainly targeted at process systemisation, delegation structures, KPI tracking, formalisation of the workflow and sales system development. It was found that there was a correlation between Process Maturity and the effectiveness of the organisation similar to that of Panth Infrastructure, where organisational effectiveness was observed after the systems and reporting structure were operational. This indicated that perhaps Process Maturity could serve as enabling capability to enable other dimensions of the organisation to develop.

Another company called PORClean India, an oral healthcare and hygiene company, showcased a different capability profile. The business had some sales capabilities and high People Maturity

(65.0/100), but did not have any reporting system in place, KPI visibility, workflow discipline or operational coordination mechanisms. The intervention was targeted to the development of a system of procedures, KPIs, systems of accountability, reporting and cross functional coordination. As with the experience of Champcon and Vimson Derma, the capability development was sometimes facilitated by enabling infrastructure for processes as this added to the visibility and discipline of operations.

While these supplementary cases were not analysed as full embedded case studies, they do offer further practitioner-level evidence that broadly confirms the patterns found across the primary qualitative sample – in particular the significance of Process Maturity and the dangers of founder dependency – and provide additional depth to the findings.

5.6 Cross-Case Thematic Synthesis

After the within-case analyses, a cross-case analysis was carried out, which was based on a structured thematic synthesis, and aimed at uncovering patterns that cross the boundaries of the individual firms. The comparative analysis has resulted in four cross-case themes. The thematic comparison is provided in Table 5.5.

Table 5.5**: **Cross-Case Thematic Comparison Matrix

Cross-Case Theme	**Panth Infrastructure**	**Champcon Control**	**Vimson Derma**
Psychology as Meta-Capability	Owner centralisation constrained all dimensions; psychological	Growth orientation unlocked CRM adoption; psychological	Risk aversion was primary barrier to product development; incremental

	readiness was the gateway to process and people reform	enablement preceded all operational gains	reorientation enabled new client acquisition
Process-Product Interdependence	Weak processes constrained service quality and differentiation; process reform was precondition for other gains	CRM formalisation directly enabled market repositioning; process discipline in lead management captured product gains	Manufacturing strength did not translate to market performance; process improvements (inventory, logistics) enabled new client onboarding
People as Necessary Foundation	Labour turnover degraded continuity; basic HR formalisation stabilised workforce and reduced bottlenecks	Team capability enabled scaled sales without owner dependency; people adequacy enabled CRM adoption	Stable workforce supported quality; limited HR did not impede manufacturing but constrained delegation and knowledge sharing
Non-Linear Capability Development	Process investment unlocked People and Psychology gains; capability development was sequential not parallel	Process and Product co-evolved in a reinforcing feedback loop; gains in one amplified gain in the other	Psychology was the binding constraint; without reorientation, process and product investments would have been resisted

Note. Themes were determined in NVivo 14 through iterative comparison of within-case thematic summaries, as part of the cross-case analysis. The entries to each evidence column are a summary of the main supporting mechanisms identified in each case.

5.6.1 Cross-Case Theme 1: Psychological Capability as the Meta-Capability of the 4P Framework

In all three cases, the owner-manager's Psychological Capability (his/her risk orientation, openness to change, and tolerance for strategic uncertainty) was the main enabler or the main constraint for the other three dimensions of capability in each. It was most evident at Vimson Derma (where risk aversion was the limiting factor when considering product diversification), clearly visible as a negative at a Panth Infrastructure (where centralisation habits were limiting when considering process and people development), and present as a positive enabling factor at Champcon Control (where growth orientation was amplifying the impact of all interventions).

The cross-case evidence suggests that Psychological Capability may function as a prerequisite for the effective development of the other three dimensions in resource-constrained owner-managed MSMEs. The qualitative evidence indicates that the influence of Psychology on 4P Maturity cannot be fully described with a first-order formative weight, as it is likely to be an interactive, cross-dimensional influence of Psychology on People, Process, and Product development, which may help contextualise the statistically significant formative weight observed in the quantitative analysis ($\beta = 0.216$). This discovery has implications for the theoretical development of the 4P Framework in the future and for designing capability development interventions as described in Chapter 6. This interpretation was also indirectly supported by the supplementary cases. Founder dependency proved to be one of the most

important organisational constraints at Kelvin Lighting, where there were opportunities for commercial growth even as other issues involved, and in PORClean India, it was clear that process and accountability changes were most effective when the leadership was willing to adopt structured performance management systems. This finding supports the idea that OMA and behavioural orientation can impact the success of capability development efforts in a variety of organisational domains.

5.6.2 Cross-Case Theme 2: Process-Product Interdependence as a Consistent Structural Pattern

Process Maturity and Product Capability were found to be interdependent in all three cases, but the way and how they are interdependent were different. Weak processes at Panth capped service quality and differentiation and restricted the firm's ability to position itself for product markets. Champcon has direct access to the commercialisation of product repositioning investments (LinkedIn content, technical expertise) thanks to process formalisation (CRM). The high level of process maturity in Vimson’s manufacturing did not correspond to product market maturity; additional investments in the process (inventory and logistics) were needed prerequisites for obtaining new clients.

The overall pattern across cases implies that Process and Product capabilities can be viewed as interdependent enablers and formative conditions for one another to mature and are not formative. The qualitative findings provide additional context for interpreting the quantitative results to explain the fact that the model explains 38.1% of the variance in MSME Performance, although the effect sizes of the individual dimensions are small ($f^2 = 0.010$-0.046) - the combination of the dimensions is what has predictive power, not the power of the dimensions

when considered individually. It also gives the largest qualitative elaboration of the conditions of H3: Product Capability / 4P Maturity relationship, namely process enabling infrastructure (PEI), which is evident in all three cases and may help explain the non-significant independent formative weight observed in the quantitative model.

5.6.3 Cross-Case Theme 3: People Maturity as Necessary Foundation, Insufficient Enabler

The dimension that had the most consistent evidence of being a necessary but not sufficient driver of performance was People Maturity. Inadequate HR practices at Panth were responsible for the fragility of the operation, which restricted the process capability. At Champcon, the key to adoption of CRM was a proper people practice, but it was process and product investment that led to performance improvements. The stable workforce in Vimson was a great asset but was not mobilised commercially because of product and psychological capability. The pattern indicates that People Maturity appears to function as a prerequisite if a company has a critical weakness in one or more of the other factors, it will not be possible to develop other factors without yielding a higher level of People Maturity. But once the minimum level is reached, further investment in People without any corresponding growth in process and product provides declining returns. This subtlety can be put into practice: acting on People Maturity alone is likely to have minimal impact if another dimension is not acted upon simultaneously.

5.6.4 Cross-Case Theme 4: The Non-Linear, Interdependent Nature of Capability Development

The fourth cross-case theme is a synthesis of the three previous themes: MSME capability development is non-linear, interdependent and path dependent. In no case have all four dimensions progressed at the same rate or as a result of the same investment. Rather, planned

activity in one dimension had a ripple effect in other dimensions, sometimes beneficial (process investment, lessening the pressure on centralisation at Panth) and sometimes adverse (Implementation of CRM providing an objective basis for people performance conversations at Champcon). Although the meaning of the cases is that the binding constraint is the one most limiting the capability gains in the other dimensions, and that the development of this dimension is the first to be addressed, and then the improvement of this dimension is used to unlock capability gains in the others, this binding constraint logic is not modelled in the current formative HOC specification of the 4P Framework, which assigns equal structural weight to all the dimension's contributions. The qualitative evidence collectively supports the development of a binding-constraint diagnostic methodology as a practical complement to the framework's diagnostic application.

5.7 Integration of Qualitative Findings with Quantitative Results

While qualitative evidence highlighted the practical relevance of Product Capability, the quantitative findings did not provide sufficient statistical support for H3. This divergence suggests that Product Capability may influence MSME performance through indirect, context-dependent, or interaction-based mechanisms that were not fully captured in the present model.

Table 5.6 is a tabulated mapping of the quantitative hypotheses and the qualitative evidence, showing where the two sets of evidence converge, complement, and diverge (qualified).

***Table 5.6**: Integration of Quantitative and Qualitative Findings by Hypothesis*

H	Path	Quantitative Result	Qualitative Evidence	Integrated Interpretation

H1	People Maturity → 4P Maturity	β=0.196, p=.001 Quantitative evidence consistent with H1	HR formalisation and leadership generated workforce stability; People gaps created operational fragility at Panth	Supported: People Maturity contributes significantly to 4P Maturity; mechanism operates through organisational commitment and retention
H2	Process Maturity → 4P Maturity	β=0.218, p<.001 Quantitative evidence consistent with H2	Process formalisation was the most impactful intervention across all three cases; gains cross-dimensionally enabled People and Psychology development	Strongly supported: Process Maturity is the leading formative contributor; qualitative evidence reveals its enabling role for all other dimensions
H3	Product Capability → 4P Maturity	β=0.116, p=.066 Qualitative findings suggest possible	Champcon and Vimson demonstrated substantial product-driven gains	Conditionally supported: Product Capability is theoretically and practically important but conditionally

		boundary conditions for interpreting H3	but only when process enabling conditions were in place	dependent on process enablement; boundary condition, not null relationship
H4	Psychological Cap. → 4P Maturity	β=0.216, p<.001 Quantitative and qualitative findings jointly suggest an expanded interpretation of H4	Owner-manager orientation was the primary enabler or constraint in all three cases; Psychology's influence was mediated through all other dimensions	Supported and extended: Psychology operates as meta-capability; its effect on 4P Maturity is substantially larger than the formative weight alone captures
H5	4P Maturity → MSME Performance	β=0.617, p<.001 Quantitative findings indicate a statistically significant association between 4P Maturity and MSME	All three cases showed performance gains (revenue, conversion, compliance) following integrated 4P development	Strongly supported: Composite capability-performance path confirmed quantitatively; mechanism evidence from all three cases provides qualitative corroboration

		Performance, while the qualitative cases provide contextual insight into how this relationship may operate in practice.		

Note: Bootstrapping results of quantitative analysis from SmartPLS 4 (Chapter 4, Table 4.8). The findings of the case studies are summarised in qualitative evidence that relates to the paths. Integrated interpretation is the result of the analytical decision made from both strands.

There are three analytical important integration points. First, the qualitative evidence allows the significant H2 result to be explained at the level of the process: the three cases show that process formalisation leads to 4P Maturity (higher-order formative construct) gains in all dimensions that make up the composite maturity measured by the survey. Second, the contribution of case evidence to the interpretation of H3 is the most substantial: The Champcon case and the Vimson case can both be used to argue that product capability is a conditionally effective dimension of product quality-it is substantively important but requires process and psychological enabling factors. The qualitative findings suggest that the non-significant H3 result may reflect contextual boundary conditions rather than an absence of theoretical relevance. Third, the qualitative evidence raises the profile of the cross-dimensional moderating role of Psychological Capability

on 4P Maturity, to the extent that it also influences all other 4P dimensions, beyond the formative weight of the relationship ($\beta = 0.216$).

5.8 Chapter Summary

The analysis of semi-structured interview data, structured field observations and PULSE 4P™ diagnostic profile data across the three embedded case studies of Indian MSMEs has been presented in a qualitative manner. Four themes within each firm and four cross-case themes were uncovered by analysis. The most analytically important observation is that Psychological Capability appeared to play an enabling role in the development of the other capability dimensions across the three cases, which is a precondition to the effective development of the other three in owner-managed MSMEs operating in resource constrained environment. This is not only because of the estimated formative weight in the structural model of H4 but also indicates that the theoretical structure of the framework 4P might be improved by explicitly modelling the role of Psychology as an enabling dimension.

The interpretation of the quantitative result is significant since it is interpreted as a boundary condition, but not a null theoretical relationship, in the light of the non-significant result, which is explained by the Process-Product interdependence theme of the interpretation of H3. However, it is clear from the People Maturity findings that HR practices do not work from a minimum level upwards alone but act as a supporting enabler. The non-linearity theme combines these results to create a practical implication: binding-constraint-led versus dimensionally balanced effective MSME capability development. Chapter 6 brings together the qualitative results with the quantitative data in the theoretical framework, presents theoretical and practical contributions of the study and concludes the study's results and implications.

CHAPTER 6:

DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

6.1 Introduction

Chapter 6 is a synthesis of the findings of this study (quantitative and qualitative) under the theoretical framework, and the conclusions, contributions and implications that the study develops as answers to the five research questions and five formal hypotheses. The study is summarised in Section 6.2. Each hypothesis finding is discussed regarding the existing literature in section 6.2. Section 6.4 offers a combination of the two types of evidence from research in an integrated interpretation. The theoretical contributions are discussed in Section 6.5. The practical implications for three stakeholder groups, namely MSME owner-managers, business consultants and policy makers are discussed in section 6.5 with a specific focus on the Indian context. In Section 6.7, the practical value of the PULSE 4P™ Business Health Index is considered. Section 6.8 identifies limitations. Future research directions are suggested in section 6.8. The overall conclusion is included in Section 6.10.

6.2 Summary of the Study

This study focused on an important structural deficiency in the MSME research literature, that an integrated model, which simultaneously captures the influence of human resource practices, operational processes, product capability and entrepreneurial psychology within a single empirically examinable framework, is yet to be developed. Given the disjointed nature of the literature, which has focussed on each of these dimensions separately and without modelling their interdependencies, the study introduced the 4P Framework as a higher-order formative construct that is comprised by the four dimensions of People Maturity, Process Maturity, Product

Capability, and Psychological Capability which jointly constitute 4P Maturity, which the study hypothesized would be predictive of MSME Performance.

A convergent parallel mixed methods design was used for the study. The primary quantitative strand examined five formal hypotheses with PLS-SEM with a sample of 336 MSME owner-managers in five states over three sectors in India. The secondary qualitative strand covered three embedded case studies, Panth Infrastructure, Champcon Control and Vimson Derma, over a six-month period of consulting with a combination of semi-structured interviews, field observations and the PULSE 4P™ Business Health Index diagnostic. The quantitative findings provided preliminary and partial empirical support for aspects of the proposed framework with three of four formative indicator hypotheses supported (H1, H2, H4) and the predictive path from 4P Maturity to MSME Performance was shown to be highly supported (H5). Product Capability (H3) was not significant at 5%, although this result was considered in the context of the sample size appropriateness constraints and qualitative evidence of boundary conditions. The qualitative strand was used to provide mechanism-level evidence to explain, contextualise and deepen interpretation of the quantitative findings.

6.3 Discussion of Findings

6.3.1 H1: People Maturity → 4P Maturity (β = 0.196, p = .001)

The statistically significant formative weight associated with H1 is broadly consistent with prior literature (Harney et al., 2022; Chandler and McEvoy, 2000; Sampe, 2023). The theoretical underpinning (Social Exchange Theory and Human Capital Theory) that structured HR investment structured HR investment is theorised to enhance employee engagement and the present findings are consistent with this proposition. This interpretation is consistent with the

perceived organisational support perspective, that is that supportive organisational practices are reciprocated with greater commitment and improved work behaviour by employees (Eisenberger et al., 1986).

