NOTTINGHAM BUSINESS SCHOOL

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DOCTOR OF BUSINESS ADMINISTRATION

LEAN LEADERSHIP:

TRANSFORMING LEADERS INTO LEAN LEADERS - A STUDY FROM THE INDIAN AUTOMOTIVE INDUSTRY

Thesis by Alagiri Govindasamy

Student ID :N0827647

Supervisors: Dr. Nadia K Kougiannou& Prof. Usha Ramanathan

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Dedication

This Professional Doctorate initiative is an important achievement in my lifetime. As a person born in a poor family with six siblings, raised in a village environment and completed schooling in primitive schools in my native language, I must say that I am lucky to own many supporting souls throughout my life. They made me dream big and beyond my boundaries, yes, this doctoral program from the UK is one of my dreams.

I dedicate this Doctor of Business Administration (DBA) journey to the two most important souls in my life.

My late father K. Govindasamy, an ordinary tailor from a small town in India, had never been to school due to his poor family background and was forced to work from a young age to feed his parents and then his family. His whole life was about how to feed us and educate us in extreme poverty situations, nothing else. He is a role model for me in all aspects and when I think about how best I can honour him from my perspective, I cannot find a better option than dedicating this DBA, my highest education qualification to him. My sincere gratitude to him for all his sacrifices and made me think big.

Mother is very precious to all living beings in this world, I am not an exception. Words are not enough to express my gratitude to my mother Bharathy Govindasamy for her constant encouragement, and moral support and enabling me for everything I am enjoying today. She is my true inspiration.

There is a proverb in the Tamil culture from India that says the parents will be more joyous when others say that their children are educated and intellectual people. Other achievements like more money and material belongings may not be more important criteria to the parents than their children's educational and intellectual achievement. To keep this tradition, I believe that I have done my part to make my parents proud in front of others – I secured an MBA from The University of Manchester, UK, and am in the process of completing a DBA from Nottingham Trent University, UK. Both are elite universities in the world, and it is a dream for students across the world to do graduation from these universities.

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Abstract

Organisations strive for various change management initiatives to stay relevant in the market, and the lean system is one of the sought-after transformational philosophies embraced by organisations. Lean results in superior business outcomes for many organisations, but the industry noticed a high rate of lean failures, and the leadership team's indifference was the major reason for lean failure.

This study approached lean initiatives from a leadership perspective rather than the lean tools dimension. This research questioned a few puzzles from lean practice; What are the unique leadership traits of successful leaders who inspire and empower their followers to believe in a long-enduring lean journey?. How is the leadership team in these successful organisations different compared with many failed lean tenants? Four essential constructs namely leadership style, basic value system, behavioural taxonomy theory, and power distance, an essential national cultural dimension were employed in this study following an in-depth review of the literature to determine the leadership qualities of effective lean leaders.

This study was focused on the automobile industry in the state of Tamil Nadu in India and considered case organisations with a successful lean track record. A pilot study was conducted in one case organisation to validate the proposed research design framework and both the quantitative survey instrument and the qualitative interview questionnaire. For the main study, the primary data was collected from various leadership hierarchies and blue-collar employees from three case organisations.

As part of quantitative analysis, this study analysed the direct, mediation, and moderation roles played by three leadership theories and power distance toward lean success. The rich insights were captured from qualitative interviews. Both quantitative results and qualitative insights were leveraged to answer the research questions. This study contributed to enhancing the various theories used in it and added unique additions to the literature. This study proposed a lean leadership model, a distributed model with four pillars, to establish a trust-based environment to practice a sensible lean leadership process with purpose-driven leaders and empowered blue-collar employees.

Lean professionals' and academic fraternities' feedback about this study's impact on lean practice effectiveness has been captured in this research. This study enhanced theory, literature, and lean practice by providing details concerning lean leadership unique to India. Limitations and future research opportunities were detailed in this study.

List of Acronyms and Special Terms

Andon	: A Japanese word indicating potential issues from GEMBA
AVE	: Average value extracted
CII	: Confederation of Indian Industry
CM	: Cellular manufacturing
DBA	: Doctor of business administration
GEMBA	: A Japanese word that means ‘The real place’ where the transformation activities happen
Genchi genbutsu	: A Japanese concept to observe real-time facts from GEMBA to make sound decisions
GLOBE	: Global leadership and organizational behaviour effectiveness
IBM SPSS	: International business machines statistical package for social sciences
IBM SPSS AMOS	: IBM SPSS analysis of moment structures
IT	: Information technology
Kaizen	: A Japanese word that means ‘Continuous improvement’ initiatives
KANBAN	: An inventory control system
LB	: Line balancing
MLQ	: Multifactor leadership questionnaire
MPS	: The managerial practices survey
MSME	: Micro, small, and medium enterprises

MTS	: Multifunctional training strategy
NVA	: Non value added activities
NTU	: Nottingham Trent University
OEM	: Original equipment manufacturer
OEE	: Original equipment effectiveness
PDCA	: Plan-do-check-act cycle, a four-step model for carrying out change
PDREC	: Professional doctorates research ethics committee
Poka-Yoke	: A Japanese word that means ‘Mistake proofing’
PP	: Pull production
PVQ	: Portrait values questionnaire
QC	: Quality control
SGA	: Small group activity
SMED	: Single minute exhange of dies
SOP	: Standard operating procedure
SPC	: Statistical process control
SPF	: Single piece flow
TAKT	: The production beat to meet customer demand
TPM	: Total productive maintenance
TPS	: Toyota production system
TQM	: Total quality management

VMS : Visual management system

VSM : Value stream mapping

WS : Work Standardization

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Publications and conference presentations from this research

International conference:

Govindasamy, A., Kougiannou, N.K. and Ramanathan, U., 2020. The role of lean leadership and leadership styles to lean success – A review. In: *Book of proceedings: 27th EurOMA Conference*, Online, 28-30 Jun 2020. pp.1759–1768.

Note: *Presented this research article for a paper development session for further improvements. This article is not published in the conference proceedings.*

Govindasamy, A., 2021. The (in)sensible role from the leaders - Lean Leadership: A case study from India. *EURAM 2021 Conference: Reshaping capitalism for a sustainable world, Online, 16-18 Jun 2021*.

Book chapter:

Govindasamy, A., Ramanathan, U. and Kougiannou, N., 2023. Lean Leadership in India: Transforming the Transactional Challenges with Mature Followership. In: Gupta, V., Chatterjee, S.R. and Maurya, A., eds., *India's Technology-led development: Managing Transitions to a Digital Future.* Singapore : World Scientific Publishing Co, 2023. pp. 37-59.

Chapter 1 – Introduction

1.1 Preamble

Lean has become one of the promising improvement philosophies adopted by organisations across industries due to its positive impact on business performance and customer satisfaction (Chiarini *et al*., 2023; Onofrei *et al*., 2021). Organisations from both the manufacturing and service sectors confidently embraced lean and achieved superior business results (Cusumano *et al*., 2021). Lean is a techno-behavioural system rather than a technical system alone, and two primary aspects played a major role in lean success; hard tools and soft aspects like leadership commitment, employee empowerment, and the role of culture (Bouranta *et al*., 2022; Hernandez *et al*., 2020).

The high rate of lean failures in the industry highlighted the critical role of human talent aspects, and the organisations excessively focused on hard lean tools and ignored the talent aspects (Bhasin and Found, 2021). The extant literature provided reasons why a lot of focus was given to hard lean tools by the research community and articulated the necessity of developing the right leadership framework with the necessary leadership traits to handhold the leaders in lean initiatives (Antony *et al*., 2021). The traditional leadership models were not aligned with lean expectations, as lean demands a human-centric system where both leaders and followers must form a trust-based nexus among them (Hernandez *et al*., 2020). The role of leadership is the main constraint in lean initiatives, and various research studies consistently raised the necessity to conduct further studies to explore the role of leadership in lean initiatives (Netland *et al*., 2020; Benders *et al*., 2019).

The extant literature focused on some stand-alone leadership aspects related to lean, and there has been a new movement, lean leadership, that started to conduct subsequent research studies to offer necessary lean leadership models to both academic fraternity and lean practice (Bouranta *et al*., 2022; Bhasin and Found, 2021; Netland *et al*., 2020). A suitable lean leadership model will offer sustainable lean thinking, clear purpose, goals, behaviours, values, and an appropriate leadership system for the existing and potential lean tenants (Hernandez *et al*., 2020). At the same time, the necessity of considering the local

sociocultural patterns of host countries cannot be neglected when proposing an applicable lean leadership model (Mathew and Taylor, 2019).

This study examined some of the long-standing leadership challenges arising from lean initiatives, such as the question of why, despite numerous lean attempts, relatively few organisations have been successful in the lean journey and the distinctive leadership qualities exhibited by successful lean tenants. All leadership layers, like senior, middle-level, and entry-level leaders must work cohesively to ensure success in lean initiatives (Reynders *et al*., 2022). The extant literature focused on the senior leaders' role in lean initiatives but largely ignored the role of middle-level and entry-level leaders in lean initiatives (Netland *et al*., 2020). This study examined the roles played by blue-collar employees and senior, middle-level, and entry-level leadership layers in three successful lean case organisations in the Indian automobile sector. A case research strategy and a mixed-method methodological choice were adopted for this study.

This study offered unique contributions to theory in terms of adding new insights from four major interrelated constructs; leadership style, basic value system, behavioural taxonomy theory, and power distance in lean initiatives. The close-knit relationship among these four constructs and their relevance to the three leadership layers were added by this study to the theory. A comprehensive lean leadership framework with four pillars has been proposed based on the outcome of this study to enhance the theory. This study offered a set of guidelines and theoretical underpinnings to lean professionals about how to confidently navigate the lean journey despite various challenges. To ensure the success of lean initiatives, this study proposed a novel mechanism for measuring the leadership traits required by the leadership teams. Additionally, this study offered guidance on how to nurture these leadership qualities among lean organisations despite various challenges.

This study offered a significant contribution to the theory about Indian specificity as the prevailing sociocultural patterns in India posed challenges to lean principles (Sahoo, 2022). There was a call to conduct subsequent research studies to explore how to ensure lean success in the Indian automobile industry (Habidin *et al*., 2016). The majority of prior research focused on lean initiatives in non-Indian contexts. This study clarified crucial

information regarding the selection of appropriate leadership styles by Indian leaders, their choice of behavioural attributes and fundamental values, and their application of organisational intervention mechanisms to mitigate the power distance impact in lean initiatives. This study's positive implications on improving lean practice competitiveness and the insightful comments provided by lean experts regarding this study's findings were examined to the management implications.

1.2 Lean

In today's competitive market, organisations have adopted various progressive change management initiatives to stay relevant and to achieve a strategic advantage in the marketplace. Lean is one of the well-known management philosophies adopted by both goods and service firms globally (Maware and Parsley, 2022; Cusumano *et al*., 2021). Lean is a companywide strategy to achieve continuous improvement culture, cost reduction, improved quality, and superior value creation throughout business processes (Tortorella *et al*., 2021). Organisational effectiveness underwent a paradigm shift due to the successful implementation of lean, which has also increased resilience and adaptability throughout the entire ecosystem of the organisation (Bhasin and Found, 2021). Successful lean adoption enhanced operational performance for manufacturing businesses, and this success story has been extensively reported in the literature (Onofrei *et al*., 2021; Kumar *et al*., 2020; Alexander *et al*., 2019).

On the other hand, the lean status report from the industry demonstrated a 90% failure rate, while 10% of the companies succeeded despite witnessing a large set of lean tools being readily available (Antomarioni *et al*., 2021). Although the organisations were enthusiastic to start the lean journey and had certain expectations, they soon discovered that lean required an extensive journey and the outcomes failed to measure up to their initial projections. (Connor and Cormican, 2022; Netland *et al*., 2021).

Lean has evolved to be a management philosophy, generated remarkable growth in all industry sectors, and achieved a significant impact on organisation performance (Chiarini *et al*., 2023; Tasdemir and Gazo, 2018). Lean is a state of mind where all employees are

encouraged to use their maximum ability to achieve long-term organisational goals, analyze processes from customer perspectives, and get the best results from limited resources (Van Assen, 2021; Laureani and Antony, 2019). Lean centres all choices around customer value propositions, altering the status quo of conventional thinking patterns across an organisation's ecosystem (Bhasin and Found, 2021).

1.3 Status of the lean movement

Lean is not a technical endeavour; rather, it is a socio-technical system that has been intricately linked to human capital from the start of the initiative (Cusumano *et al*., 2021). Most existing studies concentrated on hard lean methods (Bouranta *et al*., 2022; Grigg *et al*., 2020; Burawat, 2019), and organisations had a fair understanding of lean tools but failed to understand human aspects (Bhasin and Found, 2021; Martensson *et al*., 2019). A perfect balance of the hard and soft lean techniques is required to ensure lean success (Solaimani *et al*., 2019; Bortolotti *et al.*, 2015), and the soft lean practices played an important role in successful lean tenants more than in failed lean tenants (Bortolotti *et al.*, 2015).

The leadership team generally believed that cost reduction was the primary goal of lean efforts, but they failed to recognize that cost reduction was a by-product of another crucial lean principle; respect for people, which resulted in a human-centered system that guarantees long-term benefits to the organisation (Hernandez *et al*., 2020). Martens (2020) argued that the leadership team often focused on lean tools alone, but tools were just the explicit part of the lean system, and these tools alone cannot achieve sustained results if the leadership team does not commit themselves to the lean system.

The hard lean aspects have occupied researchers' focus for the last three decades (Larteb *et al*., 2015), and awareness about the critical role of the soft lean aspects has emerged recently (Antony *et al*., 2021). Hernandez *et al* (2020) argued that in the past, lean enthusiasts gave more importance to lean tools than talent aspects, and this approach resulted in a higher number of lean failures in the industry. Bouranta *et al* (2022) and

Antony *et al* (2021) articulated the fact that our knowledge of the human components of the lean system is limited when compared to lean tools. The assertion that the social component of lean is a novel phenomenon is incorrect as scholars have recently demonstrated a keen interest in this talent component (Cusumano *et al*., 2021).

The original Toyota Production System (TPS) included social components, but academics were preoccupied with the lean tools component, so they neglected to concentrate on intricate soft lean components (Cusumano *et al*., 2021). Magnani *et al* (2019) estimated that more than half of the publications on lean talent were produced after 2013, and there were few empirical studies focused on human elements involved with lean initiatives (Bouranta *et al*., 2022).

1.4 Lean leadership

Many researchers have continually endorsed the idea that leadership commitment has a crucial influence on the success of lean initiatives (Netland *et al*., 2020). The commitment of the leadership team is an important factor in ensuring lean success regardless of the organisation's size, industry segment, and geographical boundaries (Reynders *et al*., 2022). The leadership team can demonstrate their commitment by various means like creating an enabling organisational environment by unveiling a shared vision, prioritising activities, establishing a suitable reward mechanism, providing enough resources, and maintaining seamless communication to ensure lean success (Latif and Vang, 2021).

Lean leadership involves transforming an organisations' culture from the top down wherein the leadership layers were expected to make a major shift. Empowering blue-collar employees to take the lead on improvement projects independently is an extended journey ahead for the leadership team (Latif and Vang, 2021). Reynders *et al* (2022) argued that the leadership team must go through a self-reflection process to identify areas for improvement and the long-term development of blue-collar employees is a central distinguishing characteristic of the lean system compared to other traditional management philosophies. The agility of blue-collar employees multiplied in an empowered environment, and leaders encouraged blue-collar employees to use their superior process

knowledge to address perennial issues along with their daily targets (Reynders *et al*., 2022). Blue-collar employees realized their sense of worth in an empowered environment as they demonstrated their unique skills to a wider audience (Hernandez *et al*., 2020).

In general, leadership is a complex phenomenon with many associated theories and dimensions (Reynders *et al*., 2022). Traditional leadership models were not suitable to address the complex lean requirements, and lean initiatives required a unique leadership ecosystem called lean leadership, which is a combination of appropriate leadership approaches, practices, values, and behaviours (Bhasin and Found, 2021). Lean leadership is an umbrella term to denote the relevant leadership traits and certain attributes like behavioural outcomes (Van Dun *et al*., 2017), basic value patterns (Netland *et al*., 2020), and leadership styles (Ojha and Venkatesh, 2022). The cultural characteristics of the host nations where the lean leaders were born and raised had a notable impact on their lean leadership abilities (Mathew and Taylor, 2019).

There are three layers of the leadership team in an organisation involved with lean initiatives; senior leaders, middle-level leaders, and entry-level leaders (Lameijer *et al*., 2021). The senior leaders are part of the decision-making body, and they formulate tactical and strategic policy decisions to ensure lean success in the long term (Netland *et al*., 2020). The middle-level leaders help the senior leaders with vital points for policy formulation and interact with the entry-level leadership team to implement the lean policies (Reynders *et al*., 2022). The entry-level leadership team interacts with the blue-collar employees daily and actively implements the lean policies (Reynders *et al*., 2022).

Each leadership layer has unique roles and responsibilities and a degree of engagement with blue-collar employees (Reynders *et al*., 2022). The leadership team must adopt a set of applicable leadership traits as per each hierarchical layer's expectations (Reynders *et al*., 2022). The role of the senior leadership team in lean initiatives was discussed to some extent in the literature, but the role of the middle-level and entry-level leadership teams was not adequately captured in the literature (Reynders *et al*., 2022). Netland *et al* (2020) argued that the mismanagement of relevant leadership attributes to align with the diverse goals of several leadership layers is a prominent cause of lean failure.

1.5 The aim of this study

This study analyzed the lean phenomenon from a leadership perspective and did not focus on lean tools as many research studies have already contributed various tool-based solutions (Bhasin and Found, 2021). The objective of this study was to provide an answer to the following question; what distinguishes the leadership teams of successful lean organisations in the Indian automobile industry from those of many unsuccessful lean tenants, and how few organisations were successful in their lean attempts in comparison to numerous failed lean organisations?.

According to Mann (2009), the leadership team's unwavering dedication was responsible for 80% of the lean success, and lean tool implementation was responsible for 20% of the entirety. It is a known fact that the hard-earned lean success was not the result of fortunate lean tenants but rather of a carefully planned strategy that was painstakingly carried out by leadership teams at all levels of the organisation (Chaple *et al*., 2021). These effective lean leaders had exceptional abilities, such as the capacity to nurture their followers' desire for excellence in the face of adversity, awareness of the potential difficulties associated with the lean journey, and readiness to avert any unfavourable surprises (Bhasin and Found, 2021).

The lean professionals were empowered with a lot of lean tools and techniques like Kanban (an inventory control system) and Poka Yoke (a mistake-proofing system) to guide the clients on the lean journey, but they did not find sufficient theoretical recommendations to advise their clients related to leadership perspectives (Sisson, 2019). The lean professionals were not finding suitable answers to lean tenants' questions like which leadership traits to cultivate, which leadership hierarchy to focus on, and potential pitfalls for observing an end-to-end leadership development cycle (Hernandez *et al*., 2020). Many times, lean professionals were managed their client leadership team based on their experience and limited knowledge rather than a principle-based approach (Antony and Gupta, 2019). Any availability of relevant lean leadership models, lean leadership frameworks, and useful inventories like questionnaires would have been a help to the lean community to offer confident answers to lean tenants' questions (Holmemo *et al*., 2023).

The potential lean tenants must have a comprehensive lean leadership framework to assess their leadership teams' existing managerial capabilities that are necessary to materialize lean success and make an informed decision about every leader's leadership standing in the organisation (Reynders *et al*., 2022). This research study supported the lean tenants with a comprehensive lean leadership framework to decide appropriate organisational intervention programs for the leadership team as a pre-requisite to ensuring lean success.

1.6 Objectives of this study

This study's objectives are multi-fold; to find the answers to the large puzzle from the lean practice, how did some lean tenants succeed in lean implementation? And why were only a few executives receptive to the lean principles by empowering their employees and enabling companywide cultural change to align everyone in a unified direction?.

This study's objective was to offer a unique lean leadership model with applicable leadership attributes and to provide guidelines to steer leadership teams from the incumbent and potential lean tenants in the Indian automobile industry (Kumar Singh and Modgil, 2023; Ojha and Venkatesh, 2022). The proposed lean leadership model from this study offered a comprehensive meaning to lean leadership phenomena like exploring the lean leaders' persona by analyzing their core beliefs, how leaders spontaneously take appropriate behavioural outcomes, and how leaders define their rules of games to work with their followers?. The critical role played by power distance, an important national cultural dimension was examined in this study, as was how the power distance construct moderates a leader's core beliefs that result in appropriate managerial decisions from them.

This study analyzed the rationale behind the managerial choices made by effective lean leaders. The literature did not go into extensive detail about the leadership qualities of the successful leaders, such as why they believed in lean principles, why they empowered their followers, why they wanted to explore new areas, how they demonstrated positive behavioural gestures to others, and why they wanted to develop relationships based on trust?. It is well known fact that these successful lean leaders diverged from leaders who

were unsuccessful lean tenants (Cusumano *et al*., 2021). This study addressed a few open-ended questions from lean practice, such as how these leaders provided individual attention to their followers, inspired them in the face of numerous challenges, and navigated the influence of the power distance cultural dimension when leading their followers.

The necessity to cover the critical role played by middle-level and entry-level leadership teams was largely ignored by the existing research (Reynders *et al*., 2022), and this study secured detailed perspectives from all three leadership layers, senior, middle-level, and entry-level leadership teams to offer a comprehensive leadership solution. Each hierarchical layer shared their assessment of their leaders' style of working, belief system, and behavioural patterns in the quantitative survey and talked about their lean experience in the qualitative interview.

This study did not analyze the lean leadership phenomenon descriptively; instead, it examined various leadership constructs to provide a comprehensive lean leadership solution to both academicians and lean professionals (Bhasin and Found, 2021; Netland *et al*., 2020). This study has established a positive contribution to address the gaps in the literature and enhanced the theory. This study has also improved the competitiveness of lean practice.

1.7 Research setting

This study covered the automobile industry in Tamil Nadu, a southern state in India. Tamil Nadu is one of the most industrialized states in India, with 45,000 large factories and .94 million Micro, Small, and Medium Enterprises (MSME), which generated 9.3% of India's Gross Domestic Product (GDP) (Government of India, 2021). Tamil Nadu enjoys a leading position in the automobile, textile, electronics, and leather manufacturing sectors in India. Chennai, the capital city of Tamil Nadu, is called the 'Detroit of India' due to the major concentration of automobile players from India and overseas.

There were strong reasons to choose the automobile industry in India for this study. To transition from the protectionist mode dominated by non-performing government entities, the Indian economy opened to the outside world in 1991. As a result, numerous major foreign businesses entered the Indian automobile industry (Mathew and Jones, 2013). The relevance of lean adoption for the automobile industry is a well-known phenomenon from the extant literature (Burawat, 2019); often, the automobile industry is called the 'mother of lean thinking' (Hines *et al.*, 2004, pp. 998). Many automobile companies implemented lean compared to other industry segments in India (Mathew and Taylor, 2019; Erthal and Marques, 2018).

Mathew and Taylor (2019) argued for future research studies to investigate the status of lean initiatives in the Indian automobile sector. James and Jones (2014) argued that researchers should study how lean gets successfully implemented in India, mainly in the automobile industry. The selection of the automobile industry for this research study was influenced by all these variables since it is a booming industry segment with a greater degree of lean implementation initiatives in India.

Three case organisations with a successful track record of lean adoption were the focus of this study to gather primary data. The assessment of case organisations' lean status was based on two factors; employee feedback and the awards that organisations had won internationally, which served as evidence of their exceptional standing in the industry.

The rigor of practicing lean principles demonstrated the status of real lean momentum in an organisation (Womack and Jones, 2003). Lean will reach its potential once all employees apply its principles daily, hence the best way to assess an organisation's standing in lean is to obtain feedback from its employees (TQMI, 2023).