The relatively low path coefficient (β = 0.196) compared to the other two variables (Process Maturity and Psychological Capability) indicated that, in this sample, HR formalisation appears to contribute to 4P Maturity (higher-order formative construct), although its formative weight was smaller than Process Maturity and Psychological Capability in the present sample. The findings are in line with the study conducted by Katyal and Xaviour (2015), and Maiti and Mitra (2020) which explains that HR practices in MSMEs are mostly informal and hence HR improvement alone does not contribute to the quick improvement in performance without the simultaneous operational and psychological development. This is supported by the Panth Infrastructure case study: In most cases, the operational impacts of People Maturity improvements have been seen when combined with process formalisation, which, although not captured in the cross-dimensional statistical coefficient, is expressed structurally in the formative HOC specification.

6.3.2 H2: Process Maturity → 4P Maturity (β = 0.218, p < .001)

Process Maturity exhibited the largest formative weight among the four dimensions constituting 4P Maturity which aligns with Dynamic Capabilities Theory's assertion that the ability to integrate, build and reconfigure operational resources is critical to enable a firm to sustain competitive advantage (Teece, 2018). The importance and impact of the relationship are supported by empirical evidence on process discipline's role in MSME performance enhancement that is presented by Patil et al., (2021), Hendrawan et al. (2024) and Loo et al.

(2023), which shows how standardisation of processes contributes to efficiency and quality improvement, and how technology adoption contributes to the operational capability of MSMEs. Previous studies of Indian MSMEs also showed that combined management standards enhance process consistency, documentation quality, and coordination among the various functions of the business operations (Khanna et al., 2009).

The cross-case qualitative evidence offers the explanation on the mechanism level. Process enhancements at Panth, Champcon and Vimson brought in other benefits too: it lowered pressure on owner-managers at Panth, allowed for the sales scale at Champcon, and offered operational infrastructure for new client onboarding at Vimson. The qualitative evidence suggests that Process Maturity may facilitate capability development across other dimensions.

6.3.3 H3: Product Capability → 4P Maturity (β = 0.116, p = .066)

This non-significant finding of H3 is the most complex finding of this study, and should be analysed analytically, where quantitative and qualitative evidence should be integrated. The non-significance could seem to imply that capabilities related to the product make a small contribution to the MSME capability maturity. There is some qualitative evidence against this interpretation for two reasons.

The Champcon and Vimson cases are examples of the results of product capability development, which resulted in among the greatest performance improvements seen in the consulting engagements. These gains, however, would only be realized if the process enabling conditions were adequate: If CRM was not in place at Champcon, then product repositioning would have had no impact on sales; if inventory wasn't improved at Vimson, new client onboarding would have caused operational issues instead of sales. This may be a boundary condition, meaning that

the non-significance of H3 is simply because minimum process enablement is required to enable Product Capability to contribute to 4P Maturity, rather than because there is no relationship.

Second, the post-hoc power analysis reported in Chapter 4 indicated that detecting the weakest path in the model (Product Capability → 4P Maturity) would require an estimated minimum of 461 respondents, whereas the achieved sample was 336. The study may therefore have been statistically underpowered for this path, and the marginal p-value of .066 must not be interpreted as support for H3. The honest conclusion is that the hypothesised contribution of Product Capability was not statistically supported at the 5% level in the present sample. Possible explanations include the sample-size limitation, the measurement weaknesses documented in Chapter 4, and contextual factors: the qualitative evidence suggests that product-related gains materialised only where a minimum level of process infrastructure was already in place. Product Capability may therefore remain theoretically meaningful as a formative dimension of 4P Maturity, but this remains a proposition for future research with larger samples and a purified instrument, rather than a finding of the present study (Deligianni and Voudouris, 2014; Okoli et al., 2024).

6.3.4 H4: Psychological Capability → 4P Maturity (β = 0.216, p < .001)

The statistically significant formative weight associated with H4 relates to one of the most novel theoretical aspects of the study - conceptual and operationalisation of Psychological Capability as a firm level construct that represents entrepreneurial orientation, cognitive flexibility and strategic adaptability of MSME owner-manager. The dimension's significant positive formative weight corroborates the statistically meaningful contribution of this dimension to the 4P Maturity (higher-order formative construct), in line with Upper Echelons Theory's hypothesis that the

thinking and acting attributes of the top decision maker strongly influence organisational performance (Hambrick, 2007).

This is heavily corroborated by the qualitative evidence The qualitative findings suggest that Psychological Capability may function as a meta-capability. The path coefficient of $\beta = 0.216$ for this meta-capability role only reflects the direct contribution of the role to the composite, and not the indirect contribution via other dimensions. To provide a theoretically richer specification of the mechanism identified qualitatively in this study, the other three dimensions of the 4P Framework should be multiplied with Psychological Capability as potential moderator for future modelling of the 4P Framework.

6.3.5 H5: 4P Maturity → MSME Performance ($\beta = 0.617$, $p < .001$)

The largest structural relationship observed in the model is the highly significant structural path from 4P Maturity to MSME Performance ($\beta = 0.617$, $p < .001$, $R^2 = 0.381$). The integrated ability of 4P capability composite accounts for 38% of the variance of a multi-item performance construct measuring revenue growth, profitability, operational efficiency, productivity and competitive positioning. Theoretically significant strength of this path coefficient compared to the individual dimension contributions ($\beta = 0.116$-0.218) is broadly consistent with the central proposition of the framework.

Building on the recent scholarship on MSMEs, this finding further promotes the need for a multi-dimensional and holistic model explaining the intertwined, and mutually influencing, role and impact of organisational capabilities and managerial behaviours (Bindeeba et al., 2025; Hongal et al., 2017). Qualitative evidence is found across all three cases and provides contextual insight into possible mechanisms by showing that ‘combined’ capability development, in this instance

tackling the binding constraint dimension first, yields compounding performance gains which would not be achieved with ‘sequential' single-dimension interventions.

6.3.6 Measurement Model: Honest Assessment and Implications

The values of the AVE below the threshold (0.187-0.265) and the increase of HTMT ratios reported in Chapter 4 need to be discussed explicitly. The AVE values highlight an important measurement limitation: over 50% of the variance in each reflective indicator was due to measurement error, rather than to the latent construct, for each indicator; this significantly limits the conclusions from the quantitative strand. There are two suitable analytical responses. Firstly, the strength of the findings is toned down: they are described as preliminary, exploratory and directionally indicative as opposed to conclusive. Second, the weakness is also theoretically informative in that each construct was designed to have a broad multi-domain scope, with 12 items per construct (from different capability sub-themes of each construct) to maximise content validity in an exploratory study rather than construct homogeneity. Future confirmatory studies should focus on the purification of the items, limiting each construct to 5-7 items with the highest indicator reliabilities, to achieve AVE values above the Fornell-Larcker threshold while maintaining the theoretical completeness (Churchill, 1979; Hair et al., 2022).

6.4 Integrated Interpretation: Convergent and Divergent Evidence

Three hypotheses-level integration patterns are created by the convergent parallel design. The highest level of convergence is found in the strands H2 (Process Maturity) and H5 (4P Maturity → Performance): Both strands demonstrate broadly convergent patterns, with qualitative findings providing contextual insight into the quantitative results. Complementarity is best illustrated in H1 (People Maturity) and H4 (Psychological Capability): the quantitative results

lead to the determination of significance, while the qualitative results provides the explanation for how the statistical coefficient works - respectively HR practices work through Social Exchange reciprocity, and Psychological Capability works as a cross-dimensional meta-enabler.

Qualified divergence is analytical most usefully in H3 Product Capability. The quantitative non-significance seems to conflict with the qualitative evidence of substantial product-driven performance gains, but the contradiction is resolved by the identification of a boundary condition, process enablement, in the qualitative evidence that mediates the Product-4P Maturity relationship. The qualitative strand in a convergent mixed-methods design (Creswell and Plano Clark, 2017) is not meant to confirm results from the survey-based data, but to provide explanations of how and why results from the statistical model are understated in the work when it comes to an empirical importance in organisational practice. The overall pattern suggests a theoretically coherent and empirically promising framework, which needs to be further developed at the measurement instrument level before being confirmed in its application.

6.5 Theoretical Contributions

6.5.1 Contribution 1: A 4P Maturity (higher-order formative construct) Framework for MSME Performance

The major theoretical contribution is the conceptualisation, operationalisation, and initial empirical investigation, of the 4P Framework as a higher order integrated formative framework of MSME capability. The framework fills the gap in the MSME literature that was found in Chapter 1 by modelling People Maturity, Process Maturity, Product Capability and Psychological Capability as formative indicators of a higher order construct, 4P Maturity, which collectively predicts MSME Performance. The architecture also offers a theoretical suitable

solution to conceive the emergence of MSME capability from the combined operation of organisational and individual factors in contrast to the one-dimensional approach of the individual factors (Hair et al., 2022; Bollen and Lennox, 1991). Similarly, recent studies on MSMEs have emphasized the significance of integrated organisational systems and culture in long-term capability development and firm adaptability (Subramanian & Suresh, 2023).

This contribution is a response to the call made by Bindeeba et al. (2025) and Hongal et al., (2017) for a single, multi-dimensional analytical framework in the study of MSMEs, and further extends the theoretical construct of the Resource-Based View (RBV) of Barney (1991) and the Dynamic Capabilities Theory (DCT) of Teece (2018) to the integrated, multiple factors configuration of the Indian context of MSMEs. Compared with any individual theory, the multi-level explanatory architecture of the integration of SPECT and UET can explain the MSME performance better by covering both the organizational capabilities and the individual-level managerial characteristics.

6.5.2 Contribution 2: Psychological Capability as a Developable Firm-Level Construct

The second theoretical contribution is the conceptualisation and operationalisation of Psychological Capability as a construct at the firm level in the context of MSMEs. Although Upper Echelons Theory has demonstrated the impact of executive psychology on the outcomes of large firms (Hambrick, 2007; Carpenter et al., 2004), the systematic operationalisation of this construct, as a measurable and multi-item construct, in the context of the owner-managed MSME is relatively under-researched. This study develops and preliminarily examines a 12-item reflective measurement scale for Psychological Capability validating the use of this scale in forming the 4P Maturity (higher-order formative construct) composite, specifically in regard to

four facets of Psychological Capability: risk orientation, decision making style, strategic adaptability, and change readiness.

In addition, the qualitative evidence adds to this contribution by pointing to the fact that the impact of Psychological Capability on 4P Maturity is significantly indirect via its impact on the remaining dimensions. The idea of the meta-capability proposition is to move the theoretical understanding of owner-manager psychology from being one among four performance determinants to being a cross-dimensional moderator which has implications for the specification of the 4P Framework in future studies, and for the design of MSME capability development interventions. Together, the three case studies show that Psychological Capability is a trainable disposition that can be shaped through well-designed learning experiences, targeted feedback, and learning from peers, and can be added as a component to the MSME consulting framework and policy toolkit.

6.5.3 Contribution 3: Higher-Order PLS-SEM as Methodological Template for MSME Research

The third contribution is methodological as the application of a two-stage higher-order PLS-SEM approach to model MSME capability as a formative composite construct, which extends the methodological tools that are available to MSME researchers. The higher-order formative specification is theoretically suitable for the 4P Framework (as the 4P Maturity is defined by the dimensions but not by the indicators) and offers a modelling solution that allows the conceptual independence of each dimension to be maintained while estimating the integrated effect on the performance of each dimension (Hair et al., 2022; Bollen and Lennox, 1991; Diamantopoulos and Winklhofer, 2001). The distinction between formative and reflective measurement is

particularly relevant to the case of organisational capability modelling, where the dimensions are not necessarily reflective of a latent trait but rather collectively form the construct (Diamantopoulos & Siguaw, 2006). It is a study that showcases the possibility of this approach and its analytical utility in the Indian context of MSMEs and offers a methodological template for further exploratory studies in other MSME ecosystem contexts and for researchers studying multi-dimensional capability constructs.

6.6 Practical Implications

6.6.1 Implications for MSME Owner-Managers

The practical implication of this study in context to MSME owner-managers is the useful diagnostic and developmental nature of the 4P Framework as a structured self-assessment tool. One of the most intractable issues faced by MSME self-management is the ability to take care of the symptoms (cash flow issues, workforce turnover, declining sales) and not the underlying configuration of capabilities that creates them, and that is precisely what the integrated nature of the framework can do. The learning that comes from the qualitative strand is action oriented: owner-managers should find out which dimension is most constraining to development in the other dimensions, and invest in that dimension, rather than trying to make simultaneous investments across all four dimensions.

The Vimson Derma case is a very telling practical example for the MSMEs: Operational excellence is a prerequisite, but not sufficient for commercial success. Companies with high process maturity yet not product and psychological maturity have the potential of being at full production with a narrow and vulnerable revenue stream. What this means is that regularly evaluating their client's level of concentration risk and systematically investing in the

development of their product capabilities as a risk management investment can actually be a pragmatic re-frame that can help facilitate engagement of the owner-managers in product capability development even in the most risk-averse profiles, as illustrated by the Vimson case. The Panth Infrastructure case also shows that when the owners are willing to accept the basic process systems (first minimum viable documentation in order to minimize the risk of information loss and owner dependency), the operational dividend is created quick enough to keep the owners/managers interested in further capability development.

The study suggests three practical interventions for owner-managers who recognise the Psychological Capability gap in their own profiles: (a) deliberate diagnostic self-assessment (with structured assessment and quantitative framing) using a structured tool like the PULSE 4P™ index that can be done by the owner-manager themselves; (b) incremental experiential exposure to unfamiliar capability development contexts (such as trade events, peer forums and trials of digital platforms) calibrated to the owner-manager's specific risk threshold; and (c) engagement with peer MSME networks and business owner communities, which provide the social learning and comparative performance reference points that accelerate psychological reorientation more effectively than one-on-one consulting alone.

6.6.2 Implications for Business Consultants and Advisory Practitioners

The study offers the Indian MSME practitioners a diagnostic architecture and a sequence model that significantly enhances the existing one-dimensional approach to MSME consulting for practitioners. Capability assessment using the 4P Framework can be operationalised using the PULSE 4P™ Business Health Index, which will allow to assess capability across all four dimensions in one engagement, providing a multi-dimensional baseline to measure impact of the

intervention over time. The diagnostic scope included in the framework tackles a common issue in the MSME consulting practice, where engagement is often limited to a pain point, and the capability configuration, which gives insights into the underlying causes and whether an intervention will yield sustainable results, is not considered.

The most important methodologically implication for consultants is the binding-constraint sequencing principle. A good MSME consultancy process should involve a comprehensive 4P capability assessment, identification of the dimension that is the most binding constraint, designing a sequenced intervention programme, which should start with the binding constraint, and leverage the development of the binding constraint to drive capability growth from other dimensions. The Champcon Control engagement is a case in point: process formalisation (CRM, lead conversion protocol), was set up first and the product repositioning investment was put in place in the context of the process.

Practitioners also need to pay attention to the unique and under-recognized role of Psychological Capability as an overarching or "meta" capability that sits atop the effects of any other interventions. The three cases are all evidence of how the willingness of the owner-manager to change, tolerate uncertainty and adopt an evidence-based approach to decision making will either be the deciding factor as to whether any consulting intervention leads to sustainable organisational change or not. Without engaging with the owner-managers of MSMEs at the psychological level, and providing them with the necessary tools, systems and procedures, practitioners run the risk of providing technically sound interventions that are not sustained beyond the engagement period. This study provides preliminary evidence that the building of psychological capability development activities (structured diagnostic feedback, growth-

reframing, peer learning facilitation and incremental experiential exposure) within the standard MSME consulting methodology is a practical suggestion.