Another method to measure lean effectiveness is to analyze how the organisation implemented lean practices against the standards set by benchmark bodies like the International Organisation for Standards (ISO) or the Malcolm Baldridge Award Committee (Liang, 2014). The Deming Prize audit is a challenging aim for an organisation

as the award committee looks for comprehensive improvement criteria that include leadership team commitment, a positive culture, deep-rooted quality principles, and the transparent availability of verifiable results (TQMI, 2023; Kudtarkar, 2014).

The Deming Prize is a sought-after international prize for Indian companies, and more than 50 companies from various Indian industry segments won the Deming prize due to their outstanding process excellence (TQMI, 2023). Indian companies have chosen international awards not only to enhance their internal quality systems but also to leverage their branding, a testimony to affirming company quality standards and recognition from their clients (Rajashekharaiah, 2014). This study adopted the above two methodologies to determine the lean effectiveness of three case organisations; the feedback from employees and the coveted international awards bagged by the case organisations.

There were six questions factored into the quantitative survey instrument to ascertain the status of the lean journey in case organisations; both the leader's and blue-collar employees' feedback was secured in the range of 1 to 5 numerical scales. The scale definitions were 1: strongly disagree, 2: disagree, 3: neither agree nor disagree, 4: agree, and 5: strongly agree. Scores of 3 and less indicated that the participants do not agree or maintain a neutral stand concerning the good lean values practiced by their organisations. The value between 3 and 4 denotes that the participants agreed that their organisations genuinely practiced lean principles. A value between 4 and 5 indicated a desirable lean score system for an organisation. The survey results demonstrated a value of 3.81 out of 5, which explained that the participants agreed with good lean practices followed by their organisations. The qualitative interview insights were factored in to ascertain the status of lean practice implementation by case organisations.

These three case organisations bagged prestigious international awards like the Deming prize to reinforce their commitment to lean values. The survey instrument's mean value of 3.81 demonstrated the employees' agreement with their organisations' commitment to practice lean values, and the qualitative interviews highlighted the leaders' and blue-collar employees' revelations about the sincerity of their organisations' commitment to lean values.

This study secured the necessary ethical approvals as per the guidelines proposed by the Professional Doctorates Research Ethics Committee (PDREC) at Nottingham Trent University (NTU) to collect both quantitative data and qualitative insights for the pilot phase and primary phase. Both the quantitative survey instrument and the qualitative interview questions were carefully reviewed by the research supervisors and approved by PDREC, Nottingham Trent University (Nottingham Business School, 2018). The participant information sheet and consent form were designed for this study as per ethical standards to provide comprehensive details to participants and secured their willingness before their participation.

1.8 Thesis layout

This section explains the schematic layout of various chapters in this thesis.

Chapter 2: Literature Review, explores the extant literature to identify the relevant constructs used in this study. There were four major constructs used in this study; three leadership theories (leadership style, basic value system and behavioural taxonomy theory), and power distance, an important national cultural dimension.

The rules of engagement between a leader and their followers are determined by their leadership style. In this study, two types of leadership styles, transformational and transactional, were examined with support from the literature. The transactional leadership style has two dimensions, and transformational leadership has four dimensions. The basic value theory explains how a person acquired their unique set of basic beliefs from their childhood and how it shaped their inherent thinking patterns. There were four dimensions available from the basic value theory. The behavioural taxonomy theory defined how lean leaders encountered their followers in visible and measurable manners within an organisational context and demonstrated the mediation effect of how leaders leveraged their unique basic value system dimensions to realize their goals. There were four dimensions available in this behavioural taxonomy theory. The final academic field was power distance, an influential national cultural dimension that moderates how a leader leveraged their basic belief system to achieve their goal of lean success.

This chapter explains the scale definition rationale to define the survey instrument for this study. This chapter outlined the gaps identified from the literature review and postulated four research questions to be addressed in this study. A conceptual lean leadership model with direct, mediation, and moderation hypotheses was proposed in this literature review chapter.

Chapter 3: The Research Methodology chapter explains the overall research design aspects used for this research study. Various research methodological components like ontology, epistemology, axiology, theory development, research strategy, and methodological choices were discussed in this chapter. The data collection mechanisms adopted for pilot phase and primary phase were explained in this chapter. A pilot study was performed to validate the proposed research design, quantitative survey, and qualitative interview questionnaire used in this study. Various statistical measures like validity, repeatability, and internal consistency aspects of the quantitative survey instrument were validated by the pilot study and explained in this chapter. The content analysis interpretation technique used to decode the meaning of qualitative interviews from the pilot study was elaborated in this chapter.

Chapter 4: Quantitative Analysis and Discussion chapter discusses the quantitative primary data analysis and insights gained from the analysis. A total of 368 responses were collected from three case organisations as part of the quantitative analysis. Various statistical tests were performed to validate various hypotheses; direct, mediation, and moderation hypotheses. The simple linear regression has been performed in IBM SPSS to determine the direct impact of behavioural taxonomy theory, basic value systems, and leadership style toward the lean outcome. Both the mediation role of behavioural taxonomy theory and the moderation role of power distance construct in lean initiatives have been performed in the PROCESS MACRO tool. The results of this quantitative analysis validated the study objectives, addressed research questions, and helped to develop a lean leadership framework.

Chapter 5 : Qualitative Analysis and Discussion chapter discusses the rich insights gained from the qualitative interview. A total of 21 detailed semi-structured qualitative

interviews were conducted with three case organisations, which included senior, middle-level, and entry-level leadership teams and blue-collar employees. These qualitative interviews offered diversified perspectives like participants' experiences, their encounters with their leaders and followers, critical incidents from lean projects, and potential solutions to ensure lean success despite many challenges. This chapter explains how the content analysis method was performed with the aid of the NVivo tool to decode the insights from the translated documents. The participants' detailed accounts of the role played by each construct; leadership style, basic value system, behavioural taxonomy theory, and power distance to achieve the expected lean outcome were analysed in this chapter. This chapter covered the complementary and opposing functions that each dimension performed in the four major structures. In summary, the comprehensive qualitative insights supported to answer research questions and helped to explain the intricate lean leadership phenomenon.

Chapter 6 : Discussion chapter discusses the research questions with a triangulation approach based on comprehensive findings from quantitative results, qualitative insights and literature backup. The comprehensive qualitative insights were useful in explaining the complex lean leadership phenomenon and the quantitative results were useful to generalize the findings across the population, the automobile industry in India. This section articulated both positive and limiting roles played by various dimensions from four major constructs and informed the leadership team about various strategies to manage their followers. This chapter proposed a holistic lean leadership model with four building blocks to nurture lean leadership phenomenon with sensible leaders and purpose-driven employees. The executive team received detailed guidance from this framework, including where to begin, a list of tasks from each pillar, and different tactical and strategic intervention mechanisms to foster commitment across different leadership hierarchies. This chapter covered the implementation approach and possible impediments in the lean journey.

Chapter 7: The Conclusion chapter covered several of the study's distinctive contributions, such as how the research findings addressed the lean practice challenges and contributed to existing theory and literature. This section summarises the comments made

regarding this research outcome by lean professionals. This chapter addresses the consequences of the researcher's intellectual development and numerous managerial ramifications of lean practice based on this study's learnings. This section included a few lean practice value propositions, such as the suggested lean leadership model, the approach to implementation, how to begin the lean leadership movement, and what the leadership team needs to focus on. This chapter discusses the research limitations and areas for future research opportunities.

1.9 Summary

This chapter elucidated the necessity to address a recurring impediment of lean techniques in the Indian automotive sector; the leadership's commitment to ensuring the triumph of lean endeavours. This is a major challenge since organisations have committed a lot of resources to the lean journey, and any setback would be catastrophic for the organisation. This problem statement was explained in detail in this chapter, with the necessary literature support to highlight the urgency and importance of solving this problem. The rationale for the target industry segment and geography were described in this chapter.

The research aims and objectives, how and why this research added value to both practice and literature were explained in this chapter. The novelty of this study was explained in this chapter like how this study leveraged three seminal theories and the power distance construct as a maiden attempt to find a solution to a larger problem from lean practice. A comprehensive description of each chapter was mentioned to offer a better understanding of this thesis to the audience.

The next chapter, the literature review, discusses the extant literature related to the lean movement and the critical role played by lean in the manufacturing and automobile industries. The impact of lean on the Indian manufacturing and automobile sectors and the status of the lean leadership phenomenon were discussed in the next chapter. This chapter explained the rationale for the four constructs used in this study; leadership style, basic value system, behavioural taxonomy theory, and power distance. This chapter outlined the gaps identified from the literature review and postulated four research questions that were

addressed in this study. A conceptual model with direct, mediation, and moderation hypotheses was proposed in this literature review chapter.

Chapter 2 – Literature Review

2.1 Introduction

Leadership is an important factor in starting and sustaining any transformational change management program like the lean system (Sahoo, 2022; Burawat, 2019). Bass (1990, pp. 24) explained the importance of able leadership by quoting 'An army of rabbits commanded by a lion could do better than an army of lions commanded by a rabbit'. His statement held valid for lean implementation as the leadership team needs to lead from the front, set unambiguous directions for the entire workforce, and harness employees' unified alignment towards organisation goals. Cultivating the optimum leadership qualities among the leadership layers was not an easy job for an organisation (Holmemo *et al*., 2023). The reason was that leadership is a complex construct with multiple factors involved like leadership styles, values, and behaviours (Reynders *et al*., 2022), and these leadership factors were influenced by cultural dimensions from the host country (Mathew and Taylor, 2019).

Companies faced a unique challenge as these organisations could not standardise these leadership traits as each country's unique cultural and social patterns played a critical role in defining the leader's outcome (Lean Enterprise Institute, 2020). This phenomenon mandated the organisations to choose the right mix of leadership attributes as per host countries' cultural and social systems to achieve lean success (Sahoo, 2022). Liker and Convis (2012, xiii) quoted the necessity of leadership involvement in lean projects as 'the biggest gap in capabilities in the lean movement, and the root cause of failure on many lean programs is in leadership'. The role of leadership was still the main criterion to ensure lean success, and this reason has been consistently captured in the extant literature (Netland *et al*., 2020; Benders *et al*., 2019).

As per the established social research methodology, this study performed a literature review phase to identify the relevant theories to address the research questions in scope. The next section explains why lean is a powerful business philosophy, lean principles, lean

status, and its positive impact on the manufacturing and automobile sectors. The status of lean in the Indian manufacturing and automobile industries was discussed in this section. This study identified four major constructs; leadership style, basic value system, behavioural taxonomy, and an important natural cultural dimension, power distance, which were closely associated with lean initiatives.

Leadership style, the first construct examined how leaders achieve optimum leadership orientation to promote positive energy among their followers (Srimathi and Narashiman, 2021). The leadership style theory provides insights into how leaders propel their followers to think beyond their comfort zone and motivate them to see the future world through a differentiated approach (Gellis and Elshennawy, 2021). The second construct, the basic value system, illustrates how individuals developed their distinct set of fundamental beliefs during childhood and how these beliefs play a crucial role in their decision-making (Netland *et al*., 2020).

The third construct, the behavioural taxonomy, describes how leaders interact with their followers in a business environment to achieve lean objectives (Van Dun and Wilderom, 2021). Power distance, the final construct explains how a leader's basic belief system moderated from their childhood by power distance and how they leveraged their basic belief system to achieve their goals (Farooq and Tripathi, 2021). Four research questions were proposed, and possible gaps were found during this part of the literature review. A set of direct, mediation, moderation hypotheses, and a research methodology for this study were developed as a result of the literature review.

2.2 Literature review

2.2.1 Lean paradigm

2.2.1.1 Why lean?

Over the previous three decades, organisations have actively employed lean to gain a competitive edge in their respective industries (Bhasin and Found, 2021). Lean originated in Toyota, Japan, in the 1960s. Researchers from the Massachusetts Institute of

Technology's International Motor Vehicle Programme coined the word "Lean," which is now used globally as a synonym for industrial excellence (Hernandez *et al*., 2020). Lean gained popularity after the seminal book written by 'The Machine That Changed the World' written by Womack *et al* (1990). This book revealed the secrets of Toyota's success story to a wider audience.

Toyota implemented a set of best practices as part of a reformist mindset (Bhasin and Found, 2021), with a focus on using the organisations' collective wisdom per lean principles (Jasti and Kodali, 2015). Lean is known for its versatility and adaptability to suit requirements from various industry segments (Cusumano *et al*., 2021) and accommodates unique requirements as per various organisational contexts (Van Assen, 2021; Marodin and Saurin, 2015). Lean is a proactive philosophy that supports organisational sustainability in all aspects (Manikas *et al*., 2021; Dey *et al*., 2020; Helmold, 2020; Kamble *et al*., 2020). Lean is an ideology, not simply another strategy with necessary attributes (Bhasin and Found, 2021; Secchi and Camuffo, 2019). Lean is an established philosophy and an organisational improvement platform supplemented by a set of tools and human talent concepts (Cusumano *et al*., 2021). Lean is not merely a theory; rather, it is a dynamic business phenomenon with numerous theoretical underpinnings (Ahlstrom *et al*., 2021).

In addition to spreading the warrior mindset among blue-collar employees to march towards a continuous improvement culture as a routine, lean aims to encourage the value offered to clients in all aspects rather than confining it to production function alone (Sahoo, 2022). Lean is intended to transform an organisation to the next level in operational efficiency, superior customer service, and financial performance (Ahlstrom *et al*., 2021). Maware and Parsley (2022) explained that lean positively impacted organisational performance in three aspects; economic, social, and environmental. The economic aspect resulted in a continuous search for value-added activities through the elimination of Non-Value Added (NVA)activities, and the use of the Value Stream Mapping (VSM) tool resulted in the optimization of necessary resources, which achieved environmental advantages. The social impact came from ensuring blue-collar employees' righteous position in the organisation.

Lean has captured the attention of both lean practitioners and researchers over the last 40 years (Cusumano *et al*., 2021). The phenomenal acceptance of lean is evident from the high number of research publications among the research community and implementation attempts by organisations from various industry segments (Holmemo *et al*., 2023; Benders *et al*., 2019; Danese *et al*., 2018). More than three thousand and five hundred lean artifacts were found in the social science index database, and this explains the superior status enjoyed by lean in the operation domain (Ahlstrom *et al*., 2021). This finding resonated with the fact that the essence of lean was not fading away, and recent research studies have demonstrated that lean supports emerging technology platforms like the Industry 4.0 ecosystem (Maware and Parsley, 2022).

Two aspects of lean philosophy in the current century have gained attention from stakeholders; the role of leadership and culture (Ahlstrom *et al*., 2021). The successful lean initiative indicated that both leaders and blue-collar employees appreciated the lean spirit and have acquired extensive training from their organisation and cognizance of lean journey requirements (Lean Enterprise Institute, 2020). Many failed lean implementations promised early results but retracted due to insufficient lean thinking (Hernandez *et al*., 2020). There was a strong need to explore the role of human-related aspects like leadership commitment and blue-collar employees' involvement in lean initiatives rather than focusing on lean tools in lean initiatives (Zeng *et al*., 2015).

2.2.1.2 The status of lean

Lean gained a lot of focus on tool perspectives from both academicians and professionals in the last three decades, and soft lean practices started gaining more attention due to their critical role in lean success (Reynders *et al*., 2022). In retrospect, lean has evolved from a tool-focused approach, and soft lean practices addressing human factors have recently gained more attention (Lean Enterprise Institute, 2020). Hernandez *et al* (2020) argued that lean techniques are the tips of a deeper philosophy, and many times the leadership team focused on lean tools without appreciating the fact that this approach may not be sustained for a long time.

Since technological components are easier and simpler to assess, the researchers focused on lean tools than social aspects which pertain to employee empowerment, nurturing the right behaviour, and leadership values (Lean Enterprise Institute, 2020). The conscious structure of the research community to focus on the technical parts of lean has resulted in current lean status, and they have recently recognized the significance of studying the cultural and social aspects of lean. (Reynders *et al*., 2022). An improvement philosophy has two parts; social and technical elements that form complex socio-technical boundaries (Cusumano *et al*., 2021; Lean Enterprise Institute, 2020). It was relatively easier to observe and measure the outcome of technical processes, but it was tougher to measure the outcome of social elements like the empowerment process and leadership commitment (Cusumano *et al*., 2021).

According to Sisson (2019), scholars have not considered the talent aspects of lean initiatives and have not factored in whether existing leadership models were adequate to guide lean tenants. The lean tenants were leveraging traditional leadership frameworks for lean initiatives, but these frameworks were not good enough to manage transformational journeys like lean (Holmemo *et al*., 2023; Lacerenza *et al*., 2017). While several research studies have addressed the function of senior leadership in lean, the literature has not adequately addressed the crucial role that middle-level and entry-level leadership teams play in lean initiatives. (Reynders *et al*., 2022).

2.2.1.3 The role of Lean in the manufacturing industry

Lean was one of the most promising management philosophies to enhance an organisation's position in the industry (Shin and Alam, 2022), and lean earned its reputation as a safe paradigm to achieve excellence across many industry verticals (Hernandez *et al*., 2020). Ahlstrom *et al* (2021) highlighted the phenomenal growth of lean in the manufacturing sector by citing a high number of publications from the literature. Lean was one of the main fields of operations management to introduce a new culture with a focus on customer requirements, challenge the status quo of the prevailing system, and reduce waste elements across the supply chain (Sahoo, 2022; Belhadi *et al*., 2018). Lean resulted in impressive outcomes for manufacturing organisations by reducing non-added

value activities, enhancing quality, and realising competitive costs (Kumar and Rodrigues, 2020; Dora *et al*., 2016). According to Negrao *et al* (2020) and Sahoo (2022), lean is one of the pertinent management philosophies to handle the intricate demands of the modern industry, such as a better product mix, catering to client preferences, and shorter lead times.

Lean-driven manufacturing companies reached a high degree of optimization and superior competitive advantage (Sahoo, 2022; Belhadi *et al*., 2018). Knapic *et al* (2022) argued that manufacturing organisations achieved better optimization by adopting lean as their preferred methodology. Lean continued to be the premium choice for manufacturing organisations to meet excellence and achieve sustainability objectives (Ojha and Venkatesh, 2022). The better part of lean is that it is not a rigid system but rather a flexible management philosophy with the required principles, guidelines, and procedures to take an organisation to the next level (Sahoo, 2022).

Kumar and Rodrigues (2020) argued that lean must be a unique capability for an organisation if they implement it in the right way and with the necessary guidance. He articulated that competitors found difficulty in exploring how successful organisations developed lean capability over a period of time. Lean acted as a calibrated platform to ensure successful and sustainable business for manufacturing organisations in challenging scenarios (Sahoo, 2022; Knapp, 2015).

Many manufacturing companies found lean implementation a challenging task (Netland *et al*., 2021), and lean remains elusive for many manufacturers (Womack, 2017). Sadun *et al* (2017, pp. 123) study explained the complexities involved in lean initiatives as ‘Achieving operational excellence [e.g., lean manufacturing] is still a massive challenge for many organisations. Even well-informed and well-structured companies often struggle with it’. This gap explained the necessity of subsequent research studies to guide manufacturing organisations to confidently embrace lean (Gellis and Elshennawy, 2021).

2.2.1.4 The role of Lean in the Indian manufacturing industry

India became a global hot spot for manufacturing and a promising emerging economy. Indian manufacturing companies were looking for various philosophies to strengthen their position in the global market (Sahoo and Yadav, 2018). Several studies have demonstrated the profound influence of lean in the Indian electronics, steel, tire, and aerospace sectors (Das *et al*., 2014; Gupta *et al*., 2013). Lean has been identified as the missing excellence weapon for the Indian industry to address goals like reducing environmental impact, streamlining supply-demand matches, and increasing transparency across the business (Ojha and Venkatesh, 2022). In this context, lean was one of the saviors of the Indian manufacturing industry, and Indian industries could leverage lean initiatives to meet their strategic goals (Sahoo, 2022; Grigg *et al*., 2020).

Although senior management regarded lean as an approach to achieving process excellence in the Indian industry, the actual track record of lean implementation was underwhelming (Ojha and Venkatesh, 2022; Jain and Trivedi, 2016). Indian industries were lagging on the right lean implementation approach and desired leadership traits to realize lean success (Sahoo, 2022; Grigg *et al*., 2020). Indian manufacturing companies must master lean implementation with applicable support systems in place like leadership commitment and cultural orientation (Sahoo, 2022; Secchi and Camuffo, 2016). Indian manufacturing industries were facing a lot of challenges in their pursuit to achieve lean success, and these challenges can be positively addressed by grooming their leadership team (Gellis and Elshennawy, 2021; Dave and Sohani, 2019).

2.2.1.5 The role of lean in the Indian automobile industry

The automobile industry was one of the drivers of the economic growth of countries around the world and played a significant role in securing foreign exchange through exports to overseas markets (Mackenzie *et al*., 2021). The Indian automobile industry occupied the fourth slot in the car segment and the seventh slot in the commercial segment of the world market (Ojha and Venkatesh, 2022). The automobile industry segment played

an important role in the growth of the Indian economy, with a 7.1% contribution to the Indian GDP (Kumar Singh and Modgil, 2023). India was the favourite destination for global automobile companies and an outsourced destination for top global automobile players (Kumar Singh and Modgil, 2023; Dhiravidamani *et al*., 2018; Jadhav *et al*., 2015).

There were ambitious plans from Indian automobile companies to achieve a five-fold increase in exports to overseas markets to capture a respectable position in the world market (Ojha and Venkatesh, 2022). The federal government of India and state governments in India announced many incentive programs to transform the Indian automobile industry into a formidable player in the world market (Ojha and Venkatesh, 2022). Various Indian Automobile Original Equipment Manufacturers (OEM) like Maruti Suzuki, Hyundai, and Tata Motors established their large supplier base within their vicinity and actively promoted supplier development as part of their overall growth strategy (Ojha and Venkatesh, 2022; Sahoo, 2020).

According to several studies, lean was the primary business strategy employed by the top automakers in India (Kumar Singh and Modgil, 2023; Ojha and Venkatesh, 2022; Sahoo, 2020; Salem *et al*., 2016). A few Indian auto companies, like Lucas TVS and Rane Brake Linings won the Deming award based on their exemplary lean implementation records (Ojha and Venkatesh, 2022; Jadhav *et al*., 2015). Little research has been done to examine various aspects of lean implementation in the Indian automotive sector, despite the vital role played by lean in the success of Indian automobile industry (Ojha and Venkatesh, 2022). There is a strong need to carry out further research to benefit potential lean tenants in the Indian automobile industry (Habidin *et al*., 2016; Swarnakar and Vinodh, 2016; Gupta *et al*., 2013).

2.2.2 Lean leadership

The necessity of differentiated leadership patterns to achieve lean success was evident from the literature (Reynders *et al*., 2022). The extant literature articulated the importance of differentiated leadership approaches in lean initiatives (Antony and Gupta, 2019;

Netland *et al*., 2020), however, the literature did not make it obvious exactly what these exact leadership qualities entailed (Netland *et al*., 2020; Benders *et al*., 2019). Cusumano *et al* (2021) study highlighted that half of the improvement projects struggled due to leadership non-commitment, and two-thirds of initiatives could not sustain themselves beyond two years due to leadership challenges.

A key component of the lean initiative's success was having enough leadership involvement, which the leadership team could accomplish if they had a suitable mindset (Chaple *et al*., 2021). Higher lean maturity was possible once the leadership team had the perfect combination of values, behaviours, and leadership traits to succeed in the long-enduring lean journey (Bhasin and Found, 2021; Nogueira *et al*., 2018; Van Assen, 2018). The success of the lean initiative in an organisation was positively related to the leadership commitment and quality of its leadership team (Netland *et al*., 2020). One of the promising options for the organisation was to enhance the leadership team with relevant leadership attributes to transform the leaders' behaviours, and eventually, the leaders' behaviours would set the tone of organisational culture (Antony and Gupta, 2019). Holmemo *et al* (2023) argued that many organisations had chosen short-term leadership development programs to bring about expected leadership changes. This tactical approach did not help these organisations in the long term, as they must have chosen a multi-faceted approach to develop lean leadership traits in a sustained manner (Holmemo *et al*., 2023; Netland *et al*., 2020).

There are three leadership layers in an organisation; senior leadership, middle-level leadership, and the entry-level leadership team, and all three layers must work together to achieve lean success (Lameijer *et al*., 2021). According to the mandate of the executive team, different leadership levels had different expectations and leadership dynamics (Reynders *et al*., 2022; Cusumano *et al*., 2021; Netland *et al*., 2020). Additionally, different leadership levels had different levels of influence and authority (Netland *et al*., 2020). All leadership layers must work together to create an essence of continuous improvement culture across the workforce, and the middle-level and entry-level leadership teams must get involved in the lean process (Antony and Gupta, 2019).

Holmemo and Ingvaldsen (2016, pp. 1342) argued about the importance of a middle-level leadership team to ensure lean success by quoting 'Despite acknowledging that an implementation of lean without middle-level leaders is a threat to successful outcomes'. Reynders *et al* (2022, pp. 319) highlighted the gap in exploring the role of middle-level leaders' role in lean as 'More precisely, the literature on middle-level management in lean misses a holistic perspective to date'. Any organisation without a focus on middle-level leadership and entry-level leadership teams in lean initiatives missed the chance to influence blue-collar employees to align with lean expectations (Reynders *et al*., 2022).

Both researchers and lean practitioners showed keen interest in exploring lean leadership, a recent phenomenon (Netland *et al*., 2020; Tortorella *et al*., 2020; Seidel *et al*., 2019; Van Dun *et al*., 2017). The lean leadership paradigm and how it differed from traditional leadership patterns had become the focus of recent lean research studies (Holmemo *et al*., 2023; Seidel *et al*., 2017). Table 2.1 demonstrates a few existing lean leadership frameworks from the extant literature. Byrne (2013) advised prospective lean tenants to use long-term strategic planning to ensure the necessary resources are accessible. Mann (2014) suggested four lean leadership mandates for lean leaders. Holmemo *et al* (2023) explained leadership attributes for various stages of lean transformation, and Netland *et al* (2020) demonstrated leadership practices for various hierarchies. Table 2.1 demonstrates that these authors contributed to lean leadership with an emphasis on a few standalone attributes and individual leadership qualities, and the literature has not yet revealed a comprehensive lean leadership framework.

Table 2.1 - Lean leadership models

Author	Important elements
Spear (2004)	1. Practice GEMBA 2. Promote a controlled experiment culture among both leaders and blue-collar employees 3. Encourage the team to experiment as a way of life 4. Leaders must coach their followers
Liker (2004)	1. Focus on long-term planning

	2. Create flow system 3. Leverage pull system 4. Achieve work levelling 5. Focus on permanent solutions rather than short-term fixes 6. Follow standard operation procedures 7. Use visual control tools 8. Go for proven methods 9. Develop leaders to see the full picture 10. Develop a good team to follow 11. Respect partner network 12. Go and see yourself 13. Slow decision-making and implement rapidly 14. Form a learning organisation
Martyn and Crowell (2012)	1. Strategy deployment 2. Visual management 3. Daily kaizen 4. Standard follow-up
Dombrowski and Mielke (2014)	1. Strategy deployment 2. Improvement culture 3. Self-development 4. Qualification 5. Practice GEMBA
Mann (2014)	1. Leader standard work 2. Visual controls 3. Daily accountability process 4. Discipline
Netland *et al* (2020)	1. Practice GEMBA 2. Structured accountability to all leadership layers 3. A standardized way of problem-solving 4. Encourage a continuous improvement culture among the team 5. Leaders must coach 6. Focus on long-term strategic alignment

2.2.3 Leadership style

An effective leadership style plays an important role in achieving lean success, as the leader sets clear objectives for the followers and supports them during lean transformation (Ojha and Venkatesh, 2022; Toledo *et al*., 2019). Leadership style became a mature research area with multiple styles proposed by researchers. Table 2.2 explains the salient features of various leadership styles.

Table 2.2 – Various leadership styles

Leadership style	Author	Salient features
Empowering	Liu *et al*., 2003; Shah and Ward, 2003	Delegate enough authority to the followers under the leaders' confidence in them
Directive	Liu *et al*., 2003	Go for unilateral decisions without consulting followers and instil fear in their mind
Transactional	Liu *et al*., 2003; Bass, 1997; Bass, 1985	To set the minimum expectations for the followers and punish them if they do not meet the standards
Transformational	Toledo *et al*., 2019; Van Assen, 2018; Aij and Rapsaniotis, 2017; Poksinska *et al*., 2013; Liu *et al*., 2003; Bass, 1985	Motivate the followers to adopt innovative ways to meet organisational objectives
Servant leadership	Toledo *et al*., 2019; Van Assen, 2018; Poksinska *et al*., 2013	Focus on the followers and fulfilling individualistic aspirations among them
Team leadership	Sahyaja *et al*., 2018	Promote a continuous improvement culture among the

		entire workforce by promoting mutually acceptable principles
Level 5 leadership	Collins, 2001	Focus on the leaders who can define the future
Affiliative leadership	Goleman *et al*., 2002	To promote togetherness and common principles among the followers
Bureaucratic style	Bass, 1997	Enforcing the rules and regulations irrespective of the outcome and empowering the leader with full control
The transcendent leadership theory	Gardiner, 2006	Promotes a suitable environment to arrive at mutually acceptable decisions among the employees

Successful leaders leveraged both transactional and transformational leadership styles as per the prevailing organisational context to ensure lean success (Van Elp *et al*., 2022). The necessity of transactional and transformational leadership style adoption for lean success was upheld by many researchers (Ojha and Venkatesh, 2022; Van Elp *et al*., 2022; Tortorella *et al*., 2020; Van Dun *et al*., 2017), and these studies explained how these two leadership styles enhanced leadership effectiveness to achieve lean success.

The positive outcomes of transactional and transformational leadership styles in lean programs were highlighted by many empirical studies (Benders *et al*., 2019; Laureani and Antony, 2019; Samal *et al*., 2019; Shaaban, 2017). Transactional and transformational leadership styles were recognized as important factors in influencing followers' attitudes toward large change management initiatives like lean (Gellis and Elshennawy, 2021; Benders *et al*., 2019). To align with the literature evidence, this study focused on the role played by transactional and transformational leadership styles in lean initiatives.

Transactional leadership style

The main objective of transactional leaders is to ensure behaviour adherence among their followers, irrespective of the followers' characteristics (Samal *et al*., 2019). Transactional leaders train their followers to explicitly perform their well-defined roles, and at the same time, these leaders place less importance on building long-term relationships with their followers (Deichmann and Stam, 2015).

Transactional leaders were good at making organisational goals clear to their followers and focused on achieving consistent work output by leveraging standards to sustain the gain from the lean system (Connor and Cormican, 2022). The transactional leadership constructs played a crucial role in pushing individuals into collective groups to enjoy benefits like various incentive plans, revenue sharing, bonuses, and other motivational plans (Connor and Cormican, 2022). The benefits came from two modes; monetary benefits like pay increases and bonuses, and non-monetary benefits like appreciation for the good job done and recognition among their group (Samal *et al*., 2019).

There are two major dimensions available in transactional leadership; contingent reward and management by exception (Bass, 1985). The *contingent reward dimension* helped the leaders to establish a mechanism to motivate their followers, like higher pay, and at the same time punish their followers for not meeting the expected outcome (Bass, 1985). *Management by exception*, the second dimension, had two constructs; active management by exception and passive management by exception (Bass, 1985). Both constructs resulted in negative vibration in the environment as active management by exception construct forced the leader to take proactive actions to predict any deviation against the established norms, and passive management by exception construct motivated the leaders to choose punishment once the deviation occurred (Antonakis and House, 2002). Table 2.3 illustrates the impact of the transactional leadership style on the lean system.

Table 2.3 - The impact of transactional leadership style on the lean system

Leadership style	Internal dimension	Impact on the lean system
Transactional	Contingent reward (Dogan and Yıldız, 2023)	To achieve the minimum standards to sustain the lean benefits
	Active management by exception (Dogan and Yıldız, 2023)	The followers are under the fear that their leaders are proactively watching for deviations
	Passive management by exception (Dogan and Yıldız, 2023)	The followers will get punishment from their leaders for the potential mistakes

Transformational leadership style

The transformational leadership style enabled leaders to achieve higher-order contributions from blue-collar employees over and above their regular tasks (Antony and Gupta, 2019). The transformational leadership style transformed leaders' perspectives about their engagement with their followers and how they groomed their followers to see the bigger picture than regular tasks (Benders *et al*., 2019). This style enabled the leaders to create a vibrant relationship with their followers wherein the followers could reflect on their ideas and concerns without fear (Benders *et al*., 2019).

Achieving the status of charisma among the followers was an important success criterion for transformational leaders as they must secure their followers' approval (Holmemo *et al*., 2023). The better option to transform a culturally diverse workforce to embrace higher-order lean goals was through the active involvement of transformational leaders, as they knew the dynamics and behavioural aspects of their followers (Gellis and Elshennawy, 2021). Transformational leaders were perceived as effective in their journey, and in any organisation with many transformational leaders, there is a good chance that

many of their followers can adhere to a transformational leadership style once they start growing in the organisation (Antony and Gupta, 2019).

The transformational leadership style involves four dimensions; individualized consideration, idealized influence, inspirational motivation, and intellectual stimulation (Bass, 1985). The first dimension, *individualized consideration,* was an individual-focused construct and played a positive role in lean initiatives as leaders could identify the unique talent of their followers to achieve superior results (Reiner, 2018). This leader's attitude passed a compelling message to everyone that the leader was serious about the well-being and career progression of each follower, and the leader treated everyone as per their unique capabilities (Srimathi and Narashiman, 2021). This individualized approach shaped the leaders' actions to build a long-term relationship with each follower, and many times, this long-term relationship went beyond their current organisational boundaries (Netland *et al*., 2020).

The second construct, *Idealized influence,* had two interconnected factors; attributed and behavioural influence components. It is the leader's responsibility to create a positive impact among their followers, and the followers must believe in their leaders' beliefs, integrity, and attitude (Srimathi and Narashiman, 2021). The expected turnaround may not be possible unless the followers believe in their leader's worthiness and admire their leader's style of navigating tough issues in organisational settings (Anderson and Sun, 2015).

Inspirational motivation, the third construct enabled the leaders to create a pride of self-worthiness and a sense of urgency among their followers to optimistically see the benefits of the lean journey in the long term (Anderson and Sun, 2015). Both leaders and followers were aware of the enduring lean journey, potential challenges, and the necessity of sustaining various roadblocks in the lean journey (Latif and Vang, 2021). The leaders played a big role in propelling their followers' faith in the future by challenging their current scope of work and kindling their wisdom for an optimistic world (Anderson and Sun, 2015).

Intellectual stimulation, the fourth leadership construct, helped lean leaders nurture a sense of experimentation among their followers to reap the benefits of lean initiatives (Gellis and Elshennawy, 2021). This culture of experimentation was possible in an organisation because blue-collar employees were getting into the habit of crossing their boundaries and were adopting the out-of-the-box thinking mentality from GEMBA (Anderson and Sun, 2015). Table 2.4 explains the impact of the transformational leadership style on the lean system.

Table 2.4 - The impact of transformational leadership style on the lean system

Leadership style	Internal dimension	Impact on the lean system
Transformational	Individualized consideration (Langton and Mafini, 2023)	Identify the hidden potential of the followers and allow them to implement their potential
	Attributed idealized influence (Langton and Mafini, 2023)	To motivate the followers by demonstrating great self-confidence and personality traits
	Behavioural idealized influence (Langton and Mafini, 2023)	Demonstrate integrity and ethical aspects
	Inspirational motivation (Langton and Mafini, 2023)	Inspire the followers to look for a better world
	Intellectual stimulation (Langton and Mafini, 2023)	Provoke the followers to practice continuous improvement activities on their own

Research gaps

Grigg *et al* (2020) highlighted the importance of subsequent research studies to explore the right blend of transactional and transformational styles to achieve lean success. Ojha and Venkatesh (2022) emphasized the need for additional research studies to explain the application of internal constructs from transactional and transformational styles connected

to lean initiative. Van Elp *et al* (2022) advocated for additional research studies due to a deficiency in the literature about the critical analysis of transactional and transformational style dimensions.

Gellis and Elshennawy (2021) recommended additional research to ascertain how transactional and transformational leadership styles affect lean effectiveness in India. Habidin *et al* (2016) called for further studies to ensure lean success in the Indian automobile sector, and the role of leadership style in lean initiatives in India was an unexplored area in the literature (Ojha and Venkatesh, 2022; Van Elp *et al.,* 2022; Dave and Sohani, 2019).

The following research question was proposed based on the gaps noticed in leadership style literature.

Research question 1 (RQ1): *How do the internal constructs from lean leaders' leadership styles shape the automotive industry's lean system progress in India?*

The following hypothesis elucidated the direct contribution of leadership style to the expected lean outcome.

Hypothesis 1 (H1): Leadership style directly and positively influences the lean system outcome. Refer to Figure 2.1.

2.2.4 Basic value system

Values can be defined as a set of notions carried by a person that sets the foundation for his behavioural outcome (Schwartz *et al*., 2017). Yukl (1998, pp. 234) defined values as 'internalized attitudes about what is right and wrong, ethical or unethical, moral or unmoral', thus guiding a person to make an appropriate decision as per the prevailing

organisational context. Values denote what is important to a person in life; the list of values carried by each person will vary, and the value that may be an important factor to one person may seem to be an unimportant criterion to another person (Van Dun and Wilderom, 2021). Values played a major role in explaining complex social and psychological phenomena in individuals, defining the core of a person that was acquired throughout one‘s lifetime development and is difficult to alter (Wang *et al*., 2018).

There are many reasons why people behave according to their values; people may seek a connection between their values and actions, they may believe the value-driven outcome is successful, and people may want to achieve their results by exhibiting their value-ridden actions (Van Dun and Wilderom, 2021). People act in ways that promote the values that are important to them, and perceptions of these values vary between people (McMackin and Flood, 2019). Van Dun and Wilderom (2021) argued that basic values form the foundational system for every person, and their interaction with the outside world mainly depends on their long-standing basic value system. The values are relatively stable to withstand changes in the long term, and they are transmitted throughout one's life from the childhood stage to the adolescence stage (Tan *et al*., 2023).

Schwartz (1992) enhanced the base work from Rokeach (1973) to introduce his famous theory of basic human values, and this theory is a widely used method to decode basic belief patterns. The theory of basic human values from Schwartz (1992) postulated a few guiding principles, like that values are beliefs that come with a person, result in a behavioural outcome, withstand situational pressure, are relatively ordered based on importance, and organize relevant motivation by an individual into both compatible and conflicting nature.

Schwartz *et al* (2012) refined the basic value theory with better predictive abilities and accuracy to provide better results. The basic values explain decision-making ability, workplace attitudes, and behavioural outcomes for a person or group of persons in all contexts (Schwartz, 1992). Davidov *et al* (2008, pp. 424) argued that the refined value theory was based on 'the continuum of related motivations, like the circular continuum of

colours, rather than a set of discrete motivations' to stress the explanatory power of the refined value system theory.

The refined basic value theory introduced ten refined values and orders based 'on their compatible and conflicting motivations, expression of self-protection versus growth, and personal versus social focus', and this updated theory provides better insights into the linkage between values and beliefs (Schwartz *et al*., 2012, pp. 663). Schwartz *et al* (2012) validated the usefulness of refined values by assessing their predictive ability toward attitude, beliefs, and background.

Table 2.5 shows the four sets of values available in basic value theory; self-transcendence, enhancement, openness to change, and conservation, which individuals can use values from four sets of values (Schwartz *et al*., 2012).

Table 2.5 - The impact of the basic value system on the lean system

Value system dimension	**Salient features**
Self-transcendence (Schwartz *et al*., 2012)	Demonstrate care for everyone and commitment to the well-being of followers
Self-enhancement (Schwartz *et al*., 2012)	Exhibit competent work and gain higher status by successful completion of challenging activities
Openness to change (Schwartz *et al*., 2012)	Being stimulated to do novel work and maintain independence in the decision-making process
Conservation (Schwartz *et al*., 2012)	Preserve the status quo of the customs and avoid actions that may harm the established norms

The impact of the value system on lean success

Ojha and Venkatesh (2022) argued that leaders' value systems played a major role in defining appropriate leadership styles, choosing strategic options, and ways to influence their followers for major change management programs like lean. Van Dun and Wilderom's (2021) study demonstrated that values influence a leader's perception and behavioural choice in a significant manner. Value became one of the many factors that motivate a leader to take the necessary actions for successful lean initiatives; thus, it is important to measure the relationship between values and actions (Kurtmollaiev *et al*., 2018). Van Dun *et al* (2017) argued that previous lean studies were not leveraging Schwartz's (1999) work on basic human values, and they articulated the need to incorporate the basis value theory in lean initiatives.

Most of the applicable lean values from the literature covered under Schwartz *et al's* (2012) work on the self-transcendence cluster and the openness to change cluster (Van Dun and Wilderom, 2021; Van Dun *et al*., 2017). A study by Van Dun and Wilderom (2021) described how the values of openness to change and value creation were adopted by middle-level managers. Van Dun *et al* (2017) identified five leadership values highly rated by middle-level managers from lean projects, and they found similarities with value clusters from Schwartz *et al* (2012) work.

Camuffo and Gerli (2018) reiterated the fact that appropriate leadership behaviours mediate the leader's effective outcome and their inherent value system; thus, behavioural criteria are important to achieve organisational change initiative objectives. There was a gap identified in the literature to explain how the behavioural system mediates the lean leaders' basic value parameters to ensure a lean system's success (Van Assen, 2018). Here, the term mediation plays a significant role, as the behavioural variable is a dynamic one that influences the basic value system of a leader in lean initiatives. This mediation variable explained the reasons for the relationship that exists between the basic value system and lean outcomes.

Research gaps

The necessity to study the behavioural aspects of lean leaders and how their value patterns supplement their behaviours has been endorsed by many researchers (Van Dun and Wilderom, 2021; Kurtmollaiev *et al*., 2018). Further research studies are required to unearth how the value system impacts the leader's mindset to exhibit specific behavioural aspects to promote the lean system's success (Kurtmollaiev *et al*., 2018; Schilke *et al*., 2018). Van Dun *et al* (2017) argued for further research studies to examine the causal relationship between values and behaviours and how to cultivate the optimal mix of necessary values and behaviours among lean leaders.

There is a strong question to be addressed among lean leaders; 'Which values relate more strongly to behaviour than others' (Bardi and Schwartz, 2003, pp.1207). The necessity for carrying out research studies to focus on the value system in India was endorsed by Schwartz *et al* (2012, pp. 685) as he mentioned that 'There is a need to evaluate the theory with less-educated samples, in countries with lower socioeconomic profiles, and in regions not yet studied'. India is one of the countries where dedicated value-focused research has not been done. Van Dun *et al* (2017) argued for future lean research studies to focus on a country with a multicultural environment to compare their research outcomes.

Van Dun *et al (*2017) and Schwartz *et al (*2012) articulated the necessity of conducting further research to study the role of Indian leaders' basic value system in lean initiatives, how leaders in India were moderated by the Indian cultural environment, and how they are influenced to undertake managerial decisions?. It is a fact that Indian manufacturing organisations are facing various challenges in their lean initiatives, and one of the potential mitigation strategies is to mentor Indian leadership about applicable leadership traits and focus on grooming the right mix of behavioural attributes among the leadership teams (Gellis and Elshennawy, 2021; Dave and Sohani, 2019).

The following research question has been proposed based on the gaps noticed in the basic value system literature.

Research question 2 (RQ2): *How do the internal constructs from the lean leader's value system shape the automotive industry's lean system progress in India?*

The following hypothesis indicated the direct role played by the basic value system toward the expected lean outcome.

Hypothesis 2 (H2): Leadership values are directly and positively influencing the lean system outcome. Refer to Figure 2.1.

2.2.5 Behavioural taxonomy

Behaviour is defined as how one individual interacts with others in an environment by leveraging different expression modes like verbal and nonverbal notions (Van Dun and Wilderom, 2021). The behavioural patterns formulate the leader's way of dealing with followers, colleagues, and other stakeholders in the workplace and achieving what they want (Netland *et al*., 2020). Behavioural outcomes are verified through direct observation of people, and simple representations alone may not provide reliable information about behaviour (Van Dun and Wilderom, 2021). Several behavioural classifications have been found in the literature, including broad-level behavioural groups and more specific ones (Netland *et al*., 2020).

The seminal behavioural taxonomy theory developed by Yukl *et al* (2002) explained a comprehensive behavioural framework, improved the explanatory power of specific behavioural elements in a specific context, and assisted the researchers in deriving effective leadership theories. This behavioural taxonomy model talked about effective leadership practices for leaders in various organisational settings, and at the same time, these behavioural elements may not apply to all organisational contexts (Yukl *et al*., 2002).

There were three distinctive behavioural clusters proposed by behavioural taxonomy theory; task-related, relations-related, and change-related (Yukl *et al.*, 2002). The main aim of a *task-related behaviour* cluster is to leverage optimum output from limited resources to achieve superior products, and this forms the prerequisite to establishing the basic system in place. The *relations-related behaviour cluster* focuses on promoting trust among the followers to build strong commitment toward company goals, and this cluster enabled the much-needed support from all employees in lean initiatives. Finally, the *change-related behaviour cluster* resulted in nurturing changes across the organisation to promote change management initiatives, and this cluster energised all the employees to appreciate the organisation-wide unity and movement to ensure lean success.

Each category had its own primary goal, at the same time, all categories were interwoven to provide useful insights to realise leadership effectiveness (Yukl, 2012). A new behavioural category called *external behaviour* was added to the existing behavioural taxonomy theory by Yukl (2012) based on extensive research work from Yukl *et al* (2002). The followers usually provided leadership behavioural input based on their interaction with their leaders, and they may not have a chance to observe their leader's interaction with outsiders, but many researchers found that external influence was an important behavioural aspect of lean success (Magnani *et al*., 2019). Table 2.6 explains the salient features of behavioural taxonomy theory.

Table 2.6 – Salient features from behavioural taxonomy theory

Behavioural taxonomy cluster	**Salient features**
Task-related behaviour cluster (Yukl *et al.,* 2002)	To set the basic system in place to achieve the minimum expected outcome from the available resources
Relations-related behaviour cluster (Yukl *et al.,* 2002)	Builds a trust-based relationship among the blue-collar employees to align with wider organisational goals
Change-related behaviour cluster (Yukl *et al.,* 2002)	Instrumental in promoting the necessity of adopting changes among all employees to achieve corporate objectives

External behaviour (Yukl *et al.*, 2002)	Enables leaders to align themselves with the rapidly changing scenarios from the external world

The role of behavioural system toward lean system success

A better appreciation of values and behaviours was an important criterion for lean leaders, as these constructs strongly influenced their decision-making process (Bhasin and Found, 2021). The role played by behavioural attributes was critical to deciding the effectiveness of a leader, as each behavioural element was somehow related to all values, and each value was somehow related to all behavioural elements. Lean leaders might end up with a less significant managerial outcome if they adopt behavioural elements that conflict with value elements (Sahoo, 2020). The behavioural patterns of a leader were observed spontaneously in each organisation's context, as the leaders assumed their behavioural standing immediately as per organisational contextual factors (Van Dun and Wilderom, 2021).

Behaviour is a spontaneous outcome for a given situational context at a given time, and it can change into another situational context. Some behavioural elements can result in a positive impact sometimes, while the same behavioural element may yield a negative outcome at another moment (Balzer *et al*., 2019). The behavioural outcome mediates leaders' basic value system along with existing contextual factors from the workplace environment to make various managerial decisions (Netland *et al*., 2020). Thus, lean leaders must be well-trained to exhibit relevant behavioural outcomes to ensure lean success (McClean *et al*., 2019).