6.6.3 Implications for Policymakers

The Policy implications of 4P Framework, therefore, build on and amplify the critique of the existing architecture of MSME support programmes, which is largely based on single dimension programmes. Although credit access schemes (such as CGTMSE, ECLGS, SIDBI SMILE and SWAYAM programmes) attempt to tackle the financial constraints, these schemes are not very useful for MSMEs who are unable to make effective use of capital because of informality of their processes. The returns from these technology adoption schemes (Digital MSME, Technology Centre Systems Programme, LEAN Manufacturing Competitiveness Scheme) are limited if the owner/manager's psychological disposition is a barrier to sustainable technology adoption beyond the pilot period. Firms not differentiated and not having a digital presence do not reap many benefits from market access platforms (Government e-Marketplace, ONDC, export promotion schemes). The low level of effectiveness of these individually well-designed programmes is, in part, due to their single dimension design: each of these programmes targets a valid MSME need but does not consider the gaps in capabilities in other dimensions that limit their effectiveness.

The framework calls for a policy architecture where 4P Maturity (higher-order formative construct) is assessed, and moves towards sequenced, multi-dimensional support. The process of capability diagnostic exercise can be scaled down to a simplified, digitised version of the 4P assessment which can be integrated into the Udyam registration database maintained by the Ministry of MSME, which is home to more than 34 million registered enterprises (MSME

Dashboard, 2023), facilitating identification of capability profiles across registered firms and targeted matching of government support programmes to specific gaps in capabilities of enrolled enterprises. This capability matching approach, based on data, would significantly enhance the ROI of existing investments in support for MSMEs, without any additional investments.

Cluster development programmes of SIDBI are a specific area of intervention that can be designed for 4P. Process and people capability development interventions can exhibit scale economies, peer learning mechanisms and shared investments in infrastructure when embedded within industrial clusters - where MSMEs are grouped together geographically and in the same sector - which can also not be replicated at the individual firm level (OECD, 2021; World Bank, 2022). A cluster-based 4P diagnostic programme that is implemented via the SIDBI-supported business development services can yield the multi-dimensional capability assessment data for developing truly integrated cluster development interventions. This study reveals that the sectoral capability development for artisans by the PM Vishwakarma scheme could serve as a model for capability development of other sectors, especially when combined with structured entrepreneurial psychology development, such as mindset workshops, peer mentoring, and facilitation of strategic planning that the scheme could also incorporate to address the dimension identified in this study as the binding constraint for a significant number of MSME owner-managers.

Here is a policy implication which is very specific and not explored in the Psychological Capability finding. There is no existing MSME policy programme that directly and systematically takes care of the cognitive and behavioural development of the owner-managers on a large scale. The findings in this study suggest that psychological capability may represent an important constraint in capability development among resource-constrained MSMEs. The

findings indicate that structured entrepreneurial mindset development programmes may warrant consideration as a potential policy intervention conducted through the existing district level MSME Development Institutes (DID) and the National Institute for Micro, Small and Medium Enterprises (NI-MSME) and would involve diagnostic self-assessment with peer group mentoring, exposure to growth oriented business environment, and strategically framed owner-manager sessions tailored to individual owner-manager's cognitive and risk profile. Pilot programmes in high-MSME-density districts and using pre-post 4P capability assessment could be key to providing evidence for national scale up.

6.6.4 Professional Doctoral Contribution

The applied nature of the Doctor of Business Administration (DBA) is of interest as this study aims to make a contribution to the academic body as well as to the business world. The plan is for the 4P Framework and related PULSE 4P™ Business Health Index to provide a structured way to identify gaps in capability in MSMEs. The framework will help the owner-managers, consultants, business-development professionals and policy makers involved in MSME development to make decisions based on evidence. Although more validation is needed, the model can serve as a practical tool for assessing capabilities and enhancing organizations in the Indian MSME sector.

6.7 Assessment of the PULSE 4P™ Business Health Index: Practical Utility

The three case studies offer illustrative - but not generalisable - examples of the PULSE 4P™ Business Health Index as a practical diagnostic/counselling tool in MSME settings. There were several aspects of practical utility observed across the three case engagements. First, the diagnostic's ability to plot capability profiles visually - presenting scores on dimensions and

health indices as a composite - was perceived by participating owner-managers as useful in shifting the focus of the owner/manager from presenting concerns to the underlying array of capability that caused the concern. In every instance the Time 1 diagnostic acted as a lever for getting the owner-managers involved in the consulting process, and in each case, it was more effective than verbal recommendations alone in facilitating engagement with the intervention process. For example, in the Vimson Derma case, the picture of the revenue concentration risk was more compelling than the message of advisory alone, and the owner-managers continued to engage with the capability-development initiatives following the diagnostic process.

Second, the Time 2 diagnosis created a standardized process for modelling the impact of the intervention -- a process that is not often seen in short time/medium duration consulting efforts. The measurement of the improvements in the dimension scores at the completion of all three cases provided a structured basis for assessing changes during the intervention period of the value of the Consulting engagement, which led to the owner-managers' sustained commitment for the change programme, which continued beyond the formal period of the Consulting engagement. Third, the PULSE 4P™ tool was used as a framework-organising tool, to make sure that data collection and analysis was consistent across three different case contexts, which enabled a systematic within-case and cross-case comparison which led to the thematic findings of Chapter 5. The usefulness of the findings in the practical is only indicative: 3 case studies do not make a case for representativeness or statistical generalisability. Before the practical utility of the tool can be claimed with empirical confidence, a larger sample of consulting engagements, with standardised administration of the diagnostic, multi-rater reliability of the diagnostic, and pre-post-performance checks, would be needed.

6.8 Limitations of the Study

The results of this study are limited by six factors that need to be taken into consideration when interpreting the results. First, the limitations in the measurement models as illustrated in Chapter 4 (sub threshold AVE values range 0.187-0.265) and high HTMT ratio values limit the conclusions drawn from the quantitative strand of the study. Although the structural model results are directionally informative and statistically significant for three out of four formative indicators, they should not be viewed as confirmatory evidence, and systematic item purification is needed prior to confirmatory factor analysis of the framework.

Second, the quantitative sample (N = 336) was under the minimum sample size needed to detect the weakest structural path (H3: minimum N = 461), which may have contributed to the lack of significance of the H3 result. Future studies should have a sample size equal to or greater than 500 respondents to ensure the statistical power of all hypothesised paths. Third, the cross-sectional design does not allow causal inferences: the structure of the model estimated can only be interpreted as associative relationships, while the direction of the relationships can only be assumed, but cannot be confirmed based on cross-sectional data. To determine temporal precedence, two or more time points of performance trajectories and capability development need to be tracked by a longitudinal design.

Fourth, the qualitative part of the study is conducted by a dual role researcher who is both practitioner-consultant and academic researcher and there is a potential for the relational bias in data generation and analysis, since the researcher has a prior relationship with all three case study firms. The strategies for mitigation are outlined in chapter 3, but the dual role of participant-researcher cannot be completely overcome. Fifth, the geographical reach of the

quantitative sample (five Indian states) restricts the generalisability to the geographical population of micro enterprises which may not be similar to the unregistered and unorganised ones in the northern and eastern parts of the country, which form the bulk of the MSMEs. Sixth, the sectors covered in the study (manufacturing, services, trading) do not include agricultural processing and financial service MSMEs, which have a different set of characteristics in terms of institutions and operations that could affect the dimensional relationships in the 4P Framework.

Although the overall results lend credence to the proposed 4P Framework, they should be interpreted with caution. The measurement model had validity issues with convergent validity (AVE values below the threshold) and discriminant validity (some of the constructs had validity issues). Moreover, the sample size achieved was less than the sample size estimated for the weakest structural path. Therefore, the results of the present study should be considered as preliminary empirical evidence rather than as definitive evidence for the framework. More work using larger samples, more sensitive measures, and other empirical situations is needed to further evaluate the validity, reliability, and generalisability of the 4P Framework.

6.9 Directions for Future Research

This study's results and limitations result in six specific areas for further research. First, systematic scale development and purification of the measurement instrument of the 4P Framework is needed. Future studies should follow the item deletion protocol by deleting items that had outer loadings of less than 0.50 in all validation samples and pilot the shortened instrument in a new sample to ensure that the purified scales had an AVE > 0.50 and HTMT < 0.85 and that there was no loss of content validity. The revised instrument should be reviewed by an expert panel prior to large scale deployment to ensure that it is representative.

Second, the meta-capability hypothesis on Psychological Capability is worth direct research and study. A moderated mediation model could be used to test whether each of the other three dimensions is a mechanism for the influence on 4P Maturity or whether Psychological Capability moderates the relationship between each of other three dimensions and 4P Maturity and thus offers a statistically testable specification of the cross-dimensional influence mechanism identified qualitatively. Third, a longitudinal design is desirable to overcome the cross-sectional limitation of the quantitative strand, and a panel design with 4P dimension scores and performance outcomes measured at two or three 12-month intervals would allow for the investigation of temporal precedence and directionality of causality.

Fourth, multi-group comparative analysis should be conducted to check the differences in the dimensional relationships in the 4P Framework based on the different sectors, sizes of the firms, geographical areas and gender of owner-managers. The MSME sector in India is very diverse and the results of this study may not reflect differences between sub-groups. Fifth, international comparative studies are justified to explore the possibility of whether the structure of the framework, especially the dominance of Psychological Capability as a meta-capability is unique to the Indian context or can it be exported to other institutional and cultural context of developing economies with a similar structure of enterprises. The MSME ecosystems in Southeast Asia, Sub-Saharan Africa and South Asia have a lot in common with the Indian ecosystem and would present interesting comparative contexts.

Sixth, the findings of this study offer suggestions for practical application and should be tested by conducting a systematic multi-location trial of the PULSE 4P™ Business Health Index. A structured evaluation design (higher number of MSME consulting engagements with standardised diagnostic administration, multi-rater reliability assessment and pre-post MSME

performance tracking) could give an empirical foundation for the tool to be used as a practitioner instrument and to provide evidence for adoption in government-supported MSME development programmes.

6.10 Conclusions

The objective of this study was to fill this gap in understanding the structure of MSME performances, which did not exist in the literature and was not tested and examined empirically simultaneous modelling of the combined effects of People Maturity, Process Maturity, Product Capability and Psychological Capability on firm performance outcomes. As one such possible answer to this gap, a higher order formative model, the 4P Framework, is proposed in this paper as a theoretical and empirical promising construct.

The quantitative results provide preliminary and partial empirical support for aspects of the proposed framework. Three of four formative indicator hypotheses are supported: People Maturity (H1) ($\beta = 0.196$, $p = .001$), Process Maturity (H2) ($\beta = 0.218$, $p < .001$) and Psychological Capability (H4) ($\beta = 0.216$, $p < .001$) all contribute positively and at a statistically significant level to the 4P Maturity composite. The largest structural relationship observed in the model is the predictive relationship between the 4P Maturity (higher-order formative construct) composite (4P Maturity) and MSME Performance (H5 with $\beta = 0.617$, $p < .001$, $R^2 = 0.381$), explaining close to 38% of the variance in firm performance, indicating a statistically significant association between 4P Maturity and MSME Performance within the present sample. Product Capability (H3) has no significant relationship at the 5% level which can be interpreted from the limitations of the samples and the results of the qualitative data which reveal the conditional nature of the relationship between Product-Maturity.

The qualitative strand provides mechanism-level explanations that help contextualise the quantitative findings that is not provided by the survey data. These three cases (Panth Infrastructure, Champcon Control and Vimson Derma) show that: MSME capability development is non-linear, interdependent and path-dependent; development of Psychological Capability is a prerequisite for effective development of other three dimensions; and performance improvements due to integrated multi-dimensional capability development are more than what could be achieved by sequential single dimensional interventions. These qualitative results help to explain the large proportion of variance in MSME performance that the model explains, in the absence of large effects for each capability: it is the combination of capabilities, not the individual capabilities, that make the model predictive and practical.

The results collectively indicate that this 4P Framework is theoretically sound, practically relevant and has empirical promise in understanding MSME capability and performance. However, because of the measurement limitations that were determined in Chapter 4, the results are tentative and should be further refined, replicated and tested in future studies. The most significant factor of the framework might be its call to practitioners, as well as researchers, to consider MSME performance not as the result of individual factors, but as an emergent property of an interdependent and integrated set of organisational capabilities. This integrative approach, based on the Resource-Based View, Dynamic Capabilities Theory, Social Exchange Theory and Upper Echelons Theory, is what makes the 4P Framework so explanatory and holds so much promise as a diagnostic, development and sustaining tool for MSME capability in one of the world's most consequential and under-served enterprise sectors. The Indian MSME ecosystem, comprising of 63 million enterprises, 250 million livelihoods and its profound potential for catalysing the high growth economy, calls for analytical frameworks commensurate to the

complexity of its ecosystem. The 4P Framework is provided as a way towards that standard. In line with this cautious position, the thesis does not claim that the 4P Framework has been validated: the achieved sample fell below the size estimated as necessary to detect the weakest structural path, Product Capability was not statistically supported at the 5% level, and the measurement model exhibited below-threshold convergent validity. The appropriate characterisation of the quantitative evidence is preliminary and partial empirical support, to be consolidated through the scale purification, larger samples, and longitudinal designs outlined in Section 6.9.

REFERENCES

Adewoye, J. O., & Obasan, K. A. (2012). The impact of information technology on human resources management in the Nigerian banking industry. *Journal of Business and Management, 1*(1), 1–8. https://www.researchgate.net/publication/277751727

Afshan, S., Sobia, I., Kamran, A., & Nasir, M. (2012). Impact of training on employee performance: A study of the telecommunication sector in Pakistan. *Interdisciplinary Journal of Contemporary Research in Business, 4*(6), 646–661. https://www.researchgate.net/publication/274194048

Agarwal, A. (2024). Family systems and cultural factors impacting succession of Indian and Japanese family businesses: Evidences from literature review. *Journal of Innovative Science and Research Applications, 1*(1), 1–12.

Agarwal, A., & Bhatia, H. (2021). Measuring entrepreneurial self-efficacy: A comprehensive scale. *Journal of Entrepreneurship in Emerging Economies, 13*(6), 1115–1131.

Agrawal, R., & Singh, R. K. (2019). Analysing the impact of GSCM drivers on performance of Indian manufacturing SMEs. *Benchmarking: An International Journal, 26*(7), 2356–2378.

Agustina, T. S., Ausat, A. M. A., Prastya, N. E., & Mohammad, B. S. M. (2023). Analysing the role of ChatGPT in improving student productivity in higher education. *Journal on Education, 5*(4), 14886–14891.

Ahamed, G. T. (2023). A review of challenges and opportunities for MSMEs in India: A roadmap for success. *International Journal of Advanced Research in Commerce, Management & Social Science (IJARCMSS), 6*(1), 89–98.

Ahamed, G. T., & Raju, S. A. (2023). A review of challenges and opportunities for MSMEs in India: A roadmap for success. *International Journal of Advanced Research in Commerce, Management & Social Science, 6*(01-II), 89–98. https://www.inspirajournals.com/uploads/Issues/2046131874.pdf

Ahmad, R., Nawaz, M. R., Ishaq, M. I., Khan, M. M., & Ashraf, H. A. (2023). Social exchange theory: Systematic review and future directions. *Frontiers in Psychology, 13*, 1015921. https://doi.org/10.3389/fpsyg.2022.1015921

Akpan, I. J., Udoh, E. A. P., & Adebisi, B. (2022). Employee motivation and performance in SMEs: Evidence from Nigeria. *Journal of Small Business and Enterprise Development, 29*(6), 901–918.

Alsamydai, M. J. (2014). Adaptation of the Technology Acceptance Model (TAM) to the use of mobile banking services. *International Review of Management and Business Research, 3*(4), 20–

Álvarez Jaramillo, J., Zartha Sossa, J. W., & Orozco Mendoza, G. L. (2019). Barriers to sustainability for small and medium enterprises in the framework of sustainable development Literature review. *Business Strategy and the Environment, 28*(4), 512–524.

Ang, S. H. (2001). Crisis marketing: A comparison across economic scenarios. *International Business Review, 10*(3), 263–284. https://www.sciencedirect.com/science/article/abs/pii/S0969593101000166

Angrave, D., Charlwood, A., Kirkpatrick, I., Lawrence, M., & Stuart, M. (2016). HR and analytics: Why HR is set to fail the big data challenge. *Human Resource Management Journal, 26*(1), 1–11. https://www.researchgate.net/publication/292152333.

Anjani, N. R. D. (2021). *Psychological well-being pada pelaku usaha mikro, kecil, dan menengah (UMKM) di era new normal covid-19* [Doctoral dissertation, Universitas Muhammadiyah Malang]. https://123dok.com/document/zx512xln

Ansoff, I. (1957). Strategies for diversification. *Harvard Business Review*, 113–124. https://www.scribd.com/document/346198384

Ardhanari, M. (2007). Analisis personal PUMIK (Perempuan Pengusaha Mikro) di Surabaya dalam upaya pengembangan keberhasilan usaha bidang ritel yang dimoderasi faktor kultural. *Jurnal Widya Manajemen Dan Akuntansi, 7*(2), 231–243. https://jurnal.ukwms.ac.id/index.php/JWMA/article/view/1135

Arena, C., Michelon, G., & Trojanowski, G. (2018). Big egos can be green: A study of CEO hubris and environmental innovation. *British Journal of Management, 29*(2), 316–336. https://onlinelibrary.wiley.com/doi/epdf/10.1111/1467-8551.12250

Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. Journal of Marketing Research, 14(3), 396–402. https://doi.org/10.2307/3150783

Aruna, N. (2015). Problems faced by micro, small and medium enterprisesA special reference to small entrepreneurs in Visakhapatnam. *IOSR Journal of Business and Management, 17*(4), 43–

Athaya, S. S., & Hasbi, I. (2019). Pengaruh kecerdasan emosional dan motivasi berwirausaha terhadap minat berwirausaha. *E-Proceeding of Management*. https://www.academia.edu/92041579

Aulia, M. R., Lubis, Z., Effendi, I., & Junaidi, J. (2023). Leveraging quality management and partnership programs for technopreneurial success: Exploring their impact on MSME performance. *Aptisi Transactions on Technopreneurship (ATT), 5*(2), 157.

https://doi.org/10.34306/att.v5i2.303.

Babber, G., & Mittal, A. (2025). Achieving sustainability through the integration of lean, agile, and innovative systems: implications for Indian micro small medium enterprises (MSMEs). *Journal of Science and Technology Policy Management*, *16*(2), 365-400. https://doi.org/10.1108/JSTPM-05-2023-0087.

Baer, M., & Brown, G. (2012). Blind in one eye: How psychological ownership of ideas affects the types of suggestions people adopt. *Organizational Behavior and Human Decision Processes, 118*(1), 60–71. https://www.researchgate.net/publication/254409337

Baker, H. K., Kumar, S., & Rao, P. (2017). Financing preferences and practices of Indian SMEs. *Global Finance Journal, 43*, 100388.

Banerji, S. C. (2013). Impact of information technology on human resource management. *Global Journal of Management and Business Studies, 3*(7), 745–750.

Bansal, S. (2024). Strategic management in Indian MSMEsA literature review. *International Journal of Management Research and Advances, 1*(1), 45–60.

Barber, A. E., Wesson, M. J., Roberson, Q. M., & Taylor, S. A. (1999). A tale of two job markets: Organizational size and its effects on hiring practices and job search behavior. *Personnel Psychology, 52*(4), 841–868.

Barhate, B., & Dirbude, S. (2023). Performance management system in micro, small and medium enterprises: A systematic literature review. *International Journal of Productivity and Performance Management, 72*(8), 2353–2376.

Barhate, B., & Dirbude, S. (2023). Performance management system in micro, small and medium enterprises: A systematic literature review. *International Journal of Productivity and Performance Management, 72*(8), 2353–2376.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.https://doi.org/10.1177/014920639101700108

Becker, J.-M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: Guidelines for using reflective-formative type models. Long Range Planning, 45(5–6), 359–394.

Belmont Report. (1979). The Belmont report: Ethical principles and guidelines for the protection of human subjects of research. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research.

Bernard, M. J., & Barbosa, S. D. (2016). Resilience and entrepreneurship: A dynamic and biographical approach to the entrepreneurial act. *Management (France), 19*(2), 89–123. https://www.researchgate.net/publication/308100458.

Bez, S. M., & Chesbrough, H. (2020). Barriers in searching for alternative business models: An essay on the fear of looking foolish. In *Business models and cognition*. Emerald Publishing Limited. https://www.researchgate.net/publication/348618680

Bindeeba, D. S., Tukamushaba, E. K., & Bakashaba, R. (2025). Toward a holistic model of sustainable investment decision-making in SMEs: a structural approach in a developing economy. *Future Business Journal*, *11*(1), 176. https://doi.org/10.1186/s43093-025-00598-4

Biswas, A. (2014). Financing constraints for MSME sector. *International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS), 1*(5), 60–68. https://www.researchgate.net/publication/354511181

Biswas, A. (2015). Impact of technology on MSME sector in India. *EPRA International Journal of Economic and Business Review, 3*(2), 129–134. https://www.researchgate.net/publication/362246398

Biswas, T. K., & Das, M. C. (2020). Selection of the barriers of supply chain management in Indian manufacturing sectors due to COVID-19 impacts. *Operations Management Research, 13*, 268–290.

Blaikie, N., & Priest, J. (2019). Designing social research: The logic of anticipation (3rd ed.). Polity Press.

Bleady, A., Ali, A. H., & Ibrahim, S. B. (2018). Dynamic capabilities theory: Pinning down a shifting concept. *Academy of Accounting and Financial Studies Journal, 22*(2), 1–16.

Bloom, N., & Van Reenen, J. (2010). Why do management practices differ across firms and countries? *Journal of Economic Perspectives, 24*(1), 203–224. https://doi.org/10.1257/jep.24.1.203

Bollen, K. A. and Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin,* 110(2), 305–314.https://doi.org/10.1037/0033-2909.110.2.305

Borah, S., & Baruah, A. (2018). Impact of human resource management practices on organizational performance in MSMEs. *International Journal of Humanities and Social Science Invention, 7*(3), 29–35.

Botha, F. (2024, September 8). Breaking the third-gen curse: How family offices are evolving today. *Forbes*. https://www.forbes.com/sites/francoisbotha/2024/09/08/breaking-the-

third-gen- curse-how-family-offices-are-evolving-today/.

Bottani, E., Monica, L., & Vignali, G. (2009). Safety management systems: Performance differences between adopters and non-adopters. *Safety Science, 47*(2), 155–162.

Braun, V., & Clarke, V. (2022). Thematic analysis: A practical guide. SAGE Publications.

Brislin, R. W. (1970). Back-translation for cross-cultural research. Journal of Cross-Cultural Psychology, 1(3), 185–216. https://doi.org/10.1177/135910457000100301

Brown, G., Lawrence, T. B., & Robinson, S. L. (2005). Territoriality in organizations. *Academy of Management Review, 30*(3), 577–594. https://www.researchgate.net/publication/254660616

Brumberg, R. (2021). *Research: Key factors fueling the Great Resignation*. Ragan. https://www.ragan.com/research-key-factors-fueling-the-great-resignation/

Bryman, A., & Bell, E. (2015). Business research methods (4th ed.). Oxford University Press.

Burger, N., Chazali, C., Gaduh, A., Rothenberg, A. D., Tjandraningsih, I., & Weilant, S. (2015). *Reforming policies for small and medium-sized enterprises in Indonesia*. https://www.academia.edu/130248679

Burger, P. (2025, June 10). Germany's retiring Mittelstand owners struggle to find successors. *Reuters*. https://www.reuters.com/business/finance/germanys-retiring-mittelstand-owners- struggle-find-successors-2025-06-10/

Caesens, G., Stinglhamber, F., & Demoulin, S. (2019). Perceived organizational support and employees' well-being: The mediating role of organizational dehumanization. *Frontiers in Psychology, 9*, 2724.

Calvo-Porral, C., Stanton, J. L., & Lévȳ-Mangin, J-P. (2016). Is the economic crisis changing

marketing strategies? Evidence from the food industry. *Journal of Global Marketing, 29*(1), 29–

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited. *Journal of Management, 30*(6), 749–778. https://doi.org/10.1016/j.jm.2004.06.001

Carvache-Franco, M., Carvache-Franco, O., & Carvache-Franco, W. (2020). Exploring the satisfaction of ecotourism in protected natural areas. *Geo Journal of Tourism and Geosites, 29*(2), 672–683. https://www.researchgate.net/publication/341131507.

Chandler, G. N., & McEvoy, G. M. (2000). Human resource management, TQM, and firm performance in small and medium-size enterprises. *Entrepreneurship theory and practice,* 25(1), 43-57. https://doi.org/10.1177/104225870002500105

Chandra, S., & Chand, P. (2023). Barriers to employee assistance programmes in Indian workplaces: A qualitative study. *Cogent Psychology, 10*(1), 1–18.

Chang, S. J., van Witteloostuijn, A., and Eden, L. (2010). From the editors: Common method variance in international business research. Journal of International Business Studies, 41(2), 178–184.

Chaniago, H. (2022). The effect of financial literacy and financial technology on MSME financial performance. *Jurnal Ilmu Ekonomi Terapan, 7*(1), 1–15.

Chaturvedi, M. (2021, November 22). Why are techies leaving Indian IT majors? *India Today*. https://www.indiatoday.in/education-today/jobs-and-careers/story/why-techies-are-leaving-the- indian-it-majors-1879403-2021-11-22

Cherevatskyi, D. Y. (2023). The resilience of economics and the economics of resilience.

Economy of Industry, 101(1), 31–39. http://ojs.econindustry.org/index.php/ep/article/view/268

Chernyak-Hai, L., & Rabenu, E. (2018). The new era workplace relationships: Is social exchange theory still relevant? *Industrial and Organizational Psychology, 11*(3), 456–481.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), Modern Methods for Business Research (pp. 295–336). Mahwah, NJ: Lawrence Erlbaum Associates.

Choudhry, R. M., Fang, D., & Mohamed, S. (2007). The nature of safety culture: A survey of the state-of-the-art. *Safety Science, 45*(10), 993–1012. https://www.researchgate.net/publication/223344133

Chowdhury, S. R. (2023). Managing risks in SMEs: A literature review and research agenda. *Journal of Technology Management & Innovation, 17*(1), 1–12.

Chuang, L., Liu, C., & Kao, H. (2016). The adoption of fintech service: TAM perspective. *International Journal of Management and Administrative Sciences, 3*(7), 1–15. https://www.researchgate.net/publication/372039992

Chumtap, K., & Surakarn, A. (2023). *A study of the process of resilience in the face of economic crises in the past: A case study of micro enterprise entrepreneurs in Bangkok and vicinity who experiencing repeated economic crises* [Doctoral dissertation, Srinakharinwirot University]. https://www.semanticscholar.org/paper/18f592950ff2d34ac840bef3fe513083a031b937

Churchill Jr, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of marketing research*, 16(1), 64-73. http://dx.doi.org/10.2307/3150876

Ciocoiu, C. N. (2025). Exploring the link between risk management and performance of MSMEs:

A bibliometric review. *Journal of Economic Surveys*. https://onlinelibrary.wiley.com/doi/full/10.1111/joes.12664

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Erlbaum Associates.

Cohen, J. (1992). A power primer. Psychological Bulletin, 112(1), 155–159. https://doi.org/10.1037/0033-2909.112.1.155

Cook, K. S., Cheshire, C., Rice, E. R., & Nakagawa, S. (2013). Social exchange theory. In J. DeLamater & A. Ward (Eds.), *Handbook of social psychology* (pp. 61–88). Springer.

Cooper, R. G. (2025). SMEs' use of AI for new product development: Adoption rates by application and readiness-to-adopt. *Industrial Marketing Management, 126*, 159–167. https://doi.org/10.1016/j.indmarman.2025.01.016

Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). SAGE Publications.

CRISIL. (2021). *MSME sector: Impact of COVID-19 and recovery outlook*. CRISIL Research.

Cropanzano, R. and Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management, 31(6),* 874–900.https://doi.org/10.1177/0149206305279602

Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2017). Social exchange theory: A critical review. *Academy of Management Annals, 11*(1), 479–516. https://doi.org/10.5465/annals.2015.0099

Curran, P. J., West, S. G., and Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. Psychological Methods, 1(1), 16–29.

Das, D., & Chaudhary, N. (2024). Study of transformational HR practices impact on SME business in India. *REVISTA ESPACIOS, 45*(01), 110–123.

Das, K., & Bandyopadhyay, A. (2018). Succession planning in Indian family-owned small enterprises: Challenges and strategies. *Journal of Family Business Strategy, 9*(3), 155–167.

Dasari, K., & Sujatha, K. (2023). A review on effect of e-HRM practices on MSME productivity. *Journal of Advanced Zoology, 44*(S-5), 1209–1214. https://www.researchgate.net/publication/374905461

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://www.researchgate.net/publication/200085965

Deci, E. L., & Ryan, R. M. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://selfdeterminationtheory.org/SDT/documents/2000_RyanDeci_SDT.pdf

Deligianni, I., & Voudouris, I. (2014). Innovation and diversification. *IEEE Transactions on Engineering Management, 61*(3), 551–563. https://doi.org/10.1109/TEM.2014.2312732

Deligianni, I., & Voudouris, I. (2014). The relationship between innovation and diversification in the case of new ventures: Unidirectional or bidirectional? *IEEE Transactions on Engineering Management, 61(3)*, 476–488. https://doi.org/10.1109/TEM.2014.2312732

Delmar, F. (1996). *Entrepreneurial behaviour and business performance*. Stockholm: Ekonomiska Forskningsinstitutet. https://www.researchgate.net/publication/246075162

Denzin, N. K. (2012). Triangulation 2.0. Journal of Mixed Methods Research, 6(2), 80–88. https://doi.org/10.1177/1558689812437186

Department for Promotion of Industry and Internal Trade (DPIIT). (2024). *Startup India annual report 2023–24*. Government of India. https://www.startupindia.gov.in

Desai, A., & Rao, S. (2021). Scaling operations: Technology adoption and integration challenges in medium-scale enterprises. *Journal of Small Business Management, 45*(2), 234–250.