Successful leaders' ability to use the right combination of behavioural elements in a given organisational situation is called behavioural flexibility (Sahoo, 2020). Lean leaders must use different leadership models suitable for different phases of lean, and the role of behavioural influence in choosing the appropriate leadership style is important in determining the success of lean (Tortorella *et al*., 2021; Seidel *et al*., 2019; Schilke *et al*., 2018). Effective lean leaders practiced more relations-related behavioural constructs,

significantly fewer task-monitoring behavioural elements, and counterproductive work behaviours (Van Dun *et al*., 2017).

The behaviour pattern was flexible and changed as per the prevailing organisational context and as per the hierarchical level of the leaders (Gellis and Elshennawy, 2021; Netland *et al*., 2020). Sometimes, an effective leader would adopt behaviours from various mega categories in inconsistent ways that might result in less significant outcomes toward the lean system, and the optimum mix of different behaviours would yield superior results for a lean leader (Van Dun and Wilderom, 2021). The importance of behavioural impact on a lean leader's effectiveness can be measured if we 'knew more about how much the behaviours are used, when they are used, how well they are used, why they are used, who uses them, and the context for their use, and joint effects on different outcomes' (Yukl, 2012, pp. 75). Most of the leadership behaviours were either leveraged to a greater extent or underutilized, and the right amount of a mixed set of behaviours was better than the maximum utilization of specific behaviour (Hines, 2022).

Tortorella *et al* (2021) argued that superior leadership values and behaviours from leaders resulted in their belief in distributed leadership styles like transformational leadership and increased their commitment to achieving long-term organisational goals. Successful lean leaders leveraged behavioural elements from all three behavioural clusters (Van Dun and Wilderom, 2021; Tortorella *et al*., 2020), and at times, lean leaders exhibited negative behavioural elements like promoting their stand on an issue by blaming others (Aasland *et al*., 2010). The study conducted by Tiwari and Tiwari (2018) explained the mediation role of leaders' behavioural clusters to empower their followers and how to establish a centralised decision-making system with followers' participation?.

The behavioural outcome explained the reasons for the relationship between the leader's value system and lean outcome, and successful lean leaders adopted higher-order behavioural constructs like relationship-related rather than task-related constructs (Netland *et al*., 2020). Another way the behavioural system mediated the basic value system and lean outcomes was through the leader's selection of an appropriate leadership style (Seidel *et al*., 2019; Schilke *et al*., 2018).

Research gaps

Holmemo *et al* (2023, pp. 20) recommended further studies to explore the role played by behavioural aspects among leaders as 'how can these competencies and behaviours be developed'?. Ahlstrom *et al* (2021) argued that subsequent studies were required to focus on leadership behaviours and values and how to establish an enabling culture in lean initiatives. Tortorella *et al* (2021) appealed for subsequent research to identify how successful lean leaders used optimal behavioural elements to produce the desired outcome, enhanced positive effects, and achieve balanced output in a constrained environment (Tortorella *et al*., 2021). The necessity of future studies to measure and analyse the micro-behavioural aspects of lean leaders was recommended by Van Dun and Wilderom (2021). Further research studies were required to explore the intricate relationship between the leader's behavioural outcome and leadership effectiveness in an organisational setting (Tortorella *et al*., 2020; Camuffo and Gerli, 2018).

The early research studies revolved around relations-related and task-related behavioural dimensions, largely disregarded the change-related behavioural dimension, and these two behavioural dimensions were the main research theme for three decades of leadership behaviour research studies (Yukl *et al*., 2002). Szabo *et al* (2001) argued that most leadership research studies concentrated either on values or behaviours and explained the need to conduct an integrative study to examine the role played by both value systems and behavioural aspects. The linkage between values and behaviours required greater attention from the researchers, as values formed behaviours or a few specific values resulted in specific behaviours (Netland *et al*., 2020).

Van Dun and Wilderom (2021) and Netland *et al* (2020) called for further studies to investigate the mediation effect of leaders' behavioural systems on their inherent belief systems to embark on appropriate managerial decisions. The appropriate leadership behaviours mediated the leaders' effective outcome and their inherent value system; thus, relevant behavioural criteria played an important role in achieving organisational change initiatives (Van Dun and Wilderom, 2021; Seidel *et al.*, 2019). A gap was identified in the literature to explore how the behavioural system mediated the basic value parameters from

the leaders to ensure the lean system's success (Van Assen, 2018). The necessity to find the relationships between leaders' behavioural attributes and their basic values was still a gap in the literature (Kurtmollaiev *et al*., 2018). Schwartz (1992) called to study leaders' inclination to use certain behavioural attributes and how these behavioural attributes mediated their decision to undertake relevant managerial decisions.

Netland *et al* (2020) and Seidel *et al* (2019) explained the fact that the extant literature talked about the mediation role of behavioural attributes, but detailed accounts about the mediation role of behavioural attributes were missing. The necessity to study the intricate role played by behavioural attributes' mediation role in lean initiatives like how leaders choose their standing and how they adopt specific intervention mechanisms is still open in the literature (Van Dun and Wilderom, 2021; Van Assen, 2018; Schilke *et al*., 2018). Camuffo and Gerli (2018) argued that leaders' behavioural traits played an important role in change management initiatives, and exploring the role of behavioural attributes, including the mediation effect, needed further attention from researchers.

A need to conduct subsequent research studies to support successful lean implementation in India has been recommended by many researchers (Habidin *et al*., 2016; Swarnakar and Vinodh, 2016; Gupta *et al*., 2013). Further studies were recommended to decide how Indian leaders have chosen a few behavioural constructs to ensure lean success in India, as these leaders wanted to demonstrate their affirmation with selective value-ridden actions (Van Dun and Wilderom, 2021; McMackin and Flood, 2019). The Indian leaders appreciated the necessity of maintaining a trust-based relationship with their followers, and how these leaders leveraged their behavioural constructs to achieve their goals through lean initiative warranted further investigations (Mathew and Taylor, 2019).

Introducing fundamental behavioural changes among Indian employees had been a challenging one due to prevailing cultural patterns found in India, and how to bring behavioural change among Indian leaders attracted subsequent research studies (Mathew and Taylor, 2019; Yukl *et al*., 2002). The requirement to explore how few values were strongly aligned with a few behavioural constructs among Indian leaders needed subsequent investigation (Van Dun *et al*., 2017; Schwartz *et al*., 2012). Sahoo (2022)

called for further studies to find useful lean strategies with Indian-specific insights to address lean requirements in India and to understand the pivotal role played by leaders' behavioural outcomes, which is an important element in the Indian lean movement.

The third research question has been proposed below to address the above research gaps found in the extant literature.

Research question 3 (RQ3): *What is the role of the leader's behavioural taxonomy internal constructs towards the automotive industry's lean system progress in India?*

Direct hypothesis

The following hypothesis indicated the direct role played by behavioural taxonomy theory towards the expected lean outcome.

Hypothesis 3 (H3): The Leader's behavioural outcomes are directly and positively influencing the lean system outcome. Refer to Figure 2.1.

Mediation hypothesis

The leader's behavioural actions mediates the inherent basic value system and motivates them to adopt a set of actions to achieve the success of the lean system. The below hypothesis has been proposed to validate the mediation role played by behavioural taxonomy theory.

Hypothesis 6 (H6): Leader behavioural outcomes are mediating the basic value system. Refer to Figure 2.2.

2.2.6 Power distance

Hofstede (1980) and Hofstede *et al* (1991) extensive research on cultural aspects resulted in two broad sets of cultural constructs; a national cultural framework with five constructs and an organisational cultural framework with six constructs. Some criticism was raised against Hofstede's (1980) work as his findings occurred a few decades ago and were not reflected in today's complex organisational settings (Kull *et al*., 2014). House *et al* (2004) enhanced Hofstede's (1980) work through their seminal work, the Global Leadership and Organisational Behaviour Effectiveness (GLOBE) framework with adequate datasets from multiple countries.

People perceive the world through their cultural lenses, and they are groomed to analyse real-world scenarios using their cultural imprints (House *et al*., 2004). Many people adhered to the family system, framed their mental software post-birth, and tried to fit themselves as per the way their parents and elders lived (Hofstede, 1980). The individual's perception of the national cultural dimension was strongly influenced by the time dimension, as Schein (1984, pp. 12) mentioned 'the longer we live in a culture and the older the culture is, the more it will influence our perceptions, thoughts, and feelings'. House *et al* (2004) articulated the importance of cultural aspects as 'Today, we are all culturally seasoned, and we can deviate from our cultural system to a certain extent only'.

The power distance was an important national cultural construct that determined the individual's inclination towards hierarchical structure and respect given to higher-status people in a social context (Mathew and Taylor, 2019). The power distance cultural dimension demonstrates the acceptance level of status and the level of power consolidation in a society (Samal *et al*., 2019). Power distance is an acceptable social norm in a society like India, where the inequality between the powerful and less powerful members seems to be an acceptable norm (Hofstede, 1980).

India is one of the unique countries in the world with diversified religions and ethnic and lingual characteristics, and the impact of sociocultural tradition on organisational

practice was found to be significant in India (Sahoo, 2022). The role of power distance in India was significant, as James and Jones (2014, pp. 2188) argued that one can expect that 'social, cultural, and political factors cannot be divorced from workplace realities' in India.

The Indian employee's obsession with silence, the family system, and following leaders' directions undermined the core principles of the lean system (Mathew and Taylor, 2019). The family values and submissive nature of the Indian workforce, and the Indian workforce's traditional mentality posed a major challenge to the lean system's success in India (Mathew and Taylor, 2019). Indians preserved these family values over generations and eventually, they exhibited similar behaviours in the workplace context as well (Kakar *et al*., 2002). The leaders took advantage of the prevailing culture to silence their followers, or else followers would face workplace discrimination and harassment from their leaders in India (Budhwar *et al*., 2016; Jain, 2015). Several unpleasant industrial events in India indicated that management philosophies from other countries like Japan did not work well in India without proper modifications as per Indian cultural requirements (James and Jones, 2014).

The role of power distance towards the lean

Power distance influences both leaders and followers, as less power distance motivates the leaders to give enough space to their followers, collaborate with them in the decision-making process, and motivate the followers to voice potential improvement opportunities to them (Samal *et al*., 2019). A conducive organisational environment with less power distance promotes the innovation culture across the organisation (Tortorella *et al*., 2021), and the role played by lower power distance to ensure lean success has been mentioned by the Farooq and Tripathi (2021) research study. Taherimashhadi and Ribas (2018) articulated that the leadership team contained the power distance with carefully designed strategies.

The leadership team formulated various intervention mechanisms to moderate the limiting role played by the power distance cultural dimension, and they leveraged other

organisational assets to promote the empowerment process among the workforce (Erthal and Marques, 2018). The power distance cultural dimension moderated the leaders' approach towards major change management initiatives like lean and defined the degree of collaboration among the leaders and followers (Sahoo, 2022).

The power distance construct influenced leaders in India based on religion, family, caste, and the hierarchical system and moderated their basic value system (James and Jones, 2014). Many times, Indian followers agreed with their leaders even when they disagreed with them internally in their mind to avoid any punishment from their leader (Bagla, 2008). Mathew and Taylor (2019, pp. 8) argued that the 'yes boss' culture in the Indian context is that a 'yes' is more of a respectful articulation of compliance and not an affirmation. This compliance attitude from Indian followers encouraged close supervision by their leaders. The lean system's expectations from blue-collar employees in terms of empowerment, freedom to take improvement initiatives, and work intensity were greater than what had been expected from a traditional Indian employee (Mathew and Jones, 2013).

The age-old tradition emboldened Indian mentality to accept their status in an organisation without asking any questions, suppressed their motivation to move up in the hierarchy, and motivated them to adopt similar patterns in the organisational context, and this construct posed a challenge to their adaptability to align with the lean system in India (Mathew and Taylor, 2019). Eventually, these long-held traditions from India hindered the achievement of the human aspects of the lean system; a close-knit team structure and seamless communication across leaders and followers (Mathew and Taylor, 2019).

The leaders were expected to talk in meetings, and their followers were forced to maintain silence in meetings as a symbol to reinforce their faith in their leaders' abilities (Levin *et al*., 2015). Silence affected the transparent communication channels among various layers of the workforce and undermined the operating principle of the lean system, which ran on the companywide voluntary participation of employees with transparent communication among them (Mathew and Taylor, 2019; Jimenez *et al*., 2017). The follower's silence was an obstacle to planned organisation-wide change initiatives like

lean, which created a problem in achieving a participative culture across the organisation (Du *et al*., 2022).

In India, it was a socially acceptable norm for a leader to play the father role to unveil their authority over their followers, like family members and their followers were waiting for instructions from their leaders to do the daily tasks, which resulted in negligible individual contribution (Aycan, 2000). Mathew and Taylor (2019, pp. 15) argued that 'Decentralisation and delegation are the most incompatible features of lean in the Indian context'.

Research gaps

There was not sufficient research done to address the role of culture in lean system implementations (Sahoo, 2022; Belhadi *et al*., 2018) and the role of 'power distance seems be an under-researched NC dimension' for lean system implementations, and this gap deserved subsequent research studies (Erthal and Marques, 2018). Sahoo (2022) argued for specific studies to investigate how successful lean leaders leveraged organisational cultural elements to offset the impact of the power distance construct.

The deep-rooted cultural traditions of India made the executives carefully approach the power distance role in India; thus, potential research studies are required to identify the right strategies to manage the power distance in India (Mathew and Taylor, 2019). Focused research studies were required to explore how organisations successfully leveraged other factors to address the limitations of power distance to ensure lean success in India (Erthal and Marques, 2018). Indian manufacturing companies were in dire need of exploring the optimum lean implementation approach, and further studies were required to identify applicable leadership practices and cultural orientation in Indian organisations (Sahoo, 2022; Secchi and Camuffo, 2016).

The direct clashes between the prevailing Indian socio-cultural environment and the lean principles were visible, but the research studies focused on the cultural aspects of the

lean system implementation in India were limited (James and Jones, 2014). The necessity to carry out subsequent research studies to explore the role played by the power distance in India, to analyse the incompatibility noticed between the established socio-cultural tradition in India and the lean system expectations were documented in the extant literature (James and Jones, 2014). Tortorella *et al* (2021) called for detailed research studies to explore how successful lean leaders were using the power distance as an influencing variable to realise lean success and how those leaders embarked on various organisational interventions to limit the challenges posed by the power distance construct?.

The necessity to study the moderation role played by the power distance on leaders' inherent belief systems was evident from the gaps noticed in the literature (Belhadi *et al*., 2018). Van Dun *et al* (2017) and Schwartz *et al* (2012) called for focused studies to explore how Indian leaders were moderated by Indian cultural patterns and how they were influenced by the prevailing cultural patterns to undertake managerial decisions. The need to understand how lean tenants leveraged various organisational intervention mechanisms to limit the moderation role played by high power distance in lean initiatives has been raised by the research community (Belhadi *et al*., 2018; Mathew and Taylor, 2019).

How lean leaders moderated power distance to form their unique values and how they used various organisational intervention mechanisms to address the challenging role of the high-power distance needed further investigation (Tortorella *et al.*, 2021). Farooq and Tripathi (2021) and Siddique *et al (*2020) identified the necessity of studying the moderation role played by the power distance construct on leaders' decision-making abilities. Subsequent research studies are required to explore the way Indian traditional cultural elements moderate the lean system, so potential lean tenants may proactively identify various challenges to be resolved before starting their lean initiatives in India (Mathew and Taylor, 2019).

The fourth research question has been proposed to address the above-mentioned research gaps found in the extant literature.

Research question 4 (RQ4): *How does the lean leaders' power distance construct shape the automotive industry's lean system progress in India??*

Direct hypothesis

The following hypotheses indicate the direct role played by power distance in the expected lean outcome.

Hypothesis 4 (H4): Power distance is directly and positively influencing the lean system outcome. Refer to Figure 2.1.

Moderation hypothesis

The power distance played an important role in framing a lean leader's orientation to value systems from childhood, behavioural patterns, and their choice of leadership styles. Power distance moderates how a leader acquires a lifelong basic value system and is instrumental in adopting various leadership attributes to meet the expected lean outcomes. The following hypotheses have been proposed to validate the moderation role played by the power distance construct.

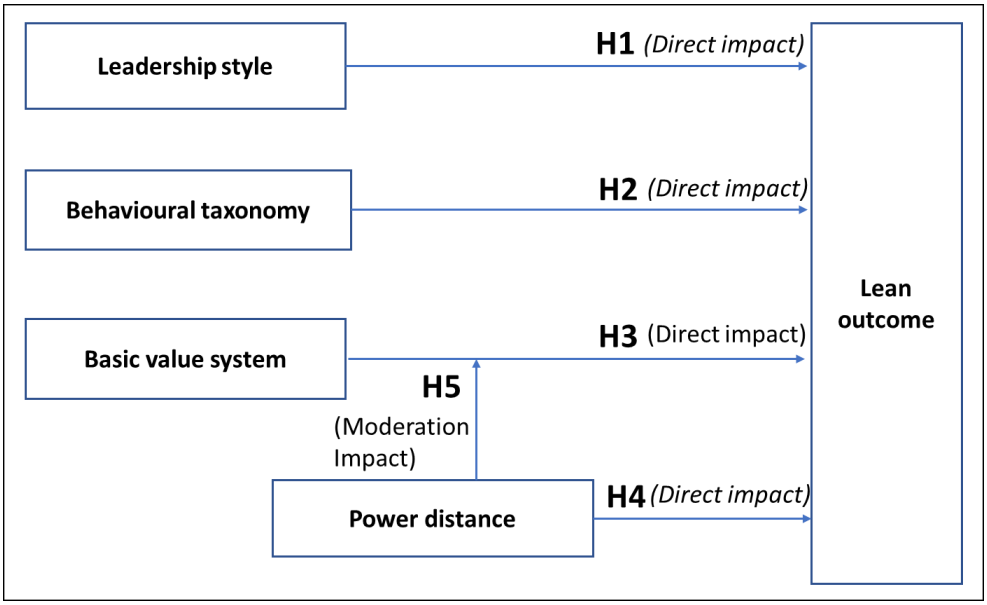
Hypothesis 5 (H5): The power distance cultural dimension moderates the basic value system. Refer to Figure 2.1.

2.3 The proposed theoretical structure model

This section proposes a theoretical structure to address the defined research questions and meet the research objectives. Figures 2.1 and 2.2 explain the proposed theoretical structure with applicable hypotheses. The direct impact of leadership style, basic value system, behavioural taxonomy, and power distance on the lean system outcome was elucidated in

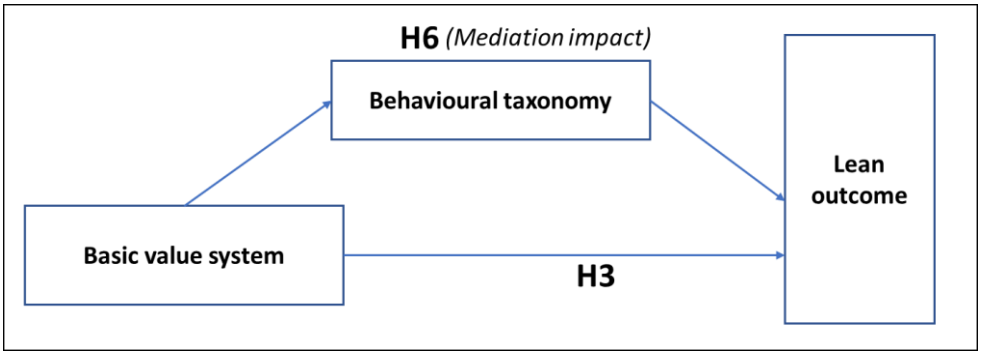
this theoretical structure (Refer to hypotheses H1, H2, H3, and H4 from Figures 2.1 and 2.2). The behavioural taxonomy mediates the relationship between the basic value system and the lean system outcome and explains the reasons for such a relationship to exist (Refer to H6 in Figure 2.). Power distance moderates the basic value system of a leader and their motives to achieve the expected lean result (Refer to H5 in Figure 2.1).

Figure 2.1 – Conceptual model of the direct and moderation effects



The mediation effect is explained in Figure 2.2 below.

Figure 2.2 - Conceptual model of mediation effect



The constructs used in this study have been chosen based on literature support. A total of 6 hypotheses based on Figures 2.1 and 2.2 were used in this research. Out of the four main constructs used in this study, one construct (Power distance) direct impact on lean outcome (H4) that did not apply to this study and was explained with literature support in chapter 4.

In response to the first research question, Hypothesis 1 briefly described how the leadership style directly affects the outcomes of lean systems. Hypothesis 2 examined the direct influence of the basic value system on the lean system outcome to find an answer research question 2,. The direct impact of the behavioural taxonomy theory on the lean system outcome was explained by Hypothesis 3, and the mediation effect of the behavioural taxonomy theory on the basic value system to determine the lean system outcome was explained by Hypothesis 6. Hypotheses 3 and 6 were developed to investigate the answer to research question 3.

The purpose of Hypothesis 4 was to study the direct impact that power distance has on the outcome of a lean system. In Hypothesis 5, the moderation effect of power distance on the basic value system was assessed to ascertain the outcome of the lean system. The purpose of hypotheses 4 and 5 was to address research question 4.

2.4 Instrument design

Quantitative survey instrument design

This study used a comprehensive quantitative survey instrument with a total of 63 questions based on literature review outcomes. Table 2.7 explains the breakdown of questions across four constructs as part of this research. As a pre-requisite, the proposed questionnaire was discussed with five lean professionals to ensure that the questionnaire was easy to understand and communicated the intended meaning to the participants as per Saunders *et al's* (2015) suggestions. This additional validation had been set in conjunction

with the supervisor's review and Nottingham Trent University's Professional Doctorates Research Ethics Committee (PDREC) recommendations.

The new questionnaire's design was inspired by the pre-existing questionnaire based on the selected constructs used in this study. Since the scales employed in this study were validated by other research studies, they were taken from the body of existing literature. The internal consistency and reliability of this survey questionnaire were confirmed by the pilot study, which is a recommended practice. The results of the pilot study were covered in chapter 3.

Table 2.7 – Survey instrument design pattern

Latent variable	**Control variable**	**Number of questions**
Leadership style	Transactional leadership style (Bass and Avolio, 1997)	3
	Transformational leadership style (Bass and Avolio, 1997)	15
Basic value theory	Openness to change (Schwartz *et al.*, 2012)	4
	Self-enhancement (Schwartz *et al.*, 2012)	5
	Self-transcendence (Schwartz *et al.*, 2012)	7
	Conservation (Schwartz *et al.*, 2012)	4
Behavioural taxonomy theory	Task related (Yukl, 2012)	3
	Relations related (Yukl, 2012)	4
	Change related (Yukl, 2012)	4
	External related (Yukl, 2012)	3
Power distance (House *et al*., 2004)		5

Lean outcome measurement (Sim and Rogers, 2008)		6

Measurement scales

The technical description of the numerical scale utilised in this study is given in Table 2.8. A 5-point numerical scale is used in this study, where 0 represents the lowest response to the given question and 5 represents the highest response.

Table 2.8 - Survey instrument scale definition

Major topics	Total no of questions	Scales
Leadership style	18	Rating scales: 0 – Not at all, 1 – Once in a while, 2 – Sometimes, 3 – Fairly often, 4 – Frequently, if not always
Basic value system	20	Rating scales: 0 – Not at all, 1 – Once in a while, 2 – Sometimes, 3 – Fairly often, 4 – Frequently, if not always
Behavioural taxonomy theory	14	Rating scales: 1 – Not at all, 2 – To a limited extent, 3 – To a moderate extent, 4 – To a considerable extent, 5 – To a very great extent
Power distance	5	Rating scales:

		1 – Strongly disagree, 2 – Disagree, 3 - Neither agree nor disagree, 4 – Agree, 5 – Strongly agree
Lean outcome measurement	6	Rating scales: 1 – Strongly disagree, 2 – Disagree, 3 - Neither agree nor disagree, 4 – Agree, 5 – Strongly agree

Leadership style

This study leveraged the Multifactor Leadership Questionnaire (MLQ) to measure both transactional and transformational leadership styles, as MLQ established its position as the reliable tool to measure both styles (Schriesheim *et al*., 2009; Bass and Riggio, 2006). There were two parts to the MLQ; the leaders rated their behaviours, and the followers assessed their leader's leadership behaviours (Bass and Riggio, 2006).

In this process, the followers filled out the questionnaire for their leaders, and these MLQ factors were rated on a 5-point numerical scale, with the value of 1 being the lowest scale with the response of 'not at all' and the value of 5 being the highest scale with the response of 'frequently, if not always' (Anderson and Sun, 2015, pp. 794). The composite reliability value obtained for the scale was 0.96 (Bass and Avolio, 1997) and secured excellent internal consistency among MLQ items with Cronbach's alpha coefficients above the .8 level (Bass and Riggio, 2006). The MLQ enjoyed higher test and retest reliability coefficients (Bass and Avolio, 1997).

This study mandated the followers to assess their leader's leadership style capability to gain feedback about the case organisations' leadership style capability. For example, the middle-level leader assessed their senior leader while the entry-level leader assessed their middle-level leader, and blue-collar employees provided feedback about their lower management leader. This process captured feedback across leadership hierarchies and from

blue-collar employees. The five-point scale is: 0 (not at all), 1 (once in a while), 2 (sometimes), 3 (fairly often), 4 (Frequently, if not always).

Basic value system

This study leveraged the Portrait Values Questionnaire (PVQ) to measure various internal value dimensions promoted by Schwartz *et al* (2012). As per the PVQ questionnaire, the interviewee measured other people's values in comparison with themselves, and this resulted in social comparison judgments. This was easier than reporting one's abstract values. People rarely think about their basic values but are frequently engaged in social comparison with others in everyday life. As per literature, this 6-point numerical scale was used in this study; not like me at all, not like me, a little like me, moderately like me, like me, and very much like me.

In this research, the followers filled out the questionnaire for their leader's value system. Here, the interviewees were not comparing themselves while filling out the questionnaire. Hence, the existing scales were not suitable for this research study. In line with this argument, the researcher proposed the below scale for this topic 0 (not at all), 1 (once in a while), 2 (sometimes), 3 (fairly often), 4 (frequently, if not always). This revised scale was validated by the pilot study, and the results demonstrated good reliability and internal consistency for this scale.

Behavioural taxonomy theory

This study used the seminal four-dimensional behavioural framework, or the Managerial Practices Survey (MPS), designed by Yukl (2012). This instrument has a five-point numerical scale: 1 (not at all), 2 (to a limited extent), 3 (to a moderate extent), 4 (to a considerable extent), and 5 (to a very great extent). This questionnaire displayed a good Cronbach's alpha score of more than .8 from previous research studies. The same scale was used in this study, and the pilot results demonstrated good reliability and internal consistency aspects of this scale.

Power distance

This study followed the GLOBE study questionnaire to design the questions to address the power distance-related challenges (House *et al*., 2004). In the GLOBE study, the description for the 1 - 7 numerical scale definitions were used in this GLOBE research study, and this scale frequently changed as per the question context. To maintain commonality across the survey instruments (5-point numerical scale), the researcher maintained the following scale definition for power distance questions. Rating scales are: 1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), 5 (strongly agree). This revised scale was validated by the pilot study, and the pilot study results demonstrated good reliability and internal consistency for this revised scale.

Lean system measurement

Lean was a complex system with multiple constructs in place and was often difficult to measure (Shah and Ward, 2007). A few research studies were found in the literature to frame the optimum set of questionnaires to measure the lean outcome (Cochran *et al*., 2000; Detty and Yingling, 2000; Womack *et al*., 1990). Sowards (2009) recommended two kinds of dashboards; a scoreboard, a kind of reactive measurement tool to measure effectiveness once the event was over like manufacturing cost savings realised at the end of the year. The second one, the dashboard, measured the existing condition of the improvement programs, like the empowerment enjoyed by the blue-collar employees in terms of voluntary improvement programs initiated by themselves. The second approach used in this research study is to reflect the state of lean maturity in the case organisations.

Successful leaders empowered their followers to adopt continuous improvement activities by themselves (Sowards, 2009). As per Bamber and Dale's (1999) research findings, the main challenge for effective lean was a typical command and control system in place without employee empowerment. A lean organisation adopted lean principles across the organisation, not just limiting them to shop floor functions; these principles were practiced by all functions (Womack *et al*., 1990). Lean aimed to fulfil customer

requirements; thus, an effective measurement tool was needed to factor in the employees' core belief in following lean initiatives even in challenging times and not sacrificing their ethical stand to achieve short-term gains (Sowards, 2009).

A good lean measurement system is focused on the effectiveness of competent systems in place that drive the lean across the organisation by design and do not try to measure individual performance (Sowards, 2009). Doolen and Hecker (2005) argued that a typical lean measurement tool must have both tactical and strategic dimensions to address the multifaceted aspects of a lean system. There were five core lean principles proposed by Womack and Jones (2003), namely specifying the value, identifying the value stream, flow, pull, and perfection, and successful lean organisation following these parameters daily (Doolen and Hecker, 2005).

Value was the set of transformation activities that the customer wanted to pay for and all activities other than customer value propositions were removed from any robust process (Womack and Jones, 2003). There were seven wastes to be removed from any process; overproduction, high inventories, overprocessing, unnecessary motions, defects, a long waiting period, and unnecessary transportation (Womack and Jones, 2003). Value stream mapping is the process of systematically analysing the current state of the process and achieving the future state by eliminating non-value-added activities (Womack and Jones, 2003).

According to Womack and Jones (2003), the flow idea led to an optimised state of the process where the product or service was moving between defined processes without unwanted inventory accumulation between operations and without excessive waiting periods. The pull system resulted in the upstream operations informing the downstream operations to produce the parts as per customer demand. This system resulted in producing only necessary products or services based on the customer’s confirmation rather than assumptions (Womack and Jones, 2003). Perfection was the state of mental equilibrium wherein all the employees were consciously looking for Kaizen initiatives as their way of life and tried to offer superior quality products or services to their customers (Womack and Jones, 2003).

Considering the insights derived from the literature, the researcher designed the below survey questions (Refer to Table 2.9) to measure the effectiveness of the lean system from the employee's perspective. The proposed instrument was designed to capture the organisation's commitment to following the six core principles of the lean system. Rating scales used in this study: 1(strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), and 5 (strongly agree).

Table 2.9 – Lean measurement survey design parameters

Sl No	Question	Lean principle
1	Our leadership team is determined to continue improvement activities as a regular norm, not as a pre-requisite for any audit event (Sim and Rogers, 2008).	Value
2	Our organization is ensuring to eliminate waste from processes (Sim and Rogers, 2008).	Value System
3	Our organization makes continuous efforts to reduce the lead times from processes (Sim and Rogers, 2008).	Flow
4	My knowledge of lean tools allows me to fulfil my next customer demand in need (Sim and Rogers, 2008).	Pull
5	Our organization works hard to adopt best practices across the divisions (Sim and Rogers, 2008).	Perfection
6	I am getting the necessary training from my company to add more value addition (Sim and Rogers, 2008).	Perfection

2.5 Summary

This chapter discusses four constructs used in this research; leadership style, basic value system, behavioural taxonomy theory, and power distance, an important national cultural dimension. The first construct, leadership style, explained the active role of both transactional and transformational leadership styles' dimensions to ensure the expected lean system outcome. The second construct, basic value theory elucidates how a leader develops a basic value system and the role of basic value system dimensions in the lean

system's outcome. The third construct, behavioural taxonomy theory, elaborates how a leader is motivated to embark on their behavioural outcome to make various managerial decisions. The last construct, power distance, enunciated the prevailing organisational context from the typical Indian sociocultural patterns and its impact on both leaders and followers in India.

The mediation role of behavioural taxonomy theory and the moderation role of the power distance construct were discussed in this chapter. Various gaps were identified from the above major constructs, and subsequently, four research questions were proposed in this chapter. A conceptual lean leadership model with direct, mediation, and moderation hypotheses was proposed in this chapter. Overall, this chapter identified applicable theories used in this study, identified the research gaps, formulated research questions, proposed various hypotheses, and offered a theoretical conceptual model to meet research objectives.

The next chapter, Research Methodology, explains the proposed research design and the necessary research components to carry out this research study as per established social science research practices. The pilot study and primary data collection mechanisms and participants' demographic details were explained in the next chapter. Various statistical measures have been done on pilot data to validate the quantitative survey instrument, qualitative interview questionnaire, and the next chapter explains the pilot study results. This chapter discusses about few statistical tests like non-response bias, common method variance, and sample size validity to ensure the usefulness of the primary data for subsequent hypothesis analysis. The ethical guidelines used in this study were discussed in the next chapter.

Chapter 3 – Research Methodology

3.1 Introduction

A sound research methodology is a necessary criterion to ensure the success of a social research project (Saunders *et al*., 2015). This chapter explains the rationale behind the applicable research methodology components used in this research study. There are five sections in this chapter. Section 1 elucidates the research design components like ontology, epistemology, axiology, theory development, research strategy, and methodological choice aspects of this study. Section 2 describes the ethical aspects of this study. The case organisation details are captured in section 3. Section 4 illustrates the pilot study data collection process and the pilot data analysis of this study. This section also expounds on both quantitative and qualitative analyses to validate the applicability of the chosen research methodology and the robustness of the quantitative survey instrument and the qualitative interview questionnaire. Section 5 interprets the primary data collection process and a few important statistical tests to validate the robustness of primary quantitative data.

A pilot study was performed to validate the applicability of the chosen research methodology components in this study. The proposed quantitative survey instrument was validated by the pilot study, and various statistical tests on reliability and internal consistency aspects were conducted to assess the fitment of the survey instrument in the International Business Machine Statistical Package for Social Sciences (IBM SPSS). A qualitative interview questionnaire was used in the pilot study, and the critical insights gained from qualitative discussion via the content analysis method were discussed in this chapter. The ethical aspects followed for this study and insights about primary data collection processes were explained in this chapter.

3.2 Research methodology

This research aimed to address two objectives; to find a solution to leadership commitment challenges from lean practice and to add valuable contributions to both theory and literature. To broaden the body of knowledge and provide significant managerial implications for lean practice, this Doctor of Business Administration (DBA) research relied extensively on the use of proper methodologies for research (Saunders *et al*., 2015). This research followed a systematic research design pattern with chosen research components that were selected based on this research study's requirements (Bryman and Bell, 2015).

3.3 Section 1 – Ontological and epistemological position

Ontological position

This study followed the relevant combination of ontological and epistemological choices to ensure authentic knowledge generation from this study (Morgan and Smircich, 1980). Two types of ontology positions were available based on the role of social actors; objectivism and constructivism. According to the objectivism approach, happenings in the social world were not impacted by social actors and were uncontrolled by their boundaries (Burell and Morgan, 1979). Social science research was not a candidate for an objectivism stance, as all decisions in an organisation are taken by the people themselves.

The constructivism approach postulated that social actions were deliberate actions from social actors and occurred with intentional activities of social actors (Creswell, 2014). This ontological position was suitable for social research as the leaders have made the decisions for an organisation, and these decisions varied depending on the contextual factors involved. This study adopted the *social constructivism ontological position,* as case leaders from various hierarchical layers have taken a unique set of actions and followed a specific

set of leadership attributes in the lean journey (Bryman and Bell, 2015). Table 3.1 explains the rationale for ontological positioning for this study.

Table 3.1 – Ontological position for this research study

Ontological position	Fitment for this research study	Remarks
Objectivism (Saunders *et al*., 2015)	No	Salient features - All managerial actions happen beyond the lean leader's influence - Lean progress will happen by its virtue
Social Constructivism (Saunders *et al*., 2015).	Yes	Salient features - All managerial actions are taken by the lean leaders with their full approval and cognizance - The lean leaders make decisions along with other stakeholders as per the prevailing organisational context

Epistemological position

Epistemology helped researchers to see through various forms of knowledge from a research study and explained acceptable elements to generate the knowledge (Bryman and Bell, 2015; Burell and Morgan, 1979). There were several epistemological stances found in the literature.

Positivism: This point of view explains why activities in the real world occur naturally and developed hypothesis testing techniques to search for cause-and-effect equilibrium between different social events (Saunders *et al*., 2015). This position was not considered for this study as rule-based events were mandatory for the positivism epistemological position.

Interpretivism: This position articulated that one cannot isolate from the social world; participants from qualitative interviews provided rich insights about the social event in experimentation, and the researchers constructed their arguments with their inherent beliefs and values in producing the knowledge (Goldkuhl, 2012; Krauss, 2005). This position was not considered for this research study as the case leaders were expected to explain the complex managerial decisions taken by them and why they have taken such decisions. The researcher was expected to construct a new theory based on the participants' feedback.

Pragmatism: This position viewed the research process as a continuous one, leveraging the strengths of both positivism and interpretivism approaches to analyze social world happenings, and offered flexibility for the researchers to leverage varied approaches to address the social world phenomenon (Creswell, 2014; Wahyuni, 2012). The limitations were that it was tough to observe the social world in this position as important revelations were hidden and needed complex interpretation mechanisms to understand the real outcome.

Realism and critical realism: The realism position accepted the reality that some social activities were difficult to observe, often hidden behind the social happenings that warranted an interpretation mechanism to decode the meanings. These social activities were shaped by two important parameters, structures, and causal powers. The causal powers shaped the functional aspects of structures in the social world (Bhaskar, 2008). This approach differed from the positivist approach of limiting with solid shreds of evidence or the pure construction of knowledge from the social world through the interpretivism approach (Van de Ven, 2007). The realism approach accepted the imperfection nature of social reality, promoted various constructs in cognizance of the researcher's value system, and had a semi-state to accept empirical results from the social world (Bisman, 2010; Van de Ven, 2007; Krauss, 2005).

Bhaskar (2008) promoted a new form of realism called *critical realism* to address the current deficiencies in constructing knowledge from social reality and proposed a set of principles that the knowledge can be constructed with some validations in place. Critical realists are trying to construct the knowledge to align with the existing contextual situation

in the social world, where all social actions were happening based on intensive interactions among the social actors, influenced by various intermediating factors. Thus, it promoted the pluralistic version of the social action under observation (Bisman, 2010; Bhaskar, 2008). The critical realism stance provided a unique proposition not found in other epistemological approaches, like a deep dive into the hierarchical aspects of the social world and how these hierarchical entities communicate intensely and come up with social activities.

This study adopted a critical realism epistemological stance to understand the perceptions and strategic decisions of case leaders about how they reacted to a given organisational context and motivated their followers toward lean system success. This critical realism approach introspected how case leaders have taken their decisions, moderated their behavioural outcomes, and navigated through various challenges to meet their lean objectives. The primary data played a critical role in yielding important attributes in this process, and the outcome of the critical realism introspection resulted in formulating the answers to the research questions of this study. The critical realism philosophical stance asks the researcher to look at social happenings from their research objects' point of view rather than being a simple observer (Saunders *et al*., 2015). The researcher appreciated the lean leader's challenges as one of the active participants in qualitative interviews and understood the challenges faced by the lean leaders.

Axiology

Axiology is an important research philosophy component as it deals with the role of researchers and participants' internal beliefs and biases on the research outcome (Bryman and Bell, 2015). The researcher understood the axiology limitations, actively participated in collecting primary data from participants, and carried out a detailed analysis to construct outcomes from the primary data without much bias.

Theory development

The naive line between theory and research led to two extremes; whether the theory influenced the data collection procedures or whether the data and its analysis led to a new theory (Saunders *et al*., 2015). The former is deductive, and the latter is an inductive approach. The deductive approach deliberated to explore the relationship between theories and data and the sampling pattern played a big role in inferring an acceptable solution through hypothesis validation (Saunders *et al*., 2015). In contrast, the researcher can infer the new theoretical outcome based on the qualitative primary data generated as per the inductive approach (Bryman and Bell, 2015). The researchers may adopt a qualitative method from a small set of social actors for an inductive approach rather than the large sample size required for the quantitative method required by the deductive approach (Saunders *et al*., 2015). Apart from both deductive and inductive strategies, there was an interpretive research strategy, an abductive approach, which addressed the dealings between the theory and data and produced the knowledge through 'reflexive narratives, not explanatory models, or theoretical propositions' (Mantere and Ketokivi, 2013, pp. 75).

For this research project, the abductive approach was selected. There were two reasons to select the abductive approach for this study; to leverage existing theories as part of this study and to gain new insights from the primary data to find answers to the research questions. Various theories used in this study did not explain the lean leadership phenomenon in case organisations in totality; rather, these constructs provided individual aspects of lean leadership, like how the case leaders exhibited leadership style or behavioural outcomes in the workplace. On the other hand, the primary data analyses from this study provided a new set of information and rich insights from case leaders about how they managed the lean journey. The aim of this study was not to find new theories grounded in qualitative primary data but rather to augment the existing theories with findings from the primary data to address the research questions in scope.

To answer the research questions, this study conducted a variety of statistical analyses on quantitative data and developed a set of themes from the four constructs that were employed in the quantitative analysis. These tasks were part of the deductive part of the

abductive approach considered for this study. The qualitative analyses provided various revelations and insights from lean leaders, which were part of the inductive part of the abductive approach considered for this study. Finally, this study offered a comprehensive lean leadership model and various strategies for lean tenants as a derivative of the abductive approach used in this study.

Research strategies

The research strategy was an important dimension in establishing a purpose among the research questions, research philosophy, and data collection procedures (Saunders *et al*., 2015; Denzin and Lincoln, 2005). There were a few dominant strategies found in the literature, like an experiment, a case study, ethnography, action research, and grounded theory. This study adopted a case study research strategy due to the following justifications; the case study strategy offered a unique opportunity for the researcher to deep dive into a real-time phenomenon in real-life circumstances (Saunders *et al*., 2015). The definition of a case study, the selection of case boundaries, and the real-time settings under which the social phenomenon was observed were important considerations in the case study strategy (Eisenhardt and Graebner, 2007). Through the use of a case study approach, researchers were able to closely explore real-life events without limiting any of their characteristics. This allowed for the collection of insightful and accurate details about the social phenomenon that is being studied (Saunders *et al*., 2015).

By adopting positivist and interpretivist positions, this case study research technique supported the abductive theory development approach. Additionally, the researcher may benefit from mixed-method research in the case study research strategy (Saunders *et al*., 2015). The primary data was collected from three case organisations across the leadership hierarchies and blue-collar employees in their natural organisational settings. The researcher went to case organisations and briefed the participants on both quantitative data collection and qualitative interviews. The real-time lean phenomenon from case organisations offered an in-depth perspective for the researcher to appreciate the daily lives of case leaders and blue-collar employees; thus, the researcher leveraged his learnings from this study to see the bigger perspective of the research objectives in scope.

Methodological choice

There were three major methodological choices available to researchers, namely quantitative, qualitative, and mixed methods (Creswell, 2014). *The quantitative method* aimed to assess the applicability of existing theories by designing hypotheses and validating them by measuring both dependent and independent variables (Saunders *et al*., 2015). The quantitative method essentially supported the deductive nature of the theory development approach. An advantage was that general acceptance of the results by the population was obtained with this method, but a few limitations included not capturing deep insights from the participants and the chance of the wrong selection of statistical tools.

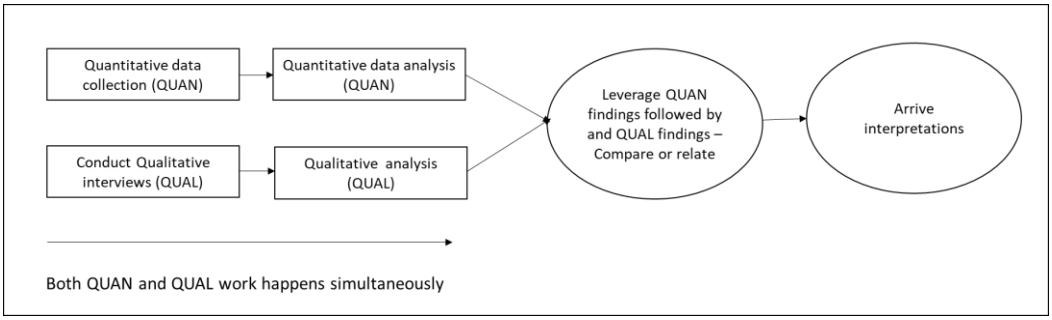
The qualitative method, frequently employed by social researchers provided an opportunity for direct communication with participants as opposed to treating them like study subjects as in the quantitative approach (Saunders *et al*., 2015). The researcher enjoyed significant freedom to ask introspective questions to gather useful details from the participants without any obstacles in place. The qualitative method materialised with its limitations, as decoding and interpretation of hidden themes and values were cumbersome to the researcher (Saunders *et al*., 2015).

The mixed method contained both quantitative and qualitative methods to verify the theory and generate additional theory in a single research study (Creswell, 2014). The mixed-method approach complemented the strengths of both quantitative and qualitative methods to find answers to the research questions. Convergent parallel mixed methods design, explanatory sequential mixed methods design, and exploratory sequential mixed methods design were the three main categories of mixed methods design presented by Creswell (2014). In a convergent parallel mixed methods design, both quantitative and qualitative data were collected simultaneously, and the results were analysed. The researcher leveraged both results to see whether they complement or contrast with the findings to address the research objectives (Creswell, 2014). Qualitative data collection and analysis were prioritised in an exploratory sequential mixed-methods design, followed by the quantitative part (Creswell, 2014). In the explanatory sequential mixed methods

design, the researcher collected the quantitative data, analysed the results, and leveraged the findings to devise a qualitative phase (Creswell, 2014).

This study adopted the convergent parallel mixed method design, and Figure 3.1 explains various elements of this method (Creswell, 2014). There are five phases to this mixed-method research method; design parameters, data collection, analysis, interpretation, and validity.

Figure 3.1 – Convergent parallel mixed method design (Adopted from Creswell, 2014, pp.270)



Design parameters: In this mixed-method approach, both quantitative and qualitative data were collected on the assumption that both data provided different insights to address research questions. Both quantitative surveys and qualitative interviews were designed to measure the same variables among the participants; the leaders' standing on leadership style, the basic value system, behavioural taxonomy theory, and power distance.

Data collection: A sample of participants from three case organisations provided their feedback in a quantitative survey instrument about their perception of their leader's abilities. This study adopted qualitative interviews to gather rich insights from case leaders and blue-collar employees. These semi-structured qualitative interviews enabled the participants to share their rich insights about the lean initiative, good practices, areas for improvement, critical incidents from their career, and other useful details. Both quantitative and qualitative data were collected simultaneously and within the same period.

This approach has been adopted for both the pilot study and primary data collection phases.

Analysis: Both quantitative and qualitative analyses were performed separately and were used together in the interpretation section to answer the research questions. According to Creswell (2014), the researcher may choose to present the quantitative phase's statistical data after presenting the qualitative findings. Alternatively, the researcher may begin with the qualitative phase, followed by the quantitative phase. The approach was called a side-by-side comparison (Creswell, 2014). The second approach was called data transformation, wherein the qualitative codes were changed into quantitative codes in the analysis phase (Creswell, 2014). The last approach combined these two forms of data into a single visual form, like a table or graph, called a joint display of data (Creswell, 2014). This study adopted the first approach, wherein the quantitative results were discussed in chapter 4 and chapter 5 articulated qualitative findings from this study. Chapter 4 explains various statistical treatments done on quantitative data, and chapter 5 articulates the qualitative results.