Dess, G. G., & Robinson, R. B. (1984). Measuring organizational performance in the absence of objective measures. Strategic Management Journal, 5(3), 265–273.

Dewal, K., & Kumar, S. (2017). The mediating role of psychological capital in the relationship between big five personality traits and psychological well-being: A study of Indian entrepreneurs. Indian Journal of Positive Psychology, 8(4), 500–506.

Dewan, N. (2025, January 20). How the Budget can make India's 63 million small businesses contribute to a higher GDP growth. *The Economic Times*.

Dewey, J. (1938). Logic: The theory of inquiry. Henry Holt.

Dey, B. K. (2014). *MSMEs in India: Its growth and prospects*. Kolkata: Academic Publishers.

Dhanushri, S. (2024). A study on investor perception towards systematic investment plans (SIPs) in India. *International Journal of Management and Financial Research, 12*(1), 45–58.

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: *A comparison and empirical illustration. British journal of management, 17(4),* 263-282. https://doi.org/10.1111/j.1467-8551.2006.00500.x

Diamantopoulos, A., & Winklhofer, H. M. (2001). Index construction with formative indicators: An alternative to scale development. *Journal of marketing research, 38(2),* 269-277.http://dx.doi.org/10.1509/jmkr.38.2.269.18845

Dutta, P. (2017). Qualitative approach towards risk assessment and management in Indian MSMEs. *International Journal of Risk Assessment and Management, 20*(3), 245–260.

Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. Academy of Management Review, 32(4), 1246–1264.

Egbetade, I. S., & Onyeizugbe, C. U. (2025). The relationship between creative thinking and product diversification among MSMEs in Anambra State. *World Journal of Advanced Research and Reviews, 26*(3), 56–67. https://journalwjarr.com/sites/default/files/fulltext_pdf/WJARR- 2025-2093.pdf

Ehnert, I., Harry, W., & Zink, K. J. (Eds.). (2014). *Sustainability and human resource management: Developing sustainable business organizations*. Berlin: Springer. https://www.researchgate.net/publication/329937902.

Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500–507. https://doi.org/10.1037/0021-

9010.71.3.500

Eisenhardt, K. M. (1989). Building theories from case study research. Academy of Management Review, 14(4), 532–550. https://doi.org/10.2307/258557

Elbanna, S., & Child, J. (2007). Influences on strategic decision effectiveness: Development and test of an integrative model. Strategic Management Journal, 28(4), 431–453.

Farrington, S. (2017). Psychological well-being and perceived financial performance: An SME perspective. *South African Journal of Business Management,* 48(4), 47–56. https://doi.org/10.4102/sajbm.v48i4.42

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. Behavior Research Methods, 41(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Fernández-Muñiz, N., Triguero, A., & de la Cuesta, M. (2024). Breaking down barriers: The adoption of eco-innovation by SMEs and the influence of personality traits. *Business Strategy and the Environment, 33*(7), 6565–6585. https://www.researchgate.net/publication/381479780

Fernet, C., Torrès, O., Austin, S., & St-Pierre, J. (2016). The psychological costs of owning and managing an SME: Linking job stressors, occupational loneliness, entrepreneurial orientation, and burnout. *Burnout Research,* 3(2), 45-53. https://doi.org/10.1016/j.burn.2016.03.002

Finlay, L. (2002). Negotiating the swamp: The opportunity and challenge of reflexivity in research practice. Qualitative Research, 2(2), 209–230.

Fisher, R., Maritz, A., & Lobo, A. (2016). Does individual resilience influence entrepreneurial success? *Academy of Entrepreneurship Journal, 22*(2), 39–53. https://www.researchgate.net/publication/311259544.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research,* 18(1), 39-50. https://doi.org/10.2307/3151312

Forza, C. (2002). Survey research in operations management: A process-based perspective. International Journal of Operations & Production Management, 22(2), 152–194.

Ganguly, B., Roy Chowdhury, S., Ghosh, R., & Ghosh, D. (2025). What hinders AI adoption in MSMEs of India?–Importance and interlinkages between the barriers. *Indian Growth and Development Review*, *18*(1), 72-92. https://doi.org/10.1108/IGDR-05-2024-0070.

Geertz, C. (1973). The interpretation of cultures. Basic Books.

Gold, A. H., Malhotra, A., and Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. Journal of Management Information Systems, 18(1), 185–214.

Gopalakrishnan, S., et al. (2015). Safety management practices in small and medium enterprises in India. *Safety and Health at Work, 6*(1), 46–55.

Granerud, R. L., & Rocha, R. S. (2011). Organisational learning and continuous improvement of health and safety in certified manufacturers. *Safety Science, 49*(7), 1030–1039.

Gray, C. (2002). Entrepreneurship, resistance to change and growth in small firms. *Journal of Small Business and Enterprise Development, 9*(1), 61–72. https://www.scribd.com/document/58287802

Gremme, K. M., & Wohlgemuth, V. (2017). Dynamic capabilities: A systematic review. *European Journal of Management Issues, 25*(1), 30–35.

Guetterman, T. C., Fetters, M. D., & Creswell, J. W. (2015). Integrating quantitative and qualitative results in health science mixed methods research through joint displays. Annals of Family Medicine, 13(6), 554–561.

Gull, M., & Nizami, N. (2015). Comparative study of hope and psychological well-being among the parents of physically and intellectually disabled children. *International Journal of Modern Social Sciences, 4*(2), 143–152.

Gupta, V., Saini, J. S., & Chaddha, S. (2018). MSME financing: Growth and challenges. *International Journal for Research in Engineering Application & Management (IJREAM), 4*(7), 716–727. https://www.researchgate.net/publication/329528643

Hagan, K., Lotsu, B., Hodowu, E., & Abaka-Yawson, N. (2022). Challenges of human resource information system adoption: Evidence from two Ghanaian tertiary institutions. *World Journal of Advanced Research and Reviews, 13*(2), 346–349. https://www.researchgate.net/publication/358907704

Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2019). Multivariate data analysis (8th ed.). Cengage Learning.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (3rd ed.)*. Sage. https://doi.org/10.1007/978-3-030-80519-7

Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of management review*, *32*(2), 334-343. https://doi.org/10.5465/amr.2007.24345254

Hambrick, D. C. (2016). Upper echelons theory. In M. Augier & D. J. Teece (Eds.), *The Palgrave encyclopedia of strategic management*. Palgrave Macmillan.

Hannen, J., Antons, D., Piller, F., Salge, T. O., Coltman, T., & Devinney, T. M. (2019). Containing the not-invented-here syndrome in external knowledge absorption and open innovation: The role of indirect countermeasures. *Research Policy, 48*(9), 103822. https://www.sciencedirect.com/science/article/pii/S0048733319301428

Harney, B., Gilman, M., Mayson, S., & Raby, S. (2022). Advancing understanding of HRM in small and medium-sized enterprises (SMEs): critical questions and future prospects. The International *Journal of Human Resource Management*, 33(16), 3175-3196. https://doi.org/10.1080/09585192.2022.2109375

Harney, B., Gilman, M., Mayson, S., & Raby, S. (2022). HRM in SMEs. *International Journal of Human Resource Management, 33*(16), 3175–3196.

Haruna, F. A. B., Kuranchie, A., & Addo, A. O. (2022). Educational resilience of teen mothers in Ghanaian schools: Is it without socio-emotional challenges? *Journal of African Education, 3*(2),

Helfat, C. E., & Martin, J. A. (2015). Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change. Journal of Management, 41(5), 1281–1312.

Hecklau, F., Galeitzke, M., Flachs, S., & Kohl, H. (2016). Holistic approach for human resource management in Industry 4.0. Procedia CIRP, 54, 1–6.

Hendrawan, S. A., Afdhal Chatra, Nurul Iman, Soemarno Hidayatullah, & Degdo Suprayitno. (2024). Digital Transformation in MSMEs: Challenges and Opportunities in Technology

Management. *Jurnal Informasi Dan Teknologi*, *6*(2), 141-149. https://doi.org/10.60083/jidt.v6i2.551

Heneman, R. L., Tansky, J. W., & Camp, S. M. (2000). Human resource management practices in small and medium sized enterprises: Unanswered questions and future research perspectives.

Henseler, J., Hubona, G., and Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. Industrial Management and Data Systems, 116(1), 2–20.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science,* 43(1), 115-135. https://doi.org/10.1007/s11747-014-0403-8

Herzallah, A. M., et al. (2021). Artificial intelligence technology readiness for social sustainability in MSMEs. *Journal of Cleaner Production, 316*, 128203.

Hiremath, V., Jagadeswari, K., & Vijayapur, S. P. (2024). HRM 4.0 in India: Challenges and opportunities in modern HR practices. *GBS Impact Journal of Multi Disciplinary Research, 10*(2), 1–10. https://www.researchgate.net/publication/388518006

Hirsh, J. B. (2010). Personality and environmental concern. *Journal of Environmental Psychology, 30*(2), 245–248. https://www.sciencedirect.com/science/article/abs/pii/S0272494410000058.

Hodgkinson, G. P., & Healey, M. P. (2011). Psychological foundations of dynamic capabilities: Reflexion and reflection in strategic management. Strategic Management Journal, 32(13), 1500–1516.

Hongal, P., Charantimath, P., & Phatak, G. G. (2017). Strategic Management in Indian MSMEs-A Literature Review. *International Journal of Management IT and Engineering*, 7(11),152-181. https://www.ijmra.us/project%20doc/2017/IJMIE_NOVEMBER2017/IJMRA-12786.pdf

https://www.researchgate.net/publication/378026076

Hu, L. T., and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling, 6(1), 1–55.

International Labour Organization. (2017). *Skills for green jobs: A global view*. Geneva: ILO. https://www.ilo.org/publications/skills-green-jobs-global-view

International Labour Organization. (2018). *Women and men in the informal economy: A statistical picture* (3rd ed.). Geneva: ILO. https://www.ilo.org/publications/women-and-men- informal-economy-statistical-picture-third-edition

International Labour Organization. (2020). *Skills for a greener future: A global view based on 32 country studies*. Geneva: ILO. https://www.ilo.org/publications/skills-greener-future-global-view

International Trade Centre. (2021). *SME competitiveness outlook 2021: Empowering the green recovery*. Geneva: ITC. https://www.intracen.org/resources/publications/sme-competitiveness- outlook-2021-empowering-the-green-recovery

Iranmanesh, M., Nikbin, D., Ghobakhloo, M., & Foroughi, B. (2021). Marketing mix strategies during and after COVID-19 pandemic and recession: A systematic review. *Asia-Pacific Journal of Business Administration, 13*(3/4), 223–254. https://doi.org/10.1108/APJBA-06-2021-0243

Jaboob, M., Iqbal, S., & Hameed, S. F. (2025). How do emotional intelligence and psychological well being affect decision making in Omani SMEs? Mediating role of entrepreneurial intention? *Current Psychology*, 1–15. https://link.springer.com/article/10.1007/s12144-024-07186-9

Jahanara, M. (2017). Optimism, hope and mental health: Optimism, hope, psychological well-being and psychological distress among students, University of Pune, India. *International Journal of Psychological and Behavioral Sciences, 11*(8), 452–455. https://zenodo.org/records/1131553

Jayanto, I., Anggraeni, I. P., & Safitransyah, R. P. (2025). Resilience of SMEs in facing economic crises: Business model adaptation, product diversification, and resource optimization. *Journal of Contemporary Administration and Management (ADMAN), 3*(1), 616–623. https://journal.literasisainsnusantara.com/index.php/adman/article/view/260

Joshi, A. K., Matai, R., & Murthy, N. N. (2024). ICT investment in MSMEs. *The Bottom Line, 37*(1), 98–115.

Joshi, A. K., Matai, R., & Murthy, N. N. (2024). Measuring the impact of information and communication technology investment on the profitability of Indian manufacturing MSMEs. The Bottom Line, 37(1), 98–115.

Junaidi, J., Lubis, Z., Effendi, I., Aulia, M. R., Utami, M. P., & Supriatna, D. (2023). Strategy enhancement performance MSMEs through PTPN III partnership program. *Devotion Journal of Research and Community Service, 4*(2), 438. https://doi.org/10.36418/devotion.v4i2.397

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. Econometrica, 47(2), 263–291.

Kakkar, A., & Kaushik, N. (2019). HR analytics: Challenges and opportunities. *International Journal of Recent Technology and Engineering, 8*(4), 8860–8864.

Kant, R., & Shrutika, S. (2020). A case study on impact of value stream mapping as a lean tool in Indian manufacturing SMEs. *International Journal of Productivity and Quality Management, 31*(1), 1–20.

Kant, R., & Shrutika, S. (2020). Value stream mapping in SMEs. *International Journal of Productivity and Quality Management, 31*(1), 1–20.

Katyal, A., & Xaviour, B. (2015). A study on MSMEs'-role in propelling economic development of India & a discussion on current HR issues in MSMEs' in India. International *Journal of Scientific and Research Publications*, 5(2), 1-11. http://www.ijsrp.org/research-paper-0215.php?rp=P383745

Katyal, A., & Xaviour, B. (2015). MSME HR issues. *International Journal of Scientific and Research Publications, 5*(2), 1–5.

Katz, R., & Allen, T. (1982). Investigating the Not Invented Here (NIH) syndrome: A look at the performance, tenure, and communication patterns of 50 R&D project groups. *R&D Management, 12*(1), 7–20. https://www.researchgate.net/publication/229760377

Kawale, A. (2024, January 10). MSME profit expectations. *Business Standard*.

Keerthi, P., & Reddy, M. (2019). Adoption issues of HR analytics. *IOSR Journal of Business and Management, 21*(8), 49–53. https://www.iosrjournals.org/iosr-jbm/papers/Vol21-issue2/Series- 4/A2102040107.pdf

Khalid, B., Maalu, J., Gathungu, J., & McCormick, D. (2016). Entrepreneurial behaviour, institutional context and performance of micro and small livestock enterprises in North

Eastern Kenya. *Global Journal of Management and Business Research: A Administration and Management, 16*(9), 47–53. https://globaljournals.org/GJMBR_Volume16/7-Entrepreneurial- Behaviour-Institutional-Context.pdf

Khanna, H., Laroyia, S. C., & Sharma, D. D. (2020). A survey on Indian experience on Integrated Management Standards (IMS). *International Journal of Quality Research, 14*(3), 857–874. https://www.researchgate.net/publication/303874384

Khanna, H., Laroyia, S. C., & Sharma, D. D. (2020). Integrated management standards. *International Journal of Quality Research, 14*(3), 857–874.

Khatri, A. (2019). *A study of the challenges of the Indian MSME sector*. Mumbai: Sunrise Publications.

Kim, S-M., & Sherraden, M. (2014). The impact of gender and social networks on microenterprise business performance. *Journal of Sociology & Social Welfare, 41*(3), 49–69. https://www.researchgate.net/publication/305317486

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. International Journal of e-Collaboration, 11(4), 1–10.

Kodwani, A. D. (2017). Decoding training effectiveness: The role of organizational factors. *Journal of Workplace Learning, 29*(3), 200–216. https://www.researchgate.net/publication/316203386.

Kohli, A., & Gopal, R. (2022). Mental health in Indian workplaces: Barriers, awareness, and coping strategies. *Indian Journal of Occupational and Environmental Medicine, 26*(3), 145–154.