Interpretation: The detailed interpretation of this mixed-methods approach is explained in chapter 6 to answer each research question. The results from both quantitative and qualitative analyses were incorporated to answer each question. The nature of the relationship among quantitative and qualitative variables, like whether convergence or divergence outcomes were considered to address research questions.

Validity: The validity of this mixed-methods approach has been established in this study by leveraging a convergent relationship between quantitative and qualitative results. A few validation measures have been followed for this study to avoid a divergent approach. Enough sampling criteria have been selected for both quantitative and qualitative phases, and the same variables have been used in both phases to avoid the divergent results in this study (Creswell, 2014).

3.4 Section 2 – Ethical guidelines

This research followed the guidelines proposed by the Professional Doctorates Research Ethics Committee (PDREC), Nottingham Trent University, to collect both quantitative and qualitative data from the case organisations. The research supervisors examined the quantitative survey instrument and the qualitative interview questions, and the PDREC at Nottingham Trent University approved them both. The researcher created a participant information sheet and consent form to provide comprehensive details to participants and secured their willingness to participate. Appendices A, B, C, and D explain the approved quantitative instrument, qualitative interview questionnaire, participation information sheet, and consent form.

3.5 Section 3 – Case organisation details

This section explains the case organisation details from which the quantitative and qualitative data for this research study were collected. These case organisations had been successfully following the lean system for a long time, and both the leadership team and employees were working with lean principles daily (Refer to Table 3.2). These case organisations bagged prestigious international awards due to their lean system excellence, superior customer satisfaction, and employee involvement.

Table 3.2 - Case organisations details

Company	Nature of business	Turnover in Millions of USD	Number of employees	Lean journey from	Awards recognized	Remarks
Case organisation 1	A leading auto	150	2972	Lean track record from 1996	Won the Deming award in	This organisation is a lean

	ancillary organisation				2004 due to their excellent lean faith.	pioneer in India
Case organisation 2	A leading automobile ancillary organisation	90	875	A long-standing lean journey from 2000	Deming Prize winner in the year 2005	This organisation is a lean pioneer in India
Case organisation 3	A mid-size auto ancillary company	242	2600	Successful track record in practicing lean system from 2003	Deming Prize winner in the year 2005	This organisation is a lean pioneer in India

Case organisation 1: This organisation is a joint venture between leading Indian and UK conglomerates to produce auto electrical components for leading automobile Original Equipment Manufacturers (OEM) from India and overseas. The senior leadership team started the lean excellence program during the period 1985-1998. The senior leadership team was heavily involved in this long-lasting transformation to reach lean goals. This company won the Deming Award in 2005 as a testimonial to its lean spirit.

This case organisation motivated their blue-collar employees to form Small Group Activity (SGA) initiatives on their own. As part of this SGA initiative, like-minded blue-collar employees voluntarily joined to find root causes for process issues. The leadership team facilitated this SGA team to implement the permanent solution, and those initiatives were managed by the empowered blue-collar employees. The management team

implemented a suggestion scheme wherein employees submitted improvement suggestions to address any issues, and the management team rewarded them based on the merit of their suggestions. The management team implemented the selected improvement ideas, and employees were appropriately rewarded based on the benefits received from these ideas.

This organisation implemented a single-piece flow (SPF) concept and a flow line scheme to drastically reduce cycle time and match Takt time with the line balancing concept. This SPF needed employees with multiple skills. This company implemented a multifunctional training strategy to cross-train blue-collar employees as per requirements. The blue-collar employees were suitably rewarded with incentives to secure cross-skills to work on single-piece flow production lines.

Case organisations 2: This organisation was founded in 1959 and has since been a market leader in supplying quality engine components to leading automobile original equipment manufacturers from India and overseas. This company's modernisation and optimisation initiatives started in 1988 to meet tough competition in India. This organisation implemented the lean system for more than 23 years with guidance from lean experts from Japan and achieved superior positioning in the industry with better business results. This organisation was operating four plants in India to meet increasing demand from customers. This company won the Deming Award in 2005 as a token of appreciation for its unrelenting lean obsession. This organisation is frequently mentioned as a leading lean tenant in India.

This case organisation was a pioneer in implementing the Just In Time (JIT) philosophy across its partner network. As per their business mandate, their important suppliers delivered materials every two days to ensure inventory optimisation. The case organisation conducted frequent internal competitions to perform value stream mapping (VSM) activities to continuously eliminate non-added value activities across the organisation. The focus areas included both manufacturing and support functions for this VSM competition.

This case organisation implemented Total productive maintenance (TPM) to enhance the Original equipment effectiveness (OEE) parameter for bottleneck machines. This organisation was known to implement innovative Poka-Yoke systems to eliminate quality issues due to inadvertent employee activities. Pull production concept implementation was visible in this organisation as they followed the Kanban system to start the production process based on demand confirmation from the next process.

Case organisation 3: This organisation was founded in 1987 in Chennai, India, to provide steering and safety products to automobile players from India and overseas. The leadership team started implementing lean as part of the green field initiative and enforced lean principles from inception. This company won the Deming Award in 2003 due to its excellent process achievement and desire to consistently exceed customer expectations. This organisation was one of the successful lean tenants in India, with state-of-the-art manufacturing facilities and a highly motivated workforce.

This case organisation implemented Genchi Genbutsu across GEMBA; thus, leaders collected the necessary details from GEMBA as a basis for the decision-making process. This ensured that the leadership team continuously appreciated the ground realities of GEMBA and maintained a trust-based relationship with blue-collar employees. Measurable data was collected from all processes. Statistical Process Control (SPC) methods were widely deployed, and both leaders and blue-collar employees have received the required statistical training programs.

3.6 Section 4 – Pilot study: Data collection mechanism and analyses

Pilot data collection

The chosen case organisation for this pilot study is a Deming prize-awarded company from Chennai, India. This case organisation has been practicing a lean system since 1996 and was one of the successful lean players in India. They bagged the Deming Award in 2004

for their relentless lean efforts. In the process, the researcher secured a total of 156 quantitative survey responses from various leadership hierarchies and blue-collar employees and conducted five qualitative interviews. The researcher followed the ethical guidelines proposed by Nottingham Trent University's (NTU) ethics committee for this pilot data collection phase.

The main objectives of the pilot data study were to validate the chosen research methodology fitment to address the research questions in scope and the ability to access the case organisation to collect the data with agreed-upon ethical guidelines in place. This pilot data analysis verified a few key statistical parameters, such as the internal consistency and reliability of the quantitative questionnaire. This was required to ensure whether the same pilot questionnaire can be leveraged for subsequent data collection from other case organisations for a complete primary data collection requirement or if any changes are required in the questionnaire to meet the research objectives. This study validated the applicability of the content analysis method to derive rich insights from the qualitative interview.

Pilot study - Quantitative analysis

Descriptive statistics

The descriptive statistics analysis was carried out using the IBM SPSS tool to determine the normal distribution properties of the pilot data. Overall, this study noticed that the mean, median, and mode were approximately equal. The skewness and kurtosis metrics indicated the asymptotically normality pattern of the data and were within the accepted range of values (Skewness -1 to 1 and Kurtosis -2 to 2). This demonstrated the fitment of pilot data into a normal distribution curve, and this pilot data was good enough for subsequent statistical analysis.

Reliability and internal consistency

Cronbach's alpha

Cronbach's alpha is an important scale to measure the reliability and inherent ability of the questionnaire to measure the internal constructs from a latent variable, for example, the reliable measurement of fifteen questions from the transformational leadership latent variable. The researcher adopted the target value of Cronbach's alpha of .60 for this study as per the recommendation by Hair *et al* (2014, pp. 123). The desirable value was 1 and the closer to this derived coefficient, the better. Table 3.3 explains the Cronbach's alpha value for four constructs used in this study: .673 for transactional leadership style, .960 for transformational leadership style, .898 for the basic value system , .939 for behavioural taxonomy theory, and .731 for power distance. All these coefficients were greater than .6 which indicated the good reliability aspect of the quantitative instrument used in this pilot.

During this pilot study phase, there were 8 questions from the power distance construct and the total Cronbach's alpha value for the power distance construct was .006. Three questions were removed from the power distance questionnaire and the result achieved was .731 Cronbach's value. This action was taken as per recommendations proposed by IBM SPSS in the "Item total statistics" section.

Table 3.3 – Cronbach's alpha value for pilot data

Main construct	Cronbach's alpha
Leadership style – Transactional	.673
Leadership style – Transformational	.960
Basic value theory	.898
Behavioural taxonomy theory	.936
Power distance	.731

Internal consistency measures

This section explained convergent validity, divergent validity, and composite reliability measures to assess the authenticity, repeatability, and reliability of the survey instrument used in this pilot case study.

The degree to which control variables were aligned under a latent variable was measured by convergence validity; for instance, fifteen questions under the transformational leadership variable converged to represent the importance of transformational leadership style. Table 3.4 demonstrates the convergent validity metrics with more than a .5 cut-off value for latent variables. This demonstrated the closeness of the control variables and how they converged in reflecting the latent variables (leadership style, leadership value system, leadership behaviour, and power distance) in a better way, as well as how these four latent variables converged in reflecting lean outcome.

Divergent validity determined whether the variables from the model were highly correlated among them or not, for example, how different the latent variables were, namely leadership style and the basic value system. Ideally, no significant correlation should be found among the variables; otherwise, all variables point to the same outcome. The value of the square root of the Average Value Extracted (AVE) for a variable must be higher than correlations from other constructs. The desired AVE value is greater than .5 and divergent validity is greater than the correlation value from other constructs. Table 3.4 demonstrates that most of the divergent validity metrics were placed higher than the square root of other parameters' correlation values. These metrics illustrated the ability of the pilot survey instrument to demonstrate how effectively different variables measured various outcomes from the theoretical framework, for example, how leadership styles and basic value systems differed from each other.

The composite reliability was used to measure internal consistency. It is like Cronbach's alpha and the desired value is >0.6. Apart from one latent parameter, every measured composite reliability (CR) metric from Table 3.4 revealed a value greater than the .6 cut-off. This shows good internal consistency in the indicator variables from the pilot survey instrument.

Table 3.4 – Convergent validity, divergent validity, and composite reliability for pilot data

Main construct	Convergent validity (AVE>.5)	Composite reliability (CR>.6)	Divergent validity (AVE> SQRT of other correlations)
Leadership style – Transactional	.456	.684	Yes
Leadership style – Transformational	.733	.942	Yes
Basic value theory	.423	.721	Yes
Behavioural taxonomy theory	.629	.858	Yes
Power distance	.411	.737	Yes

Pilot study - Qualitative analysis

Selection of a qualitative analysis method

As part of the pilot study, the researcher conducted semi-structured qualitative discussions with five leaders from the pilot organisation. Table 3.4 illustrates a few methods available in the literature to decode the essence of qualitative interviews. Table 3.4 illustrates the advantages and disadvantages of each model. The discourse analysis motivated the participants to share their natural reflections in interviews (Aydin and Rumelili, 2019). Also, this discourse analysis method encouraged researchers to see the interview context as per their perception, which could result in different results (Aydin and Rumelili, 2019). Defining adequate sampling was one of the limitations of the discourse analysis, and this depended on key events around the phenomenon that needed to be factored into this analysis (Aydin and Rumelili, 2019). Dunn and Iver (2016) argued that the discourse analysis method was suited to positivism and post-positivism epistemological positions.

This method was not suitable for current research as this study used critical realism as an epistemological approach to address the research questions.

The narrative analysis method is more aligned with scenarios where the participants are expected to recount their whole experience from past incidents (Josselson and Hammack, 2021). The participants are expected to carefully recollect precious moments from their life experiences and construct the events without any distortion (Josselson and Hammack, 2021). Narrative analysis is suitable for studying complex and intense topics like the life story of a person or group (Squire *et al.*, 2014). The discourse analysis method aligns with the inductive epistemological stand to facilitate the discovery of new knowledge (Josselson and Hammack, 2021). This method was not selected for this study as it follows an inductive theory development stance.

The grounded theory method was meant to derive a new theory from the qualitative evidence, with no compulsion to fit new qualitative insights with existing theories (Konecki, 2018). Not focusing on a priori hypothesis was the reason for choosing the grounded theory model, and the emergence of new themes was the focus area in this model (Konecki, 2018). The epistemological stand is positivism for the grounded theory model as per Kathy and Robert's (2021) study, and this model was not considered for current research. Content analysis was the chosen method for this research study, as this process followed comprehensive steps to decode the meaning of qualitative interviews and aligned with abductive epistemological stand. Table 3.5 explains the rationale for choosing the content analysis method for this study and the various phases in detail.

Table 3.5 - Qualitative analysis method selection

Method	Outcome	Remarks
Discourse analysis (Aydin and Rumelili, 2019)	Not suitable	Applicable to positivism and post-positivism epistemological positions. The participants must share detailed natural reflections and the sampling criteria were a challenge.
Narrative analysis (Josselson and Hammack, 2021)	Not suitable	To measure more complex and intense social topics. Aligned with an inductive epistemological stance.
Grounded theory (Kathy and Robert, 2021)	Not suitable	The idea was to derive a new theory from the qualitative data. Aligned with positivism's epistemological position.

Content analysis method

The content analysis method proposed by Powell and Renner (2003) contained four stages; a. Sampling, b. Devising analytical categories, c. Unit of analysis, and d. Analysis. Table 3.6 illustrates the various stages of this method.

Table 3.6 – Content analysis steps used in this research study

Process step	Remarks
Sampling	Conducted interviews with selected participants and translated the audio clip into a word document.
Devising analytical categories	Devised the analytical categories for subsequent analysis. This study formulated various themes from the four constructs used in this study – Basic value system, behavioural taxonomy, leadership style theories, and power distance.

Unit of analysis	The unit of analysis explained the primary emphasis of the research. This study considered each hierarchical layer from case organisations as the unity of analysis. The leadership attributes from these layers were compared and contrasted to find answers to research questions from this study.
Analysis	This study analysed the leadership traits from various hierarchies to ensure lean success.

Sampling phase: The sampling contained the chosen list of interviewers to gain rich insights about the research objectives. In this study, 5 semi-structured interviews were collected during the pilot phase and 21 semi-structured interviews were collected during the primary phase. *Devising analytical categories phase:* The researcher identified the list of parent and child nodes based on a literature review of four constructs used in this study. A few nodes for the power distance construct have been devised based on insights collected from participants in this study. The identified list of these nodes was manually created in the NVivo tool.

Unit of Analysis Phase: Each hierarchical layer from case organisations was considered a unit of analysis in this stud; senior leaders, middle-level leaders, and entry-level leaders from the leadership category and blue-collar employee category. Table 3.7 explains the codification scheme used in this study. Every participant had a number assigned to them. Senior leadership team: Participants 1 to 6, Middle-level leadership team: Participants 7 to 12, Lower-level leadership team: participants 13 to 18, and Blue-collar employees: Participants 19 to 21. The rich insights and perspectives shared by each hierarchical layer were compared in this study. The details are available from chapter 5, Qualitative Analysis and Discussion.

Table 3.7 - Codification scheme for qualitative interview participants

Case organisation	Senior leadership team	Middle-level leadership team	Entry-level leadership team	Blue-collar employees
1	Participants 1 and 2	Participants 7 and 8	Participants 13 and 14	Participant 19
2	Participants 3 and 4	Participants 9 and 10	Participants 15 and 16	Participant 20
3	Participants 5 and 6	Participants 11 and 12	Participants 17 and 18	Participant 21

Analysis phase: The participants offered insights to highlight different leadership attributes and the importance they set upon leadership characteristics from themselves and other stakeholders. Their recommendations were the basis for the analytical portion. The practical relevance and leadership impact behind each statement from participants were considered in the analysis phase.

This study leveraged the NVivo tool to decode the important themes and takeaways from qualitative interviews. The researcher manually translated the audio clips into a Microsoft word document after each interview. This word document was fed into the NVivo tool. The NVivo tool was used for multiple perspectives in qualitative research, like storing multiple data formats, codifying important themes in documents, and visualizing the codified data for a better decision-making process (Allsop *et al*., 2022). The list of parent nodes and child nodes was devised based on four constructs used in this study, and it was manually created in the NVivo tool. Table 3.8 illustrates the list of various nodes considered in this study. These child nodes were mapped against each participant's outcome in this software to create an overall perception map from the qualitative analysis (Refer to Table 3.8). The parent and child themes were designed with literature support.

Table 3.8 – Nodes used in qualitative analysis

Sl No	Parent node	Child node
1	Leadership style – Transactional (Bass and Avolio, 1997)	Active management by exception
		Passive management by exception
		Contingent reward
	Leadership style – Transformational (Bass and Avolio, 1997)	Idealized influence
		Individualized consideration
		Inspirational motivation
		Intellectual stimulation
2	Basic value system (Schwartz *et al.*, 2012)	Conservation – Conformity
		Conservation – Tradition
		Openness to change – Self-direction
		Openness to change – Stimulation
		Self-enhancement – Achievement
		Self-enhancement – Hedonism
		Self-enhancement – Power
		Self-transcendence – Benevolence
		Self-transcendence – Universalism
3	Behavioural taxonomy theory (Yukl, 2012)	Change related – Advocating change
		Change related – Encouraging innovation
		Change related – Envisioning change
		Change related – Facilitating collective opinion
		External related – External monitoring
		External related – Networking
		External related – Representing
		Relations related – Developing

		Relations related – Empowering
		Relations related – Recognizing
		Relations related – Supporting
		Task related – Clarifying
		Task related – Monitoring tasks
		Task related – Planning
		Task related – Problem solving
4	Power distance (House *et al*., 2004)	Avoid disparity
		Create dependency
		The necessity for power distance
		Maintain the status quo

Figure 3.2 explains the parent nodes designed for this study. The parent nodes were defined based on four major constructs used in this study.

Figure 3.2 – Parent nodes

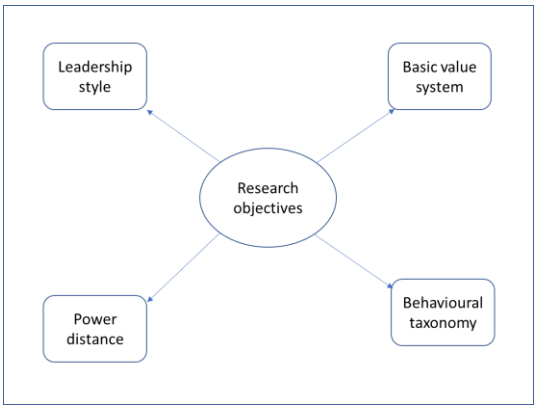


Figure 3.3 explains the list of child nodes from leadership style. The important dimensions from both transactional and transformational leadership styles were mentioned as leadership style nodes in Figure 3.3.

Figure 3.3 - Leadership style nodes

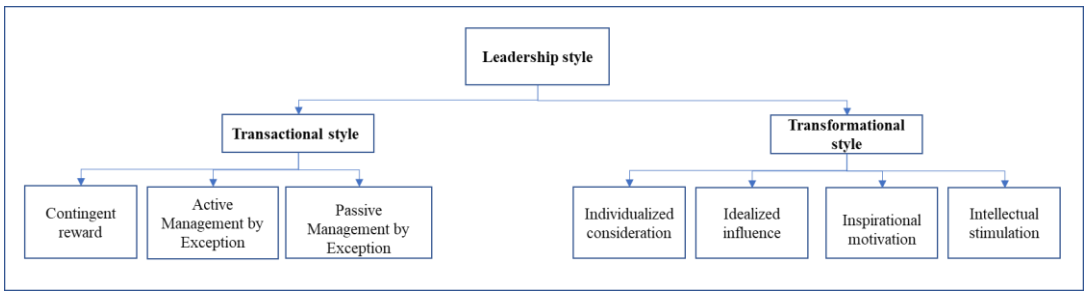


Figure 3.4 explains the list of child nodes from the basic value system theory. The child nodes were major dimensions noticed from the basic value system construct used in this study.

Figure 3.4 – Basic value system nodes

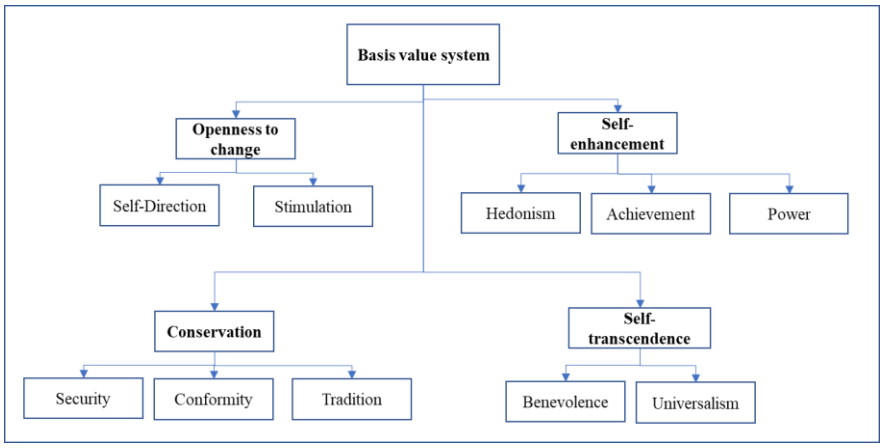


Figure 3.5 explains the list of child nodes from behavioural taxonomy theory. The nodes were major dimensions noticed from the behaviouarl taxonomy theory used in this study.

Figure 3.5 – Behavioural taxonomy nodes

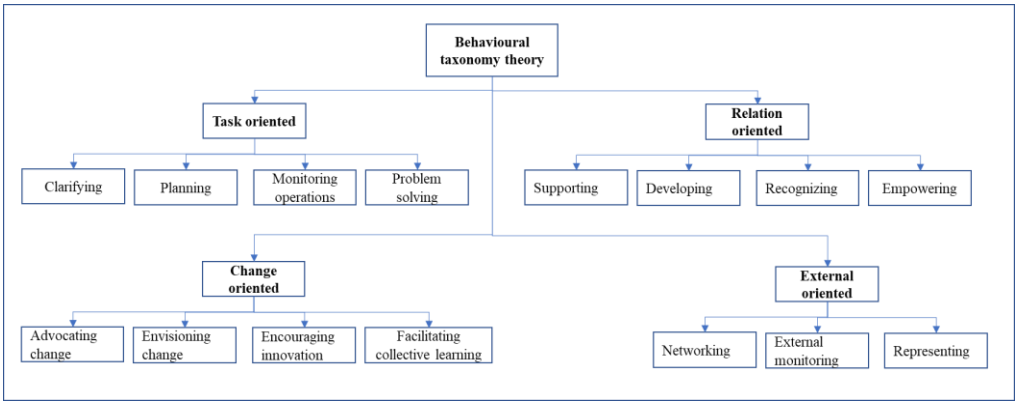
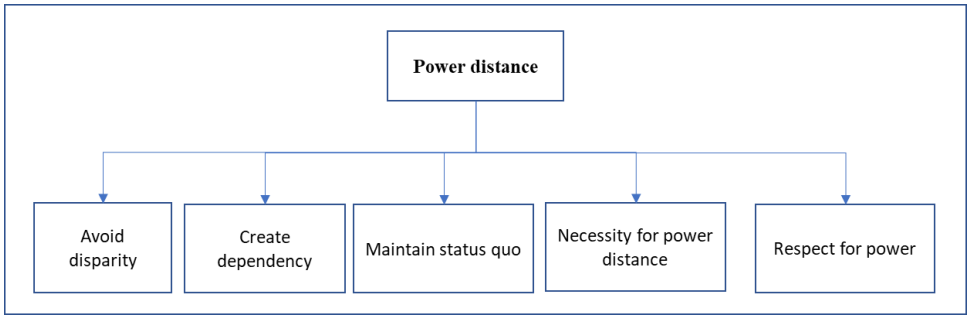


Figure 3.6 explains the list of child nodes in the power distance cultural construct. The nodes were defined based on the inputs from the literature review phase.