Köksal, M. H., & Özgül, E. (2007). The relationship between marketing strategies and performance in an economic crisis. *Marketing Intelligence and Planning, 25*(4), 326–342.

https://www.scribd.com/document/434222139

Kompaso, S. M., & Sridevi, M. S. (2010). Employee engagement: The key to improving performance. *International Journal of Business and Management, 5*(12), 89–96. https://www.researchgate.net/publication/49586552

Kraaijenbrink, J., Spender, J. C., & Groen, A. J. (2010). The resource-based view: A review and assessment of its critiques. Journal of Management, 36(1), 349–372.

Kumar, A., & Rani, M. (2023). Employee retention strategies and HR challenges in MSMEs: A review of Indian context. International Journal of Research in Business Management, 11(3), 15–25.

Kumar, R. (2021). Business diversification strategies and firm performance: Evidence from emerging markets. *International Journal of Management Studies, 28*(4), 56–70.

Kumar, S. (2020). Informality and vulnerability in Indian MSMEs: An HR perspective. *Journal of Development Studies, 56*(4), 623–640.

Kumar, S. (2024). Strategic managementA tool for growth in Indian MSME. *IIP Series, 1*(1), 1–20.

Kumari, M., & Kumari, S. (2024). *MSME in India: Engines of employment generation and economic growth*. Delhi: Pioneer Books.

Kuwu, E. A., & Gakure, R. W. (2014). Effects of marketing strategies, 4Ps of marketing elements and firm resources on the performance of small and medium enterprises in Nigeria. *International*

Labola, Y. A. (2019). Konsep pengembangan sumber daya manusia berbasis kompetensi, bakat dan ketahanan dalam organisasi. *Jurnal Manajemen dan Kewirausahaan, 7*(1). https://www.researchgate.net/publication/334136722

Lafuente, E., & Abad, J. (2018). Analysis of the relationship between the adoption of OHSAS 18001 and business performance in different organisational contexts. *Safety Science, 103*, 12–22. https://www.researchgate.net/publication/321085836

Lathabhavan, R., Barami, A., Kurikkal, M., & Manoj, N. (2021). Mental health concerns of small business entrepreneurs in India due to COVID-19 financial distress. *Asian Journal of Psychiatry, 64*, 102774. https://linkinghub.elsevier.com/retrieve/pii/S1876201821002306

Le Moal, M., Thurik, R., Torrès, O., & Soenen, G. (2025). Mental health of entrepreneurs and daily recovery experiences. *Small Business Economics*. https://www.researchgate.net/publication/393332446

Leonardi, M. C., & Harsono, Y. T. (2022). The relationships between psychological capital and psychological well-being of MSME owners in Tempursari Village. In *International Conference of Psychology 2022 (ICoPsy 2022)* (pp. 13–33). Knowledge E Social Sciences. https://www.researchgate.net/publication/365639515

Levin, M., & Greenwood, D. (2016). Revitalizing universities by reinventing the social sciences: Bildung and action research. SAGE Publications.

Liang, H., Saraf, N., Hu, Q., & Xue, Y. (2007). Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management. MIS Quarterly, 31(1), 59–87.

Likert, R. (1932). A technique for the measurement of attitudes. Archives of Psychology, 22(140), 1–55.

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. SAGE Publications.

Lo, K. Y., Pagell, M., Fan, D., Wiengarten, F., & Yeung, A. C. L. (2014). OHSAS 18001

certification and operating performance: The role of complexity and coupling. *Journal of Operations Management, 32*(5), 268–280. https://onlinelibrary.wiley.com/doi/epdf/10.1016/j.jom.2014.04.004

Lockett, A., Thompson, S., & Morgenstern, U. (2009). The development of the resource-based view of the firm: A critical appraisal. *International journal of management reviews*, 11(1), 9-28. https://doi.org/10.1111/j.1468-2370.2008.00252.x

Loo, M. K., Ramachandran, S., & Raja Yusof, R. N. (2023). Unleashing the potential: Enhancing technology adoption and innovation for micro, small and medium-sized enterprises (MSMEs). *Cogent Economics & Finance,* 11(2), 2267748. https://doi.org/10.1080/23322039.2023.2267748

Loo, M. K., Ramachandran, S., & Yusof, R. N. R. (2023). Technology adoption in MSMEs. *Cogent Economics & Finance, 11*(2), 2267748.

Loo, R. C., Ramachandran, S., & Yusof, N. A. (2023). Enhancing technology adoption and innovation for MSMEs in emerging Asia: Policy recommendations and implementation strategies. *Asian Journal of Business Research, 13*(1), 55–70.

Luthans, F., Avolio, B. J., & Youssef, C. M. (2007). *Psychological capital: Developing the human competitive edge*. Oxford: Oxford University Press. https://www.academia.edu/22943737

MacKenzie, S. B., Podsakoff, P. M., & Podsakoff, N. P. (2011). Construct measurement and validation procedures in MIS and behavioral research: Integrating new and existing Techniques1. *MIS quarterly, 35*(2), 293-334. https://doi.org/10.2307/23044045

Maheshkar, C., & Soni, N. (2021). MSME challenges. *SEDME, 48*(2), 142–159.

Maheshkar, C., & Soni, N. (2021). Problems faced by Indian Micro, Small and Medium Enterprises (MSMEs). *SEDME (Small Enterprises Development, Management & Extension Journal), 48*(2), 142–159. https://www.researchgate.net/publication/358435688.

Mahmood, A., Arshad Ali, A., Nazam, M., & Nazim, M. (2021). Developing an interplay among the psychological barriers for the adoption of industry 4.0 phenomenon. *PLOS ONE, 16*(8), E0255115. https://www.researchgate.net/publication/353668113

Mahmudah, S., & Handayani, E. (2017). Dimensi kewirausahaan, pendidikan dan kecerdasan emosional terhadap motivasi dan kinerja usaha. *Jurnal Pengembangan Wiraswasta, 19*(3), 189. https://scholar.google.com/citations?view_op=view_citation&hl=id&user=AAhOnO4AAAAJ&c itation_for_view=AAhOnO4AAAAJ:ufrVoPGSRksC

Maiti, D., & Mitra, A. (2011). Informality, vulnerability and development. *Journal of Developmental Entrepreneurship,* 16(02), 199-211.https://doi.org/10.1142/S1084946711001793

Martin, A., Kilpatrick, M., Scott, J., Cocker, F., Dawkins, S., Brough, P., & Sanderson, K. (2020). Protecting the mental health of small-to-medium enterprise owners: A randomized control trial evaluating a self-administered versus telephone supported intervention. *Journal of Occnon-responsend Envinon-responseedicine, 62*(7), 503–510. https://pmc.ncbi.nlm.nih.gov/articles/PMC7337118/

Martinravi, C. P., & Krishnasamy, K. (2025). Unleashing the potential of MSMEs in India: A strategic analysis. *Journal of the International Council for Small Business*, *6*(1), 123-143. https://doi.org/10.1080/26437015.2024.2397664.

Maziriri, E. T., Chuchu, T., & Madinga, N. W. (2019). Antecedents of psychological well-being among workers within small and medium enterprises. *SA Journal of Industrial Psychology, 45*(1), 1–13. https://www.researchgate.net/publication/335760298

Mehrotra, S., & Parida, J. (2019). Informal sector persistence. *World Development, 120*, 220–232.

Mehrotra, S., & Parida, J. (2019). Why is the informal sector so persistent in India? World Development, 120, 220–232.

Melander, A., Brunninge, O., Andersson, D., Elgh, F., & Löfving, M. (2024). Management innovation in SMEsTaking psychological ownership of Hoshin Kanri. *Production Planning & Control, 35*(14), 1687–1705. https://www.researchgate.net/publication/370944790

Ministry of Finance, Government of India. (2020). *Atmanirbhar Bharat Abhiyan: Economic stimulus measures*.

Ministry of Micro, Small & Medium Enterprises, Government of India. (2023). *Micro, small and medium enterprises in the digital era: MSME annual report 2023*. New Delhi: Author.

Ministry of Micro, Small and Medium Enterprises. (2023). *MSME annual report 2023*. Government of India.

Mochammad, F. (2025). The mediator role of risk classification and profiling in financial decision-making. *Journal of Financial Management, 17*(2), 120–135.

Morgan, D. L. (2014). Pragmatism as a paradigm for social research. Qualitative Inquiry, 20(8), 1045–1053. https://doi.org/10.1177/1077800413513733

Msangi, A. (2023). Perceived organizational support and employee engagement in Tanzanian SMEs. *Research Journal of Business and Management, 10*(3), 152–164.

MSME Dashboard. (2023). MSME statistics. https://dashboard.msme.gov.in

Mustangin, M., Iqbal, M., & Buhari, M. (2021). Proses perencanaan pendidikan nonformal untuk peningkatan kapasitas teknologi pelaku UMKM. *Jurnal Penelitian dan Pengembangan Pendidikan, 5*(3), 414–422. https://www.researchgate.net/publication/358593078

Mutoharoh, A. F., & Muryanto, S. (2021). Pengoptimalan sektor perekonomian pada UMKM dengan disusunnya suatu laporan keuangan sederhana di Dusun Kwarigan, Desa Bakulan, Kecamatan Cepogo, Kabupaten Boyolali. *Senyum Boyolali, 2*(2), 55–62. https://www.researchgate.net/publication/357833302

Nababan, T. (2014). Membangun sustainable entrepreneurship untuk meningkatkan daya saing global. In *Proceeding of National Seminar and Call For Paper, Faculty of Economics, Maranatha Christian University*. https://mpra.ub.uni-muenchen.de/65292/1/MPRA_paper_65292.pdf

Nadaf, R., & Kadakol, A. M. (2017). A study of major problems, prospects and performance aspects of MSME's in India. *International Journal of Research in Management, Economics and Commerce, 7*(5), 1–10. https://www.researchgate.net/publication/328655053.

Nair, S. (2024, April 14). Succession planning and Indian family managed businesses. *LinkedIn*. https://www.linkedin.com/pulse/succession-planning-indian-family-managed-businesses-sreejit- nair-xsyjf

Nautiyal, S., & Pathak, P. (2024). Resilience through the lens of entrepreneurship: A bibliometric analysis and network mapping of the emerging research field. *International Journal of Organizational Analysis, 32*(3), 522–544. https://www.researchgate.net/publication/370438500

Neely, B. H., Lovelace, J. B., Cowen, A. P., & Hiller, N. J. (2020). Upper echelons theory critique. *Journal of Management, 46*(6), 1029–1062.

Nickell, D., Rollins, M., & Hellman, K. (2013). How to not only survive but thrive during recession: A multi-wave, discovery-oriented study. *Journal of Business and Industrial Marketing, 28*(5), 455–461. https://sci-hub.se/10.1108/08858621311330290

Nimbagal, S. V., & Mandali, J. (2019). Human resource management practices in MSMEsAn analysis of Hubli region. In *International Conference on Applied Engineering and Management*. Hubli, India. https://www.researchgate.net/publication/359973426

NPCI. (2024). *UPI ecosystem statistics 2023–24*. https://www.npci.org.in

Obazee, E. (2024). Financial management practices in MSMEs. *Journal of Business Research, 45*(2), 120–135.

OECD. (2008) Enhancing the Role of SMEs in Global Value Chains. *OECD Publishing*. https://doi.org/10.1787/9789264051034-en

OECD. (2021). *Strengthening the role of SMEs in global value chains*. Paris: OECD Publishing. https://doi.org/10.1787/9789264278623-en

Okoli, N., et al. (2024). Innovation practices: Catalyst for SMEs performance in Anambra State, Nigeria. *International Journal of Entrepreneurship and Project Management, 9*(1), 1–17. https://doi.org/10.47604/ijepm.2248.

Okoli, N., Nuel-Okoli, M., & Ibekwere, M. (2024). Innovation Practices: Catalyst for SMEs Performance in Anambra State, Nigeria. *International Journal of Entrepreneurship and Project Management*, *9*(1), 1-17. https://doi.org/10.47604/ijepm.2248

Okręglicka, M., Kozłowski, R., & Walecka, A. (2015). Barriers to the adoption of sustainable technologies in SMEs: An international perspective. *Procedia Manufacturing, 3*, 590–597.

Organ, D. W. (1997). Organizational citizenship behavior: It's construct clean-up time. *Human Performance, 10*(2), 85–97. https://www.researchgate.net/publication/247083204

Pahnke, A., Schlepphorst, S., & Schlömer-Laufen, N. (2024). Family business successions between desire and reality. *Journal of Business Venturing Insights, 21*, E00457. https://www.sciencedirect.com/science/article/pii/S235267342400009X

Pandey, R., Upadhyay, H., Tripathi, N. K., and Gupta, S. (2022). MSME innovation ecosystem in India: Challenges and prospects. Journal of Innovation and Entrepreneurship, 11(1), 1–18.

Pandita, S., et al. (2020). Occupational risks and working conditions in Indian MSMEs. *The Indian Journal of Labour Economics, 63*(1), 143–162.

Panigrahi, A. (2013). Risk management in Micro, Small and Medium Enterprises (MSMEs) in India: A critical appraisal. *SSRN Electronic Journal*.

Panjaitan, R. (2022). Towards resilient MSMEs: The role of organizational resilience and entrepreneurial resilience. *JURNAL MANAJEMEN DAN KEUANGAN, 11*(1), 98–108. https://www.researchgate.net/publication/361103087

Papaiah, G., & Reddy, R. J. (2019). A study on prospects and challenges of MSMEs in India. *International Journal of Research and Analytical Reviews (IJRAR), 6*(1), 113a–113g. https://www.ijrar.org/papers/IJRAR19J2208.pdf

Papola, T. S. (2018). Social protection in the informal sector in India: Challenges and strategies.

Patel, R., Kumar, A., & Singh, J. (2024). *The interconnected firm: A holistic model for SME success in India*. New Delhi: Sage Publications.

Patel, R., Kumar, A., & Singh, J. (2024). *The interconnected firm*. Sage Publications.

Patel, V., Xiao, S., Chen, H., Hanna, F., Jotheeswaran, A. T., & Rao, G. N. (2016). The magnitude of and health system responses to the mental health treatment gap in adults in India and China. *The Lancet, 388*(10063), 3074–3084. https://www.researchgate.net/publication/303360429

Patil, Aditya & Pisal, Mahesh & Suryavanshi, Chandrakant. (2021). Application of value stream mapping to enhance productivity by reducing manufacturing lead time in a manufacturing company: A case study. *Journal of Applied Research and Technology*. 19. 11-22. https://doi.org/10.22201/icat.24486736e.2021.19.1.1488

Patton, M. Q. (2015). Qualitative research and evaluation methods (4th ed.). SAGE Publications.

Paul, J., & Rosado-Serrano, A. (2019). Gradual internationalization vs born-global/international new venture models: A review and research agenda. *International Marketing Review, 36*(6), 830– 858.

PayNearby. (2024). *MSME digital index report 2024*. BW Retail World.