Figure 3.6– Power distance nodes



In this pilot study phase, the content analysis method demonstrated its usefulness to decode the insights from interviews as per established procedure, and the results of this pilot study are discussed in chapter 5, Qualitative Analysis and Discussion.

3.7 Section 5 – Primary data collection and analyses

Primary data collection

The quantitative data was collected for about 10 months from the case organisation. Both quantitative and qualitative feedback were collected simultaneously during this period. The participants were given an in-person briefing in groups about the nature of the project, its potential impact on the industry, and its ethical guidelines. The participants had taken sufficient time to provide their feedback. 100% adherence was noticed in collecting the data as these participants were nominated by case organisations.

Sample characteristics: Quantitative Data

The sample size contained 368 participants from three organisations. Figure 3.7 explains the participation details for three case organisations. Securing feedback from all hierarchies has been mentioned as one of the uniqueness of this study and Figure 3.7 demonstrates participation from three leadership hierarchical layers and blue-collar employees from case organisations. The designations considered for the senior leadership team were General Manager, Associate Vice President, Vice President, President, and BU heads. The middle-level leadership team included various designations like Manager, Senior Manager, Assistant General Manager, and Deputy General Managers, and the entry-level leadership team contained various designations like Engineers, Supervisors, and Module leaders.

Figure 3.7 – Quantitative survey: Representation from three case organisations

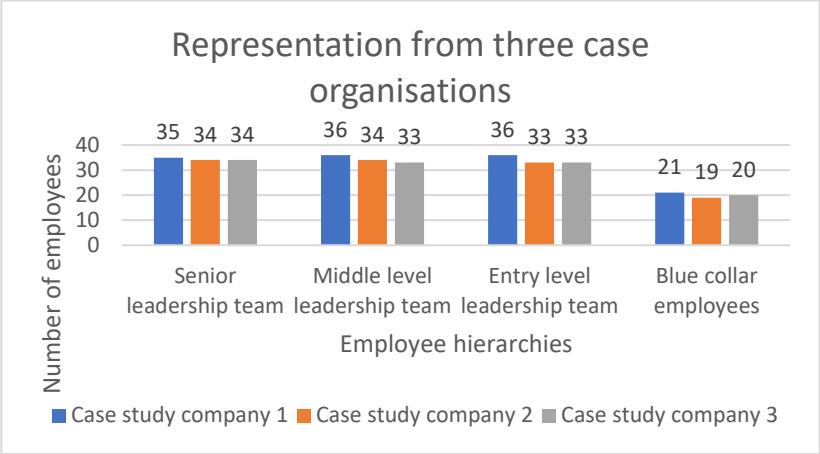
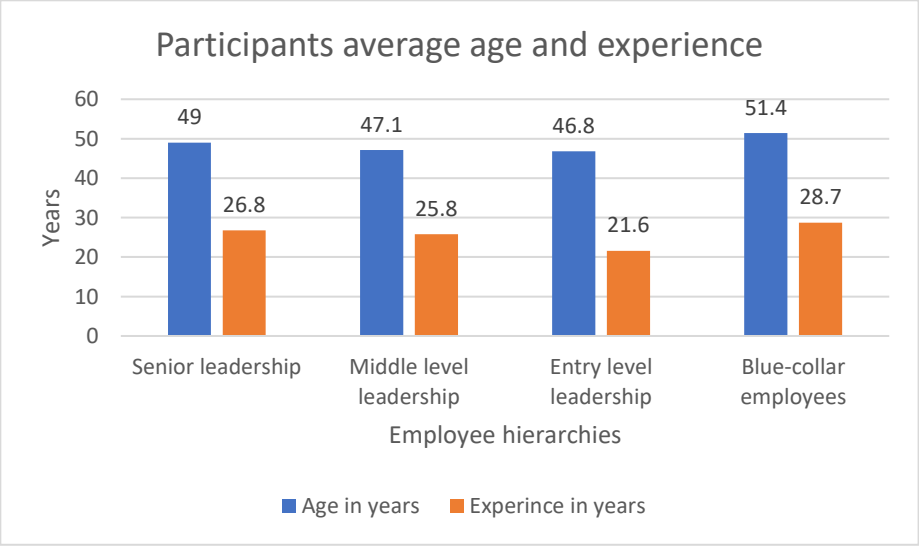


Figure 3.8 demonstrates the average work experience and average age details for the various hierarchies considered for this study. Figure 3.8 explains that all the participants secured more than 20 years of professional experience to provide informed feedback to the survey instrument used in this study. The age details from Figure 3.8 show that all participants were older than 45 years, and this fact demonstrated the maturity of these participants both on professional and personal fronts to provide a robust answer to the survey instrument.

Figure 3.8 – Quantitative survey: Average age and average experience details



2% of the participants hold Ph.D. qualifications, 34% hold postgraduate degrees, 41% hold undergraduate degrees, 13% hold diploma qualifications, and 10% hold school education qualifications. 11% of the samples were women, and 89% were men.

Primary data collection administration for the quantitative survey

To avoid bias, feedback about the leaders was collected from their followers; for example, middle-level leaders shared their feedback about their senior leaders. The purposive sampling mechanism, a non-probabilistic method, was used in this study for the quantitative survey instrument as this method helped the researcher to choose case organisations out of limited options to answer the research questions (Saunders *et al.,* 2015). This sampling method offered the viability of collecting the data from a set of participants who secured the necessary skills and knowledge to provide the required feedback to the researcher (Saunders *et al.,* 2015). In this study, the researcher collected quantitative data from both leaders and blue-collar employees based on their daily lean practices in their organisation.

The briefing sessions were conducted in groups of ten participants to explain the rationale of this study, the potential impact on lean practice, the various theories used in this study, and the participant's right to withdraw from the survey at any moment. These debriefing sessions were planned for the leadership team and blue-collar employees separately, and each debriefing session lasted around 45 minutes. The conventional factory environment and work pressure made some participants skip the scheduled briefing sessions at some times, and the researcher conducted a set of alternative debriefing sessions in such scenarios. The participants provided their feedback within 30 days after a few reminders.

The case organisations enabled the required coordination to collect the data from all participants. The researcher encountered many questions like the participant's fear of their identity and the repercussions if their response came to the open forum. The researcher cleared their queries by reinforcing the point that this entire survey instrument was

anonymous and reassured the participants to share their feedback without any fear. Some participants were suspicious that this exercise was a kind of external audit to measure their organisation's performance, and the researcher explained the intention of the research; to find a workable lean leadership framework to help potential lean tenants.

Primary data collection administration for qualitative interviews

The purposive sampling mechanism was used in this study for qualitative interviews (Saunders *et al.,* 2015). In this study, the researcher collected detailed qualitative perspectives from three case organisations with successful lean track records, and both leaders and blue-collar employees provided detailed answers to interview questions.

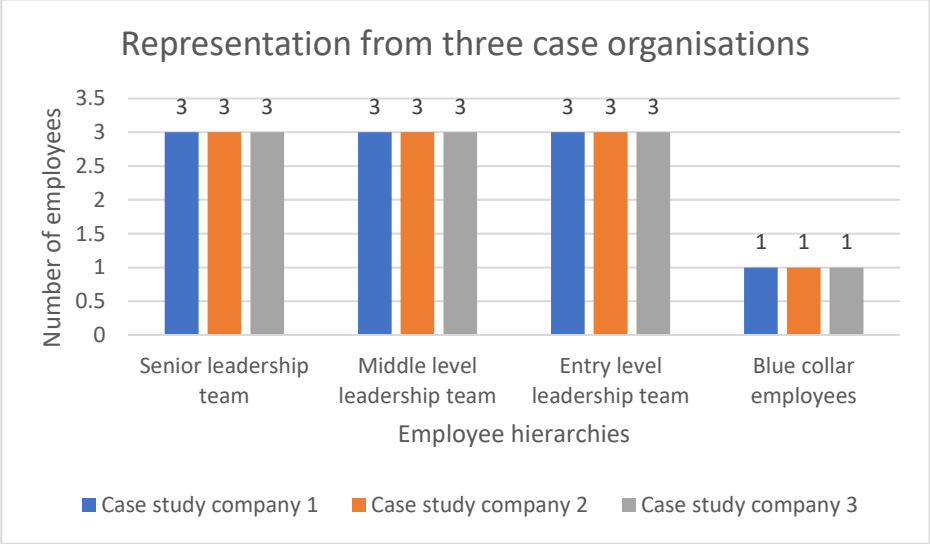
For qualitative interviews, each participant was given sufficient details about this study; the rationale for this study, various theories used in this study, and the participant's right to withdraw from the interview at any moment. Each debriefing session lasted around 60 minutes. The researcher addressed various queries from participants, like their identity exposure to others and reasons for this study. The researcher cleared their queries by reinforcing the point that this entire qualitative interview process was anonymous and reassured the participants to share their insights without any fear. These interview sessions were recorded in audio mode with the participants' consent. Five participants were not comfortable with audio recordings; hence, the researcher captured their inputs in manual mode.

A total of twenty one semi-structured qualitative interviews were conducted in three case organisations. This interview process included eighteen leaders from various hierarchies and three blue-collar employees. The translation of qualitative interviews resulted in a 70 page long document.

Sample characteristics : Qualitative interviews

Figure 3.9 explains the qualitative interview participation details for three case organisations. Figure 3.9 illustrates that both leadership teams and blue-collar employees provided their feedback through interviews, and each participant described the insights from their lean experience and provided details about their leaders' leadership traits. Figure 3.9 explains the participation from the blue-collar employee category, and this approach secured their unbiased perspectives about their leader's leadership patterns based on their daily interaction with them. The designations considered for the senior leadership team were the General manager, Associate Vice President, Vice President, and BU heads. The middle-level leadership team considered designations like Manager, Senior Manager, Assistant General Manager, and Deputy General Managers. The entry-level leadership team included designations like Engineers, Supervisors, and Module Leaders.

Figure 3.9 - Qualitative interview: Participation from three case organisations

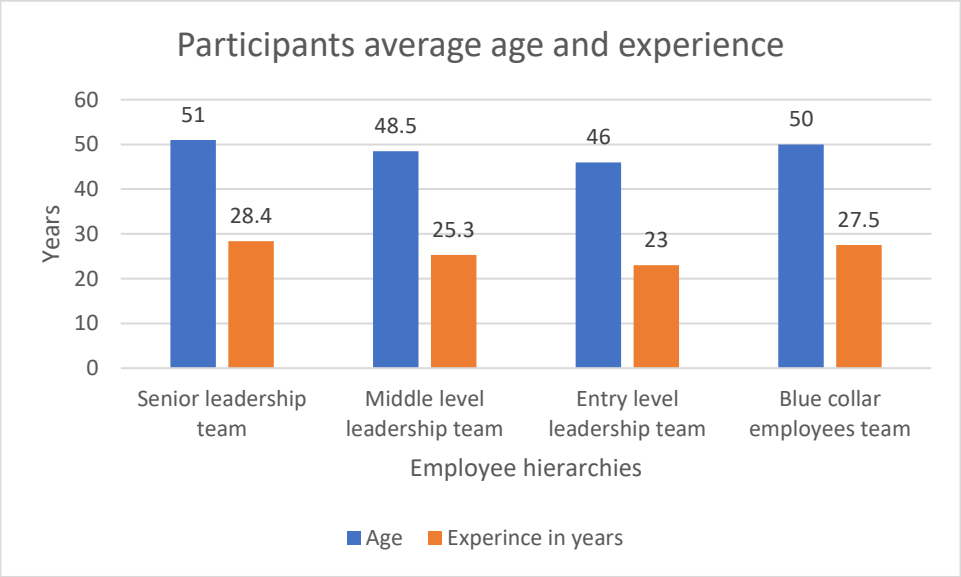


All the participants were men, and the non-participation of female candidates has been added as a limitation in chapter 7. Figure 3.10 illustrates the average years of work experience for the participants; 28.4 years for senior leaders, 25.3 years for middle-level leaders, 23 years for entry-level leaders, and 27.5 years for blue-collar employees. Figure

3.10 demonstrates all participants secured more than 20 years of experience in the lean journey and were experienced enough to provide informed feedback to the qualitative interview questionnaire.

Figure 3.10 explains that the average age for senior leaders is 51 years, middle-level management is 48.5 years, lower management is 46 years, and blue-collar employees are 50 years. It is noted from Figure 3.10 that the average age of participants was higher than 45 years, and this fact demonstrated the maturity of these participants on both the professional and personal fronts to provide a robust answer to the interview questions.

Figure 3.10 - Qualitative interview: Average years of experience and age



One participant holds a Ph.D. qualification, eight participants hold post-graduate degrees, nine participants hold undergraduate degrees, one participant holds a diploma qualification, and two participants hold higher secondary school education.

To quote the insights shared by the participants, the following synonyms were used in this chapter; SM (Senior management) - Participants 1 to 6 belong to senior management, MM (Middle-level management) - Participants 7 to 12 belong to middle-level

management, LM (Lower management) - participants 13 to 18 belong to lower-level management; and BC (Blue-Collar Employees) - Participants 19 to 21 belong to blue-collar employee category.

Descriptive statistics

Figure 3.11 explains the descriptive statistical parameters like mean, standard deviation, skewness, kurtosis, and the correlation of the variables. The mean and standard deviation values demonstrated the asymptotically normality pattern from the primary data. This analysis was carried out using the IBM SPSS tool.

Figure 3.11 - Descriptive statistics of research constructs

	Mean	SD	Skewness	Kurtosis	1	2	3	4	5
1 Leadership style	3.60	.40	-0.93	0.66	(.900)				
2 Leadership values	2.92	.16	-0.45	1.08	0.567**	(.940)			
3 Leadership behaviours	3.57	.22	-0.63	0.85	0.774**	0.707**	(.938)		
4 Power distance	3.18	.38	0.12	1.85	0.356**	0.286**	0.336**	(.969)	
5 Lean outcome	3.81	.15	-1.21	2.28	0.504**	0.629**	0.655**	0.378**	(.837)
Relibaility indexes for measurement scales are reported in the diagonal (Cronbach's alpha)									
** Coorelation is significant at the .01 level (2-tailed)									

All five latent constructs demonstrated positive and significant correlations among them. The power distance had low correlation values with the other three latent variables, but it was statistically significant. Both pilot data and primary data demonstrated the asymptotically normality pattern based on descriptive statistics results. This indicated the robustness and reliability of the quantitative data to perform subsequent statistical analyses.

Cronbach's alpha

Table 3.9 explains the Cronbach's alpha value for each construct that was used in this study. The Cronbach alpha explained the reliability measures of the survey instrument used in this study. According to the research, all latent constructs had Cronbach's alpha values

greater than the target value of.6 except transactional leadership style construct, which was suggested by Hair *et al* (2014, pp. 123).

The overall leadership style's Cronbach's alpha value was .9 for leadership style construct that contains both transactional and transformational styles. The Cronbach's alpha value for transactional leadership style was .476 and transformational leadership style was .918. The pilot data's Cronbach's alpha value was .673 and a higher value was expected due to more response from the primary data collection phase. But the achieved Cronbach's alpha was .476 for transactional leadership style and the reason was a smaller number of questions in the survey instrument. Care must be taken to enhance the adequate number of transactional leadership questions in subsequent studies.

Table 3.9 – Cronbach's alpha value for primary data

Main construct	Cronbach's alpha
Leadership style – Transactional	.476
Leadership style – Transformational	.918
Basic value theory	.898
Behavioural taxonomy theory	.936
Power distance	.731

Reliability and internal consistency

This section explains a few important statistical outcomes, like the authenticity, repeatability, and reliability of the survey instrument used in this study. The questions under each latent variable were aligned to reflect the intended value of the latent variables,

as indicated by the average value extracted (AVE) measure for latent constructs, which for the majority of the constructs showed more than.5 (Refer to Table 3.10).

Table 3.10 - Convergent validity, divergent validity, and composite reliability for primary data

Main construct	**Convergent validity (AVE>.5)**	**Composite reliability (CR>.6)**	**Divergent validity ((AVE) > SQRT of other correlations)**
Leadership style – Transactional	.314	.535	Yes
Leadership style – Transformational	.622	.906	Yes
Basic value theory	.645	.831	Yes
Behavioural taxonomy theory	.655	.810	Yes
Power distance	.324	.798	Yes

The average value extracted value for leadership style was .542, basic value theory was .645, behavioural taxonomy theory was .655, and power distance was .324. The main reason for the lower AVE value for power distance was that the followers provided feedback about their leaders. This is not peer-to-peer or senior-to-junior feedback. This was about junior-to-senior feedback, and this might caused some fear in followers' minds as they provided details about their leader's capabilities. Hence, the obtained reliability was an acceptable one to proceed with subsequent analysis.

Table 3.10 explains that the divergent validity measures were higher than .5 cut-off value and these measures were higher than the square root of other parameter's correlation values. The composite reliability values were higher than .06 cut-off value and this demonstrated the good internal consistency of the indicator variables used in the survey instrument.

The following statistical tests were conducted to validate the quality of primary quantitative data for subsequent statistical analyses.

The non-responsiveness bias analysis

Non-responsive bias is one of the common issues encountered in social science research projects, and the research program objectives could have been defeated if the researcher had not put the right mitigation mechanism in place to address non-responsive bias issues (Koch and Blohm, 2016). Bose (2001) recommended non-responsive bias analysis to identify the potential bias sources in the case of a less than seventy percent overall survey response rate.

The prevailing research philosophy aimed to achieve the highest response rate (Koch and Blohm, 2016; Barclay *et al*., 2002). At the same time, high response rates may not achieve lower bias when both respondents and nonrespondents differ drastically (Bose, J., 2001). Likewise, a lower response rate may achieve lower non-response bias when the non-response is random (Koch and Blohm, 2016). Each study is unique and the survey design for each study can be customized as per study characteristics (Bose, J., 2001).

There were two potential non-response issues; unit non-response, where the participants were not available to provide the data, and item non-response, where only partial data were obtained from the participants (Koch and Blohm, 2016). The non-response bias will differ when the participant cannot be reached or when the participants are unwilling to participate in the survey (Koch and Blohm, 2016). The non-response bias usually variable specific event as the participants may differ on a particular variable, but agree to another variable from the questionnaire (Koch and Blohm, 2016). Thus, the non-response bias does not apply to the survey instrument but rather to specific variables (Koch and Blohm, 2016). The researcher would face a tough scenario if the study focused on a muti-theory based questionnaire with many variables (Koch and Blohm, 2016).

Some good practices mentioned in the extant literature for non-response rate; deploying well-trained and motivated interviewers, advance notifications to participants, providing sufficient time to participants, planning for multiple attempts to persuade the participants, presenting a single instrument rather than multiple components or stages, make consistent frequency between attempts and offer some motivational aspects to participants (Bose, J., 2001; Koch and Blohm, 2016).

100 percent response data will be realistic with careful strategies in place (Barclay *et al*., 2002). Though achieving a 100 percent response rate is a rare event in statistics, it is possible to achieve a 100 percent response in some scenarios like when participation is made mandatory for the participants, highly motivated respondents with voluntary participation, and the interviewer makes intensive efforts to secure participants acceptance (Koch and Blohm, 2016; Peytchev *et al*., 2010; Koch, 1998).

In this study, The case organisations' leadership team agreed and granted access to collect the data for the proposed survey instrument. The case leadership team closely followed their employees to provide a timely response to the survey instrument. The participants were interested in participating in this study and volunteered to answer the survey instrument. The researcher motivated the participants to share their feedback on the promise that he would present the research findings at the end of this study. The researcher conducted detailed briefing sessions for the participants in groups and he made many visits to case organisations to secure participants' feedback. There were two outcomes achieved here; 368 participants responded to the survey instrument, and they responded to all questions from the survey instrument. This study did not face any non-responsive bias, as a 100 percent survey response was achieved from 368 target participants from three case organisations. Hence, there was no requirement to conduct the non-responsive bias analysis for this study.

Common method variance analysis

When systematic volatility was introduced into the variables being assessed by the chosen research methodologies, common method variance (CMV) was identified as a prevalent problem in social science research projects (Tehseen *et al*., 2017). If unattended, this systematic variance could introduce bias into the variables and cause surprising correlations among them (Jakobsen and Jensen, 2015).

The main cause was measurement methods like a respondent's self-report about their capabilities and their manager's capabilities (Tehseen *et al*., 2017). Podsakoff *et al* (2003) explained four reasons for CMV; the same respondent provided feedback for both dependent and independent variables, the survey instrument presentation, the questionnaire context, and various contextual factors. The literature talked about best practices to address this variance issue in research studies. These best practices were part of two major categories, pre-data collection and post-data collection stages to embark on various intervention mechanisms to address variance issues (Tehseen *et al.,* 2017). The proactive option is to avoid CMV at the research design stage itself (Change *et al*., 2020).

Pre-data collection phase

One option is to construct dependent and independent variables from various sources rather than a single source (Change *et al*., 2020; Reio, 2010; Richardson *et al*., 2009; Liang *et al*., 2007). This would be helpful to avoid the participants being to subject a similar measurement instrument design with the same item parameters (Change *et al*., 2020; Burton-Jones, 2009; Reio, 2010). Avoiding confusing and complex terms in the formulation of individual questions was one of the good practices in the research design stage (Change *et al*., 2020; Jakobsen and Jensen, 2015; Podsakoff *et al*., 2012). Researchers can use various scales and question formats for dependent and independent variables to reduce the variance issues (Podsakoff *et al.,* 2003).

The order of the questionnaire can be randomized to prevent the participants from logically combining questions to induce variances in response (Change *et al*., 2020;

Jakobsen and Jensen, 2015),). Another method is adopting an appropriate questionnaire design strategy; reordering the questionnaire sequence and incorporating various scale types can potentially reduce CMV (Change *et al*., 2020; Jakobsen and Jensen, 2015). These guidelines are used to avoid participants' inclination to provide socially desirable answers as per the researcher's interest (Podsakoff *et al.*, 2003).

The manner of survey administration and contextual parameters like time, place, and mode of communication played a significant impact on CMV (Tehseen *et al.*, 2017). The participants must be given the confidence to answer the questions without any fear of confidentiality issues, and answer the questionnaire with honesty without worrying about the outcome; right or wrong answers (Change *et al*., 2020). If the data may not be collected from various sources, the researcher can adopt survey administration aspects like introducing a time lag to collect independent and dependent variables, creating an understanding to the participants by providing a letter stating the reasons for dependent and independent variables, and finally, different formats and locations can be used to gather dependent and independent variables (Tehseen *et al*., 2017).

This study followed most of the best practices mentioned above. The sources for dependent and independent variables were different, followed various scales, and incorporated multiple complex theories to avoid the participants' judgment to create a cognitive map and provide desirable answers. Five lean professionals validated the survey instrument in terms of the understandability aspect and ability to pass the expected meaning to the participants before the pilot study. Both research supervisors and PDREC, Nottingham Trent University reviewed the survey instrument to ensure its usage in this study. The researcher briefed the participants at their work locations, at their convenient time, and answered many queries to create confidence to provide answers without fear. The participants were given a participant information sheet to explain the objectives of this study to the participants.

Post data collection phase

One method is to leverage complicated mathematical models as participants usually do not visualize complex cognitive relationships between variables used in the questionnaire (Change *et al*., 2020). This study leveraged complex models like mediation and moderation analyses which were something tough to visualize by a participant when they provided the feedback.

From a statistical perspective, various tests can be administered to figure out whether variance from the data is influenced by a single attribute (Change *et al*., 2020). Some notable statistical treatments from the literature were Harman's Single-Factor Test, Partial Correlation Procedures, Correlation Matrix Procedure, and The Measured Latent Marker Variable Approach (Tehseen *et al*., 2017). Essentially these statistical tests determine whether any variable causing a high impact on other variables creates the bias and recommend the researchers to remove those variables from the questionnaire.

This study performed a Confirmatory Factor Analysis (CFA) analysis in IBM SPSS AMOS software as a pre-requisite validation measure to ensure the appropriateness of the quantitative data. Statistical exercises like convergent validity and divergent validity were conducted on primary data and the results were explained in chapter 3.