Petrenko, O. V., Aime, F., Ridge, J., & Hill, A. (2016). Corporate social responsibility or CEO

narcissism? CSR motivations and organizational performance. *Strategic Management Journal, 37*(2), 262–279. https://www.researchgate.net/publication/268528664

Pierce, J. L., Kostova, T., & Dirks, K. T. (2003). The state of psychological ownership: Integrating and extending a century of research. *Review of General Psychology, 7*(1), 84–107. https://journals.sagepub.com/doi/10.1037/1089-2680.7.1.84

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Prayudi, A., Pratiwi, H., Aulia, M. R., & Sari, W. P. (2023). The influence of technical competencies and psychological well-being on the competitiveness of micro, small, and medium enterprises. *Bulletin of Counseling and Psychotherapy, 5*(3). https://journal.kurasinstitute.com/index.php/bocp/article/view/1310.

Prayudi, M. A., Vijaya, D. P., & Ekawati, L. P. (2019). What drives MSME performance? The role of gender, operational aspects, and social environment. *Journal of Contemporary Accounting, 1*(2), 65–84. https://www.researchgate.net/publication/349066400

Priyaadarshini, R. G., & Jena, L. K. (2024). Does self and role efficacy navigate effectiveness among MSME managers? Journal of Asia Business Studies, 18(4), 984–1003.

Priyaadarshini, R. G., & Jena, L. K. (2024). Managerial effectiveness in MSMEs. *Journal of Asia Business Studies, 18*(4), 984–1003.

Protogerou, A., Caloghirou, Y., & Lioukas, S. (2012). Dynamic capabilities and their indirect impact on firm performance. Industrial and Corporate Change, 21(3), 615–647.

Purnamasari, P., Pramono, I. P., Haryatiningsih, R., Ismail, S. A., & Shafie, R. (2020). Technology Acceptance Model of financial technology in micro, small, and medium enterprises (MSME) in Indonesia. *Journal of Asian Finance, Economics and Business, 7*(10), 981–988. https://www.researchgate.net/publication/346245660

Radipere, S., & Dhliwayo, S. (2014). The role of gender and education on small business performance in the South African small enterprise sector. *Mediterranean Journal of Social Sciences, 5*(9), 104–110. https://scholar.google.com/citations?view_op=view_citation&hl=en&user=B1NwhscAAAAJ&ci tation_for_view=B1NwhscAAAAJ:2osOgNQ5qMEC

Rahman, A., Susanti, D., & Nugroho, Y. (2022). Digital transformation in MSMEs: Challenges and opportunities in technology management. *International Journal of Business and Technology Management, 4*(2), 1–10. https://www.researchgate.net/publication/381641312.

Rani, K. E. (2015). The role of psychological capital (PsyCap) in psychological well being of unemployed Indian youth. *Journal of Psychosocial Research, 10*(1), 149–159. https://www.proquest.com/docview/1701853734

Realyvásquez-Vargas, A., Flor-Moltalvo, F. J., Blanco-Fernández, J., Sandoval-Quintanilla, J. D., Jiménez-Macías, E., & García-Alcaraz, J. L. (2019). Implementation of production process standardizationA case study of a publishing company from the SMEs sector. *Processes, 7*(10), 646. https://d1wqtxts1xzle7.cloudfront.net/73539783/pdf-libre.pdf

Reger, R. K., Gustafson, L. T., Demarie, S. M., & Mullane, J. V. (1994). Reframing the organization: Why implementing total quality is easier said than done. *The Academy of Management Review, 19*(3), 565–584. https://www.jstor.org/stable/258939

Reif, T., Bauer, D., Junge, S., & Hossnofsky, V. (2025). An update on family firm succession: A systematic literature review and future research directions. *Journal of Family Business Strategy, 16*, 100671. https://www.researchgate.net/publication/395144357

Rigdon, E. E. (2016). Choosing PLS path modeling as analytical method in European management research: A realist perspective. European Management Journal, 34(6), 598–605.

Rindrayani, A. (2016). *The determinants of micro, small and medium enterprises (MSMEs) financial performance: A literature review*. Atlantis Press.

Ringle, C. M., Wende, S., & Becker, J.-M. (2022). SmartPLS 4. SmartPLS GmbH. https://www.smartpls.com

Robert, M., Giuliani, P., Guilloton, A., & Khallouk, M. (2019). Management innovation: A dynamic analysis of the implementation phase over time. *Production Planning & Control, 30*(15), 1219–1238. https://www.researchgate.net/publication/351118780

Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science, 4*(4), 99–104. https://doi.org/10.1111/1467-8721.ep10772395

Sahoo, P. S. B. B., & Thakur, V. (2023). Enhancing the performance of Indian micro, small and medium enterprises by implementing supply chain finance: Challenges emerging from COVID- 19 pandemic. *Benchmarking: An International Journal, 30*(6), 2110–2138.

Sahoo, P. S. B. B., & Thakur, V. (2023). Supply chain finance in MSMEs. *Benchmarking: An International Journal, 30*(6), 2110–2138.

Sampe, J. F. (2023). The Influence of HRM Practices on SMEs Organizational Performance. *JManagER*, *2*(02), 1-16. https://ojs.feb.uajm.ac.id/index.php/jmer/article/view/402

Sarstedt, M., Hair, J. F., Cheah, J.-H., Becker, J.-M., & Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. Australasian Marketing Journal, 27(3), 197–211.

Saunders, M., Lewis, P., & Thornhill, A. (2019). Research methods for business students (8th ed.). Pearson Education.

Shafie, D. I., & Isa, S. M. (2022). Examining entrepreneurial self-efficacy and basic psychological needs satisfaction on entrepreneurial resilience among entrepreneurs. *International Journal of Education, Psychology and Counseling, 7*(47), 130–136. https://www.researchgate.net/publication/367158469

Shane, S., Locke, E. A., & Collins, C. J. (2012). Entrepreneurial motivation. *Human Resource Management Review, 13*(2), 257–279. https://www.sciencedirect.com/science/article/abs/pii/S1053482203000172.

Sharma, P., & Jain, K. (2023). *Leadership and growth in Indian family-owned businesses*. Mumbai: Oxford University Press.

Sherlywati, R., Handayani, R., & Harianti, A. (2017). Analisis perbandingan kemampuan kewirausahaan pengusaha perempuan dan laki-laki: Studi pada UMKM di Kota Bandung. *Jurnal Manajemen Maranatha, 16*(2), 155–166. https://www.researchgate.net/publication/318054511

Sijtsma, K. (2009). On the use, the misuse, and the very limited usefulness of Cronbach's alpha. Psychometrika, 74(1), 107–120.

Singh, D., Khamba, J. S., & Nanda, T. (2014). Exploring the determinants of technology innovation in MSMEs. *Journal of Engineering Research in Africa, 13*, 103–115. https://doi.org/10.4028/www.scientific.net/jera.13.103

Singh, P., & Singh, D. (2014). Technology development in MSMEs. *International Journal of Application or Innovation in Engineering & Management, 3*(3), 164–170.

Singla, H. K., & Phadtare, M. (2025). Risk management practices in construction projects: a qualitative exploration of MSMEs in India. *Journal of Advances in Management Research*, 22(5), 770-793. https://doi.org/10.1108/JAMR-06-2024-0217

Sitkin, S. B. (1992). Learning through failure: The strategy of small losses. Research in Organizational Behavior, 14, 231–266.

Snyder, C. R. (1999). Hope, goal-blocking thoughts, and test-related anxieties. *Psychological Reports, 84*(1), 206–208. https://doi.org/10.2466/pr0.1999.84.1.206

Song, S., Zhou, L., Sindakis, S., Aggarwal, S., & Chen, C. (2022). The impact of intergenerational succession intention on family firm's innovation strategy: Evidence from China. *Journal of the Knowledge Economy*. https://link.springer.com/article/10.1007/s13132-022-01078- 8

Stephan, U., Hart, M., Drews, C.-C., & Mickiewicz, T. (2015). *Understanding motivations for entrepreneurship: A review of recent research evidence.* https://doi.org/10.13140/RG.2.1.3343.2165

Stroh, T., Mention, A.-L., & Duff, C. (2022). How do psychological factors affect innovation and

adoption decisions? *International Journal of Innovation Management, 26*(9), 2240026. https://www.researchgate.net/publication/364610520.

Subramanian, N., & Suresh, M. (2023). Green organizational culture in manufacturing SMEs: an analysis of causal relationships. *International Journal of Manpower*, *44*(5), 789-809. https://doi.org/10.1108/IJM-09-2021-0557

Sudit K Parekh. (2010). *U.S.A. tax effects of a Hindu Undivided Family*. https://www.phillipsnizer.com/siteFiles/24503/Article-LegalEra-HinduUndividedProperty-10- 2010.pdf

Sugiarto, S. (2018). Challenges to Indian micro small scale and medium enterprises in the era of globalization. *Journal of Innovation and Entrepreneurship, 7*(1), 13.

Sullivan-Taylor, B., & Branicki, L. (2011). Creating resilient SMEs: Why one size might not fit all. *International Journal of Production Research, 49*(18), 5565–5579. https://www.researchgate.net/publication/233123900

Susilawati, M. (2024). Entrepreneurial resilience: Strategies for MSMEs to navigate uncertainties and challenges in contemporary markets. *International Journal of Business, Law, and Education, 5*(2), 1687–1695. http://ijble.com/index.php/journal/article/view/661

Tabala, A., Munene, J. C., Kagaari, J., Mafabi, S., & Kyogabiirwe, J. (2024). Psychological well-being of small enterprise employees: A multi-theoretical perspective. *International Journal of Organizational Analysis, 32*(6), 1042–1059. https://www.emerald.com/ijoa/article- abstract/32/6/1042/1215776

Tashakkori, A., & Teddlie, C. (2010). SAGE handbook of mixed methods in social & behavioral research (2nd ed.). SAGE Publications.

Teece, D. J. (2018). Dynamic capabilities as (workable) management systems theory. *Journal of Management and Organization, 24*(3), 359–368.https://doi.org/10.1017/jmo.2017.75

Teece, D. J., Pisano, G., and Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509–533.

Thompson, R. B., Corsello, M., McReynolds, S., & Conklin-Powers, B. (2013). A longitudinal study of family socioeconomic status (SES) variables as predictors of socio-emotional resilience among mentored youth. *Mentoring & Tutoring: Partnership in Learning, 21*(4), 378–391. https://www.researchgate.net/publication/259853192.

Tiwari, R., and Tiwari, N. (2023). Innovation challenges in Indian MSMEs: A systematic review. International Journal of Entrepreneurship and Small Business, 48(3), 320–344.

UNCTAD. (2023). *World investment report 2023*. United Nations.

Vaccaro, I. G., Jansen, J. I., Van Den Bosch, F. A., & Volberda, H. W. (2012). Management innovation and leadership: The moderating role of organizational size. *Journal of Management Studies, 49*(1), 28–51. https://www.researchgate.net/publication/228197551

Verbano, C., & Venturini, K. (2013). Managing risks in small and medium enterprises: A literature review and research agenda. *European Management Journal, 31*(3), 283–295.

Verma, S. (2022). Beyond the blueprint: The role of organisational culture in process adoption within SMEs. *Indian Journal of Industrial Relations, 58*(1), 88–102.

Verma, S. (2022). Organisational culture in SMEs. *Indian Journal of Industrial Relations, 58*(1), 88–102.

Vogus, T. J., & Sutcliffe, K. M. (2007). Organizational resilience: Towards a theory and research

agenda. In Proceedings of the IEEE International Conference on Systems, Man and Cybernetics (pp. 3418–3422). Montreal: IEEE.

Wan, Y., & Ron, M. (2023). Assessing the influence of science and research institutions on innovation in Austrian service SMEs. *Journal of Positive Organization, 5*(3), 8–16. https://resdojournals.com/index.php/jpo/article/view/276

Weick, K. E. (1995). *Sensemaking in organizations*. Sage. https://www.researchgate.net/publication/257397559.

Wernerfelt, B. (1984). A resource-based view of the firm. Strategic Management Journal, 5(2), 171–180.

Wiseman, R. M., & Gomez-Mejia, L. R. (1998). A behavioral agency model of managerial risk taking. Academy of Management Review, 23(1), 133–153.

World Bank. (2022). *Unlocking the potential of SMEs in emerging markets*. World Bank Group.

World Bank Group. (2020). *Capital markets and SMEs in emerging markets and developing economies: Can they go the distance?* World Bank Group. https://doi.org/10.1596/33373

Wulandari, A. (2007). Analisis faktor-faktor yang mempengaruhi kinerja tenaga penjual melalui kerja cerdas. *Jurnal Sains Pemasaran Indonesia*. https://www.researchgate.net/publication/277842903

Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). SAGE Publications.

APPENDIX A:

SURVEY QUESTIONNAIRE

Please indicate your level of agreement with the following statements based on your organisation's current practices.

Scale:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

SECTION A: PEOPLE (People Maturity)

A1. HR Formalisation

- PEO1: Our organisation has clearly defined roles and responsibilities for employees.
- PEO2: Recruitment and selection processes are structured and systematic.
- PEO3: Performance evaluation is conducted regularly and fairly.
- PEO4: Employees receive clear guidelines regarding their job expectations.

A2. Training & Skill Development

- PEO5: Employees are regularly provided with training opportunities.

- PEO6: Training programmes improve employees' skills and competencies.
- PEO7: Employees are encouraged to learn new skills relevant to their work.
- PEO8: Skill development contributes to better performance in our organisation.

A3. Leadership Capability

- PEO9: Leaders in our organisation provide clear direction and vision.
- PEO10: Leadership inspires and motivates employees to achieve organisational goals.
- PEO11: Leaders motivate employees to perform better.
- PEO12: Leadership ensures alignment between goals and activities.

SECTION B: PROCESS (Process Maturity)

B1. Operational Efficiency

- PRO1: Our operations are efficient with minimal wastage of resources.
- PRO2: Work processes are well-organised and streamlined.
- PRO3: Tasks are completed within defined timelines.
- PRO4: Operational systems support productivity effectively.

B2. Financial Management

- PRO5: Financial planning and budgeting are properly maintained.
- PRO6: The organisation effectively manages costs and expenses.
- PRO7: Financial decisions are based on proper analysis.
- PRO8: The organisation maintains financial stability.

B3. Technology Adoption

- PRO9: Our organisation uses technology to improve efficiency.
- PRO10: Digital tools support decision-making processes.
- PRO11: Technology is regularly updated to meet business needs.
- PRO12: Technology adoption improves overall performance.

SECTION C: PRODUCT (Product Capability)

C1. Innovation

- PRD1: Our organisation regularly introduces new or improved products/services.
- PRD2: Innovation is encouraged within the organisation.
- PRD3: We respond quickly to market changes with new ideas.
- PRD4: Innovation contributes to business growth.

C2. Market Positioning

- PRD5: Our products/services are clearly positioned in the market.
- PRD6: The organisation understands customer needs well.
- PRD7: Marketing strategies effectively reach target customers.
- PRD8: Our brand is recognised in the market.

C3. Quality & Differentiation

- PRD9: Our products/services maintain high quality standards.
- PRD10: Our offerings are distinct from competitors.
- PRD11: Customers perceive our products/services as valuable.
- PRD12: Quality contributes to customer satisfaction and retention.

SECTION D: PSYCHOLOGY (Psychological Capability)

D1. Risk Orientation

- PSY1: The organisation is willing to take calculated risks.
- PSY2: Management is open to exploring new opportunities.
- PSY3: Risk-taking is encouraged when necessary for growth.
- PSY4: The organisation balances risk and return effectively.

D2. Decision-Making

- PSY5: Decisions are made quickly and effectively.
- PSY6: Decision-making is based on relevant information.
- PSY7: Management considers multiple alternatives before decisions.
- PSY8: Decisions support long-term organisational goals.

D3. Adaptability

- PSY9: The organisation adapts quickly to market changes.

- PSY10: Employees are open to change and new ideas.
- PSY11: The organisation responds effectively to challenges.
- PSY12: Adaptability improves business performance.

SECTION E: MSME PERFORMANCE (Dependent Variable)

E1. Financial Performance

- PER1: Our organisation has experienced growth in revenue.
- PER2: Profitability has improved over time.
- PER3: The organisation achieves its financial targets.

E2. Operational Performance

- PER4: The organisation operates efficiently.
- PER5: Productivity has improved over time.
- PER6: The organisation achieves its operational goals.

APPENDIX B:

THE PULSE 4P™ BUSINESS HEALTH INDEX — INSTRUMENT DOCUMENTATION

Overview of the PULSE 4P Framework

The PULSE 4P Framework is a multidimensional organisational capability assessment framework developed to evaluate the overall maturity of Micro, Small, and Medium Enterprises (MSMEs). The framework is grounded in the central proposition of the present study that organisational performance is influenced not by a single capability dimension but by the interaction of multiple organisational and managerial capabilities.

The framework comprises four core dimensions:

People Maturity refers to the extent to which an organisation has developed structured human-resource practices, employee development systems, leadership capability, performance management processes, and workforce engagement mechanisms.

Process Maturity assesses the degree of formalisation and effectiveness of organisational processes, including operational systems, standard operating procedures, technology adoption, financial management practices, quality control mechanisms, and regulatory compliance.

Product Capability evaluates the organisation's ability to develop, position, improve, and differentiate its products or services in response to market requirements. This dimension encompasses innovation, customer value creation, market positioning, branding, and competitive differentiation.

Psychological Capability captures the cognitive and behavioural characteristics of owner-managers that influence organisational decision-making. This includes strategic orientation, adaptability, risk-taking propensity, decision-making effectiveness, change readiness, and delegation capability.

The framework assumes that these four dimensions are interdependent and collectively contribute to overall organisational capability. Rather than operating in isolation, strengths or weaknesses in one dimension may influence the effectiveness of the others. Consequently, the framework provides a holistic perspective for examining capability development within MSMEs.

For the purposes of this study, the framework was operationalised through a structured assessment instrument that generated capability profiles across the four dimensions. These profiles were used to support case analysis and facilitate comparison between participating organisations during the qualitative phase of the research.

APPENDIX C:

PARTICIPANT INFORMATION SHEET

Study Title: A 4P Framework for Strengthening MSMEs in India

Researcher: Shrenik Shah, Doctor of Business Administration (DBA) Candidate, Swiss School of Business and Management (SSBM) Geneva.

Supervisor: Vasiliki Grougiou, SSBM Geneva. Contact: v.grougiou@uom.edu.gr .

1. Invitation and purpose. You are invited to take part in a doctoral research study examining how four organisational capability dimensions People, Process, Product, and Psychology (the '4P Framework') jointly influence the performance of Micro, Small and Medium Enterprises (MSMEs) in India. Before you decide whether to participate, it is important that you understand why the research is being conducted and what your participation involves. Please read this sheet carefully and ask the researcher any questions you may have.

2. What participation involves. (a) Survey respondents: completion of an online structured questionnaire of approximately 15–20 minutes covering your organisation's practices across the four capability dimensions and its performance. (b) Case study informants: participation in one or more semi-structured interviews of approximately 45–60 minutes (in person or by video call), possible observation of routine business activities during the consulting engagement, and access to business documents that you choose to share. With your separate permission, interviews may be audio-recorded for accurate transcription.

3. Voluntary participation and withdrawal. Your participation is entirely voluntary. You may decline to answer any question, and you may withdraw from the study at any time before publication of the results without giving a reason and without any penalty or effect on any

existing professional relationship with the researcher. If you withdraw, any identifiable data you have provided will be deleted upon request.

4. Confidentiality and anonymity. Survey responses are collected anonymously: no names, firm names, contact details, or IP addresses are recorded. For the case studies, individual employees are identified only by role-based pseudonyms (for example, 'Sales Manager, Firm B'). Case study firms are identified by name in the thesis only where the owner-manager has provided separate written permission (see the Organisational Permission Letter, Appendix F). Commercially sensitive financial information is reported only in aggregated or range form.

5. Data storage and use. All data will be stored on a password-protected institutional server accessible only to the researcher, retained for the period required by SSBM Geneva, and used solely for academic purposes, including the doctoral thesis and any derived scholarly publications.

6. Risks and benefits. No risks beyond those of everyday professional life are anticipated. There is no payment for participation. Case study firms receive the ordinary benefit of the consulting engagement; survey respondents may request a summary of the findings.

7. Dual role of the researcher. The researcher is also a practising business consultant. Research observations are recorded separately from consulting advice, and your decision to participate (or not) in the research has no bearing on the consulting services provided.

8. Questions and concerns. Questions about the study may be directed to the researcher at <researcher email / phone>. Concerns about the conduct of the research may be raised with the supervisor or with SSBM Geneva.

Thank you for considering participation in this study. If you agree to take part, you will be asked to sign the Informed Consent Form (Appendix D).

APPENDIX D:

INFORMED CONSENT FORMS

The informed consent forms were provided to all participants prior to data collection. Participation was voluntary, and participants were informed of the purpose of the study, confidentiality provisions, data protection procedures, and their right to withdraw without penalty. Signed consent was obtained before participation commenced.

Study Title: A 4P Framework for Strengthening MSMEs in India

Researcher: Shrenik Shah, DBA Candidate, SSBM Geneva.

Please initial each statement below to confirm your agreement:

1. I confirm that I have read and understood the Participant Information Sheet for the above study, and have had the opportunity to ask questions, which have been answered to my satisfaction. Yes

2. I understand that my participation is voluntary and that I am free to withdraw at any time before publication, without giving a reason and without penalty. Yes

3. I understand how my data will be collected, stored, and used, as described in the Participant Information Sheet, and I consent to the use of my anonymised responses in the doctoral thesis and derived academic publications. Yes

4. I understand that my identity will be protected through role-based pseudonyms and that no personally identifying information will be published about me. Yes

5. (Interview participants only) I consent to the interview being audio-recorded for transcription purposes. Yes

6. (Owner-managers only) I am authorised to provide consent on behalf of my organisation for its participation in the case study component of this research. Yes

7. I agree to take part in this study. Yes

Participant name: Chirag Shah Role / Organisation: Champcon Control

Signature: _____ Date: _____

Participant

Researcher name: Shrenik Shah

Signature: _____ Date: _____

Researcher

Please initial each statement below to confirm your agreement:

1. I confirm that I have read and understood the Participant Information Sheet for the above study, and have had the opportunity to ask questions, which have been answered to my satisfaction. Yes

2. I understand that my participation is voluntary and that I am free to withdraw at any time before publication, without giving a reason and without penalty. Yes

3. I understand how my data will be collected, stored, and used, as described in the Participant Information Sheet, and I consent to the use of my anonymised responses in the doctoral thesis and derived academic publications. Yes

4. I understand that my identity will be protected through role-based pseudonyms and that no personally identifying information will be published about me. Yes

5. (Interview participants only) I consent to the interview being audio-recorded for transcription purposes. Yes

6. (Owner-managers only) I am authorised to provide consent on behalf of my organisation for its participation in the case study component of this research. Yes

7. I agree to take part in this study. Yes

Participant name: Hardik Shah Role / Organisation: Owner, Panth Infrastructure

Signature: _____ Date: _____

Participant

Researcher name: Shrenik Shah

Signature: _____ Date: _____

Researcher

Researcher: Shrenik Shah, DBA Candidate, SSBM Geneva.

Please initial each statement below to confirm your agreement:

1. I confirm that I have read and understood the Participant Information Sheet for the above study, and have had the opportunity to ask questions, which have been answered to my satisfaction. Yes

2. I understand that my participation is voluntary and that I am free to withdraw at any time before publication, without giving a reason and without penalty. Yes

3. I understand how my data will be collected, stored, and used, as described in the Participant Information Sheet, and I consent to the use of my anonymised responses in the doctoral thesis and derived academic publications. Yes

4. I understand that my identity will be protected through role-based pseudonyms and that no personally identifying information will be published about me. Yes

5. (Interview participants only) I consent to the interview being audio-recorded for transcription purposes. Yes

6. (Owner-managers only) I am authorised to provide consent on behalf of my organisation for its participation in the case study component of this research. Yes

7. I agree to take part in this study. Yes

Participant name: Kalpesh Bachhawat Role / Organisation: Vimson Derma

Signature: _____ Date: _____

Participant

Researcher name: Shrenik Shah

Signature: _____ Date: _____

Researcher

APPENDIX E:

SEMI-STRUCTURED INTERVIEW GUIDE

This guide structured the interviews with owner-managers and senior employees of the three case study firms (Section 3.8.3). For each 4P dimension, questions addressed current practices, historical development, challenges, and perceptions of change. Prompts were used flexibly; wording was adapted to the informant's role and the flow of conversation.

Section 1. Opening and context (5–10 minutes)

1.1 Please describe your role in the firm and how long you have been involved with it. 1.2 How would you describe the firm's journey over the past five years — its main milestones and setbacks? 1.3 What do you regard as the firm's greatest strength and its most pressing constraint today?

Section 2. People Maturity

2.1 How are roles, responsibilities, and reporting lines defined in the firm? 2.2 How do you recruit, train, and evaluate employees? How has this changed over time? 2.3 What are the main people-related challenges you face (for example, hiring, retention, skills)? 2.4 How dependent is the day-to-day operation on you personally, and how do you feel about that?

Section 3. Process Maturity

3.1 Walk me through how a typical order or project moves through the firm from enquiry to delivery. 3.2 Which processes are documented or systematised, and which rely on memory or habit? 3.3 What tools or systems (digital or manual) do you use for finance, compliance, and operations? 3.4 Where do delays, errors, or rework most often occur, and why do you think that is?

Section 4. Product Capability

4.1 How would you describe what your firm offers and what differentiates it from competitors? 4.2 How have your products or services changed in recent years, and what prompted those changes? 4.3 How do you learn about customer needs and translate them into improvements? 4.4 What has prevented the firm from developing or launching new offerings?

Section 5. Psychological Capability

5.1 How do you personally think about growth and risk for this firm? 5.2 Can you describe a recent significant decision — how it was made and who was involved? 5.3 How does the firm typically respond to setbacks or failures? 5.4 To what extent do you and your team feel able to influence the firm's future, as opposed to being driven by circumstances?

Section 6. Interdependencies and closing

6.1 Of the four areas we have discussed, which do you believe most holds the others back, and why? 6.2 If the firm could change one thing in the next six months, what should it be? 6.3 Is there anything important about the firm that we have not covered?

APPENDIX F:

ORGANISATIONAL PERMISSION LETTERS

The following letters record the written permission of the owner-managers of the three case study firms for (i) the firm's participation in the case study component of this research and (ii) the identification of the firm by name in the thesis and derived academic publications. Signed originals are held by the researcher; the operative wording is reproduced below.

The following letters record the written permission of the owner-managers of the three case study firms for (i) the firm's participation in the case study component of this research and (ii) the identification of the firm by name in the thesis and derived academic publications. Signed originals are held by the researcher; the operative wording is reproduced below.

Letter of Permission — Champcon Control

To: shrenik@ssbm.ch , DBA Candidate, Swiss School of Business and Management Geneva.

Re: Permission to identify Champcon Control in doctoral research.

I, the undersigned, in my capacity as owner-manager of Champcon Control, confirm that: (1) I have read the Participant Information Sheet and understand the purpose and nature of the research study 'A 4P Framework for Strengthening MSMEs in India'; (2) I consent, on behalf of the organisation, to the participation of Champcon Control as an embedded case study within this research, including the use of information gathered during the consulting engagement, interviews, observations, and business documents shared with the researcher; (3) I grant permission for Champcon Control to be identified by name in the doctoral thesis and in academic publications derived from it, subject to the conditions that employee informants are anonymised through role-based pseudonyms and that commercially sensitive financial information is reported

only in aggregated or range form; and (4) I have reviewed and approved the case study write-up concerning Champcon Control prior to its inclusion in the thesis.

Name: Chirag Shah Designation: Owner

Signature: _____ Date: _____

For and on behalf of Champcon Control

Letter of Permission — Panth Infrastructure

To: shrenik@ssbm.ch , DBA Candidate, Swiss School of Business and Management Geneva.

Re: Permission to identify Panth Infrastructure in doctoral research.

I, the undersigned, in my capacity as owner-manager of Panth Infrastructure, confirm that: (1) I have read the Participant Information Sheet and understand the purpose and nature of the research study ‘A 4P Framework for Strengthening MSMEs in India’; (2) I consent, on behalf of the organisation, to the participation of Panth Infrastructure as an embedded case study within this research, including the use of information gathered during the consulting engagement, interviews, observations, and business documents shared with the researcher; (3) I grant permission for Panth Infrastructure to be identified by name in the doctoral thesis and in academic publications derived from it, subject to the conditions that employee informants are anonymised through role-based pseudonyms and that commercially sensitive financial information is reported only in aggregated or range form; and (4) I have reviewed and approved the case study write-up concerning Panth Infrastructure prior to its inclusion in the thesis.

Name: Hardik Patel Designation: Owner

Signature: _____ Date: _____

For and on behalf of Panth Infrastructure

Letter of Permission — Vimson Derma

To: shrenik@ssbm.ch , DBA Candidate, Swiss School of Business and Management Geneva.

Re: Permission to identify Vimson Derma in doctoral research.

I, the undersigned, in my capacity as owner-manager of Vimson Derma, confirm that: (1) I have read the Participant Information Sheet and understand the purpose and nature of the research study ‘A 4P Framework for Strengthening MSMEs in India’; (2) I consent, on behalf of the organisation, to the participation of Vimson Derma as an embedded case study within this research, including the use of information gathered during the consulting engagement, interviews, observations, and business documents shared with the researcher; (3) I grant permission for Vimson Derma to be identified by name in the doctoral thesis and in academic publications derived from it, subject to the conditions that employee informants are anonymised through role-based pseudonyms and that commercially sensitive financial information is reported only in aggregated or range form; and (4) I have reviewed and approved the case study write-up concerning Vimson Derma prior to its inclusion in the thesis.

Name: Kalpesh Bachhawat Designation: Owner

Signature: _____ Date: _____

For and on behalf of Vimson Derma

APPENDIX G: DECLARATION OF RESPONSIBLE AI USE

The researcher confirms that any use of generative artificial intelligence (AI) tools during the preparation of this dissertation was limited to language editing, grammar refinement, formatting assistance, and general writing support. AI tools were not used to generate research data, fabricate references, develop statistical outputs, conduct independent analyses, or formulate academic conclusions.

All research design decisions, literature evaluation, data collection, data analysis, interpretation of findings, and final academic judgments were undertaken independently by the researcher. The researcher accepts full responsibility for the accuracy, integrity, originality, and scholarly quality of this dissertation.