There were many methods available in the literature to test the common method variance. Levene's test of equality of error variances was one of the most widely used methods to measure common method variance (Soave and Sun, 2017). Levene's test adopted the F-test to measure the variance of two populations and to decide how the absolute deviation of the sampling is related to the population centre (Soave and Sun, 2017). This study took ten months to collect the survey data from 368 participants among three case organisations.

There were two sampling statistics considered for this analysis; survey feedback collected from the first 5 months and survey feedback collected from the last 5 months. Levene's scale test was used to address any bias (variance not equal) in the data, as the

data was collected in these two different periods. The main reasons were that the participants were not available as per plan due to their official work, and sometimes companies were closed due to the COVID-19 pandemic. Levene's test of equality of error variances was conducted on the IBM SPSS platform.

The common method variance results are explained in Table 3.11. The outcome from Levene's test had two options; 'variances are equal' denoted that there was no bias or no common method variance, and 'variances are not equal' signified there was some common method variance issue with the variable. There were six non-variances identified from 18 leadership style constructs, which accounted for 33% contribution. There were 5 non-variance noticed out of 20 basic value constructs with a 25% contribution. There were 4 non-variances noticed out of 14 behavioural taxonomy constructs with 28.6% contribution. No variation was noticed from both power distance and lean system measurement constructs. Overall, the variance not equal impact was 23.8%. The researcher did not find any source from the extant literature to define some standards to decide the cut-off value, the literature advised subjective judgment from the researchers based on the research study's impact on the literature and practice.

Table 3.11 – Common method variance test (Levene's test)

Sl No	**Major construct**	**Variable**	**Levene's test outcome**
1	Leadership style	Contingent reward	Variances are not equal
2		Active Management by Exception	Variances are equal
3		Passive Management by Exception	Variances are equal
4		Individualized consideration 1	Variances are equal
5		Individualized consideration 2	Variances are equal
6		Individualized consideration 3	Variances are equal
7		Individualized consideration 4	Variances are equal
8		Idealized influence 1	Variances are not equal
9		Idealized influence 2	Variances are not equal
10		Idealized influence 3	Variances are equal

11		Idealized influence 4	Variances are not equal
12		Idealized influence 5	Variances are not equal
13		Inspirational motivation 1	Variances are equal
14		Inspirational motivation 2	Variances are not equal
15		Inspirational motivation 3	Variances are equal
16		Intellectual stimulation 1	Variances are equal
17		Intellectual stimulation 2	Variances are equal
18		Intellectual stimulation 3	Variances are equal
19	Basic value system	Openness to change 1	Variances are equal
20		Openness to change 2	Variances are not equal
21		Openness to change 3	Variances are equal
22		Openness to change 4	Variances are equal
23		Self-enhancement 1	Variances are equal
24		Self-enhancement 2	Variances are not equal
25		Self-enhancement 3	Variances are not equal
26		Self-enhancement 4	Variances are equal
27		Self-enhancement 5	Variances are equal
28		Self-transcendence 1	Variances are equal
29		Self-transcendence 2	Variances are equal
30		Self-transcendence 3	Variances are equal
31		Self-transcendence 4	Variances are equal
32		Self-transcendence 5	Variances are not equal
33		Self-transcendence 6	Variances are equal
34		Self-transcendence 7	Variances are equal
35		Conservation 1	Variances are equal
36		Conservation 2	Variances are equal
37		Conservation 3	Variances are not equal
38		Conservation 4	Variances are not equal
39	Behavioural theory	Task-related 1	Variances are equal
40		Task-related 2	Variances are equal
41		Task-related 3	Variances are not equal
42		Relations related 1	Variances are equal
43		Relations related 2	Variances are equal
44		Relations related 3	Variances are equal
45		Relations related 4	Variances are not equal

46		Change related 1	Variances are equal
47		Change related 2	Variances are not equal
48		Change related 3	Variances are equal
49		Change related 4	Variances are equal
50		External related 1	Variances are equal
51		External related 2	Variances are not equal
52		External related 3	Variances are equal
53	Power distance	PD 1	Variances are equal
54		PD 2	Variances are equal
55		PD 3	Variances are equal
56		PD 4	Variances are equal
57		PD 5	Variances are equal
58	Lean system measurement	LSM 1	Variances are equal
59		LSM 2	Variances are equal
60		LSM 3	Variances are equal
61		LSM 4	Variances are equal
62		LSM 5	Variances are equal
63		LSM 6	Variances are equal

The common method variance cannot be avoided in some cases; novel topics, are not considered by standard methodologies, tough to collect the data, and understudied genopathies (Change *et al*., 2020). Another area where CMV can get tolerates is to generate data from different populations from geographies with considerable differences (Change *et al*., 2020). In such scenarios, Change *et al* (2020) argued that the novelty and benefits of research studies overpower the limitations imposed by variance.

In line with Change *et al* (2020) argument, the researcher decided to proceed with the variance noticed in data as this study was poised to add significant contributions to theory, literature, and lean practice. This study was unique in many aspects; a maiden attempt to extrapolate the nature of successful lean leaders' leadership routines from India, an under-researched country in the world, and a first attempt to find a lean leadership solution by leveraging four seminal and interrelated constructs. As a unique attempt, this study covered all three leadership layers and blue-collar employees from three case organisations.

Though these case organisations were from the same demographic location from India, essentially each case organisation was a unique organisation with its ecosystem and it was natural to expect some variance in response from the three case organisations' participants. Moreover, this study collected the data during COVID 19 period with frequent factory shutdowns and with a lot of uncertainties, the participants were subjected to fear factors about their career and business context when they responded to the survey instrument from this study.

Sample size validity analysis

The Kaiser–Meyer–Olkin (KMO) test was useful to measure the adequacy of the sample size for both variable and overall models (Shrestha, 2021). The KMO values ranging between .8 and 1 denoted that the sampling size was good, values between .6 and .8 were in an acceptable range, and values less than .6 denoted inadequate sampling size (Shrestha, 2021; MacCallum *et al*., 1999).

The KMO test was conducted to examine the sampling adequacy for this study. Table 3.12 explains the KMO test outcome.

Table 3.12 – Sample size validity test (KMO test)

Construct	KMO value
Leadership style variables	.931
Basic value system variables	.945
Behavioural theory variables	.933
Power distance variables	.846
Lean measurement variables	.805

The results demonstrated that all values were greater than the .8 cut-off value; thus, the sample size considered for this study (368 participants) was good.

Hypothesis analysis

Various hypothesis tests like direct, mediation, and moderation were considered in this study, and these analyses were carried out on primary data. The next chapter explains the details and results of these quantitative analyses. Bartlett's test was conducted for this study, and the results explained that there were no multi-collinearity issues noticed in the data.

The p-value in statistics played an important role in accepting or rejecting the statistical analysis results. This p-value explained the confidence limit from the statistical analysis. The p-value from regression analysis elucidated whether there was a significant cause and effect found among dependent and independent variables. The value of p .05 indicated a 95% chance of expecting the desired result from the event. For example, the leadership style independent parameter could positively impact the lean outcome with a 95% confidence level and there was a 5% chance that leadership could not positively impact the lean outcome. The p-value, like .05 or .01 varied based on the requirements of the process. For high-precision processes like surgery, the stakeholders could expect 99% accuracy, thus the p-value becomes .01. For this study, a 95% confidence interval was considered, which was an industry standard.

The simple linear regression analysis was used in this study to analyse the cause and effect of the dependent variable on the independent variable, for example, the role of leadership style on the lean outcome. IBM SPSS tool was used to conduct linear regression analyses for this study. The PROCESS MACRO tool (Hayes, 2012), an add-on tool that functions with the IBM SPSS platform, was used to carry out the moderation and mediation analyses for this study.

Rational for statistical methods chosen for this study

This study used many statistical tests to validate the necessary relationships among the variables used in this study. The Confirmatory factor analysis (CFA) test has been performed in IBM SPSS AMOS software to measure the reliability and validity aspects of the variables from the survey instrument. This test was performed on the data and the results were explained in the reliability and validity section of this chapter. The convergent validity and divergent validity results from this chapter explained these results and demonstrated the robustness of the quantitative data for further analysis.

IBM SPSS used to test the relationship among the selected variables as per linear regression analysis and both mediation and moderation analyses were conducted in the PROCESS MACRO package. Both these software packages measured the relationships among the variables as part of chosen methods; regression, moderation, and mediation. Essentially the relationship across all variables was measured by above mentioned statistical procedures for this study. Hence, this study did not focus on other statistical methods like Structural Equation Modelling (SEM) procedure to fulfil the research objectives of this study. Moreover, SEM essentially provides a relationship among variables from all constructs used in a study, and this comprehensive understating of all variables used in this study has been achieved by the above-mentioned statistical procedures in this section.

3.8 Summary

This section discussed the rationale and suitability of the various research methodology components used in this study. This chapter explains the descriptive statistics, repeatability, and internal consistency results of the quantitative survey instrument from both pilot and primary data. The rationale behind the selection of applicable statistical procedures for this study has been articulated in this chapter. The outcomes from a few statistical tests, like sample size validity to measure the sufficiency of the sample size for this study, Levene's test to measure the common method variance outcome, and a non-responsiveness bias test to quantify any chance of participant responsiveness issues carried

out on primary quantitative data, were articulated in this section. The content analysis method was successfully tested in the pilot study, and it was decided to use the same method for primary qualitative data analysis. Overall, this methodology section provided a good foundation to extend the identified research methodology, survey instrument, and qualitative interview questionnaire to all case organisations for primary data collection.

The next chapter, Quantitative Analysis and Discussion explains various statistical tests performed as part of quantitative analysis and results. Various statistical tests, like direct, moderation, and mediation hypotheses among lateral constructs were explained in this chapter. The findings from this quantitative analysis resulted in addressing the research questions and were used to propose a workable lean leadership model.

Chapter 4 – Quantitative Analysis and Discussion

4.1 Introduction

The quantitative analysis and study findings are explained in this chapter. The direct, mediation, and moderation hypotheses were used to analyse the proposed theoretical framework in this chapter. The impact of the four constructs used in this study on the lean outcome was analysed by testing the cause-and-effect relationship in the simple linear regression model. This simple linear regression model was used to test this cause-and-effect relationship, and IBM SPSS software was used in this analysis.

The mediation role of leaders' behavioural taxonomy theory on their basic value system was analysed by the PROCESS MACRO tool, and the results are discussed in this chapter. The moderation role of power distance on leaders' basic value system was analysed in the PROCESS MACRO tool, and the results are discussed in this chapter.

4.2 Quantitative analysis

4.2.1 Direct hypotheses

Four direct hypotheses were tested as part of the proposed theoretical model and the results are articulated in this section.

*Hypothesis 1: Leadership style directly and positively influences the lean system outcome (*Refer to Figure 2.1).

Leadership style determined how case leaders engaged with their followers daily, whether they promoted an urge and seriousness among their followers for the lean system or kept their followers within their comfort zone for regular activities. Successful leaders

set the right atmosphere and motivation for their followers on a lean journey by carefully selecting the appropriate leadership styles.

A simple linear regression analysis has been performed to find the cause-and-effect relationship between leadership style and lean outcomes. Figure 4.1 explains the cause-and-effect relationship between leadership style and lean outcomes.

Figure 4.1 - The cause-and-effect relationship between leadership style and lean outcome

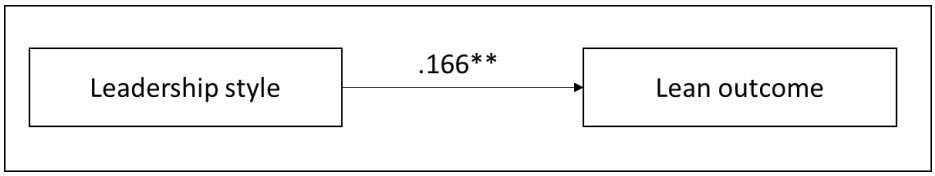


Figure 4.2 explains the regression equation with a significance level of p<.01 as below: Lean outcome = 15.063 + 0.166 (leadership style). The constant value was 15.063, and the correlation value noticed between leadership style and lean outcome was .166.

Figure 4.2 - Regression coefficients – Leadership style and lean outcome

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant	15.063	.726		20.738	.000
	LS	.166	.015	.504	11.175	.000

a. Dependent Variable: Lean_su

Figure 4.3 explains that with an R square value of 25.4%, the variance in lean success has been explained by leadership style. Since four major constructs were affecting lean success, the remaining 75% may be explained by the other three constructs.

Figure 4.3 - Model summary of regression model – Leadership style and lean outcome

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.504[a]	.254	.252	3.85951	.254	124.871	1	366	.000	1.555

a. Predictors: (Constant), LS

b. Dependent Variable: Lean_su

Figure 4.4 illustrates the F ratio of 124.871 ($p<0.05$) from this model. Though the R square value noted was comparatively lower, the good F ratio illustrated the good fitness of this regression model.

Figure 4.4 - ANOVA summary of regression model – Leadership style and lean outcome

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regressio	1860.055	1	1860.055	124.871	.000[b]
	Residual	5451.877	366	14.896		
	Total	7311.932	367			

a. Dependent Variable: Lean_su

b. Predictors: (Constant), LS

The regression results demonstrated the significance of $p<.01$, thus the regression outcome failed to reject the null hypothesis. Thus, the positive and significant impact of leaders' leadership style on lean success has been demonstrated by this study.

Hypothesis 2: Leadership values are directly and positively influencing the lean system outcome (Refer to Figure 2.1).

The values are a set of basic assumptions carried by the case leaders throughout their lives and play an important role in deciding what is wrong or right for them. The basic value system determined the case leader's inherent thinking patterns and how they approached the lean challenges with their unique qualities. These basic beliefs differentiated one leader from another in case organisations, and basic values provided the rationale for why a case leader behaved in a certain way by looking into the critical role played by their value system. The case leaders have taken a set of actions that were aligned with their basic beliefs and made their actions a reality.

A simple linear regression analysis has been performed to find the cause-and-effect relationship between leaders' basic value systems and lean outcomes. Figure 4.5 explains the cause-and-effect relationship between the basic value system and lean outcome.

Figure 4.5 - The cause-and-effect relationship between the basic value system and lean outcome

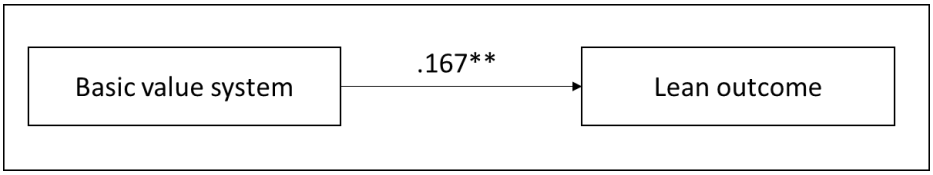


Figure 4.6 explains the regression equation with a significance level of $p<.01$ as below: Lean success = 13.141 + 0.167 (basic value system). The constant value was 13.141, and the correlation value noticed between leadership style and lean outcome was .167.

Figure 4.6 - Regression coefficients – Basic value system and lean outcome

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant	13.141	.654		20.088	.000
	LV	.167	.011	.629	15.463	.000

a. Dependent Variable: Lean_su

Figure 4.7 demonstrates the way the basic value system accounts for the variation in lean success, specifically the R square value of 39.5%. Since four major constructs were affecting lean success, the remaining 60.5% may be explained by the other three constructs.

Figure 4.7 - Model summary of regression model – Basic value system and lean outcome

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.629[a]	.395	.393	3.47618	.395	239.102	1	366	.000	1.731

a. Predictors: (Constant), LV

b. Dependent Variable: Lean_su

Figure 4.8 illustrates the F ratio of 239.102 ($p<0.01$) from this model. Both the R square value and good F ratio values illustrated the good fitness of this regression model.

Figure 4.8 - ANOVA summary of the regression model – Basic value system and lean outcome

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regressio	2889.259	1	2889.259	239.102	.000[b]
	Residual	4422.673	366	12.084		
	Total	7311.932	367			

a. Dependent Variable: Lean_su

b. Predictors: (Constant), LV

The regression results demonstrated a significance level of $p<.01$, thus the regression outcome failed to reject the null hypothesis. Hence, the positive and significant impact of leaders' basic value system on lean success has been demonstrated by this study.

Hypothesis 3: The Leader's behavioural outcomes are directly and positively influencing the lean system outcome – (Refer to Figure 2.1).

The behavioural taxonomy theory determined how case leaders treated their followers and other stakeholders in the workplace environment. The case leaders exhibited various behavioural attributes like focusing on building relations with followers (relations-related), motivating followers to embrace new changes (change-related), pushing the followers to focus on typical daily activities rather than focusing on long-term improvements (task-related), and looking across the organisational boundaries to seek helping hands to address various challenges (external-related). The case leaders used various communication modes, like verbal and nonverbal methods, with their followers.

A simple linear regression analysis has been performed and Figure 4.9 explains the cause-and-effect relationship between leaders' behavioural attributes and lean outcomes.

Figure 4.9 - The cause-and-effect relationship among behavioural attributes and lean outcomes

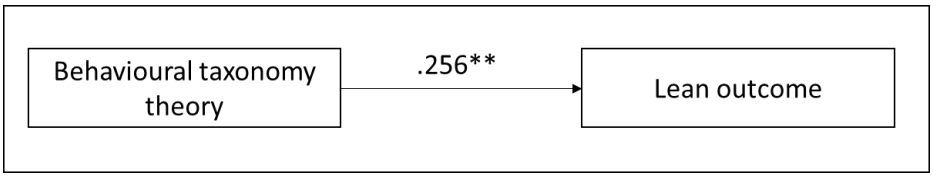


Figure 4.10 explains the regression equation with a significance level of p<.01 as below: Lean outcome = 10.106 + 0.256 (behavioural taxonomy theory). The constant value was 15.063, and the correlation value noticed between behavioural taxonomy theory and lean outcomes was .256.

Figure 4.10 - Regression coefficients – Behavioural taxonomy theory and lean outcome

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.106	0.788		12.824	0.000
	LB	0.256	0.015	0.655	16.605	0.000

a. Dependent Variable: Lean_su

Figure 4.11 explains that the R square value of that 43%, the variance in the lean success, has been explained by behavioural taxonomy theory. Since four major constructs were affecting lean success, the remaining 57% may be explained by the other three constructs.

Figure 4.11 - Model summary of the regression model –Behavioural taxonomy theory and lean outcome

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.655[a]	0.430	0.428	3.37551	0.430	275.732	1	366	0.000	1.724

a. Predictors: (Constant), LB

b. Dependent Variable: Lean_su

Figure 4.12 illustrates the F ratio of 275.73 ($p<0.05$) from this model. Both the R square value and F ratio illustrated the good fitness of this regression model.

Figure 4.12 - ANOVA summary of the regression model – Behavioural taxonomy theory and lean outcome

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3141.710	1	3141.710	275.732	<.001[b]
	Residual	4170.222	366	11.394		
	Total	7311.932	367			

a. Dependent Variable: Lean_su

b. Predictors: (Constant), LB

The regression results demonstrated a significance level of $p<.01$, thus the regression outcome failed to reject the null hypothesis. Hence, the positive and significant impact of leaders' behavioural attributes on lean success has been demonstrated by this study.

Hypothesis 4: Power distance is directly and positively influencing the lean system outcome (Refer to Figure 2.1).

As per the literature review, the power distance played a limiting role in the lean journey, as this construct kept the followers from offering high respect to their leaders and they executed their leaders' instructions without any questions. The same conclusion was drawn from qualitative interviews, where several case leaders shared their insights about the crucial role of power distance in lean initiatives. These case leaders articulated the fact that their organisations realized high empowerment and lean success when they implemented various measures to control the power distance within limits.

A simple linear regression analysis has been performed to find the cause-and-effect relationship between the power distance and lean success. It is observed that the power distance has a significant and positive impact on the independent variable, the lean outcome. This quantitative finding was not aligned with the results noticed from both the literature review and qualitative interviews.

The quantitative data were collected from various hierarchies that include senior, middle-level, and entry-level leaders and blue-collar employees. It was a heterogeneous group with different interests that differed from each other. For example, blue-collar employees witnessed a high degree of power distance from entry-level leaders, but the middle-level leaders did not witness a high degree of power distance from the senior leadership team as both leaders were from the management cadre. Their feedback for the power distance questionnaire reflected their position. The heterogeneous feedback was the reason for the positive impact noticed from a simple linear regression analysis.

This study did not consider the direct impact of power distance due to the above reasons. At the same time, the power distance played a moderate role in influencing case leaders' basic value system to frame their actions towards a lean outcome. The next section discusses this moderation analysis.

4.2.2 Moderation hypothesis

The moderation effect is measured when a factor influences the operating environment for an independent variable (Hayes, 2012). In this study, power distance played an important role in moderating the case leaders' behavioural patterns and their choice of leadership styles to ensure lean success. The power distance influenced how case leaders leveraged their lifelong basic value system and how they adopted various leadership attributes to meet expected lean system outcomes. This moderation analysis explored how power distance influenced the strength and direction of the relationship between lean success and the basic value system. The high-power distance dimension kept the leaders with enough authority over their followers and convinced the followers to maintain a distance from the leaders. Case organisations have taken various innovative approaches to contain or eliminate the power distance impact among case leaders and followers. The following hypothesis has been proposed to explore the mediation role of power distance in lean initiatives.

Hypothesis 5: The power distance cultural dimension moderates the basic value system – (Refer to Figure 2.1).

This section explains the moderate impact of power distance on the role played by the basic value system to influence lean success. The PROCESS MACRO tool (Hayes, 2012) was used to perform the moderation analysis for this study. The PROCESS MACRO tool was a user-friendly computational tool to detect both moderation and mediation effects among multiple variables, and this tool worked along with IBM SPSS. Bootstrapping was a useful provision available from the PROCESS MACRO tool, and it calculated the population coefficient estimation by using multiple resamples from the sample data in scope (Hayes, 2012). This bootstrapping provision was used in this study to find confidence intervals around the estimated coefficients.

Figure 4.13 explains the moderation effect of power distance on leaders' basic value system in lean initiatives.

Figure 4.13 - The moderation effect of power distance on the basic value system

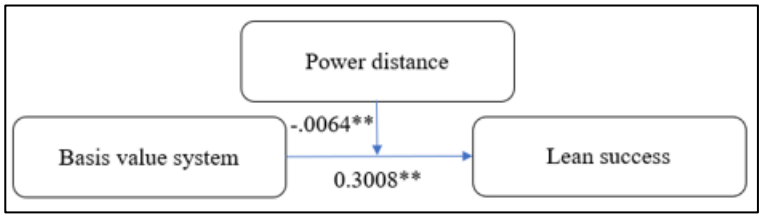


Table 4.1 explains the moderation output from the PROCESS MACRO tool. The direct effect of the basic value system on lean success was .30 with significance ($p<.05$). The direct effect of power distance on lean success was .62 with significance ($p<.05$). When the power distance moderated the basic value system, the total moderation effect was -.0064 with significance ($p<.05$). This result indicated that power distance impact was significant and resulted in negative moderation effect between leadership style and lean success.

Table 4.1 – Moderation analysis of power distance in the basic value system

	Coeff	**Se**	**t**	**p**	**LLCI**	**ULCI**
Constant	-0.8872	3.0391	-0.2919	0.7705	-6.8636	5.0893
LV	0.3008	0.0484	6.2096	0	0.2055	0.396
PD	0.6241	0.1295	4.8181	0	0.3694	0.8788
Int_1	-0.0064	0.002	-3.1864	0.0016	-0.0104	-0.0025

Since the interaction term in the model was statistically significant, a test of simple slopes has been performed in the PROCESS MACRO tool to test the relationship between power distance and lean success at three levels of power distance (Mean – 1*Standard deviation, Mean, Mean + 1 *Standard deviation). Table 4.2 explains the results of this analysis.

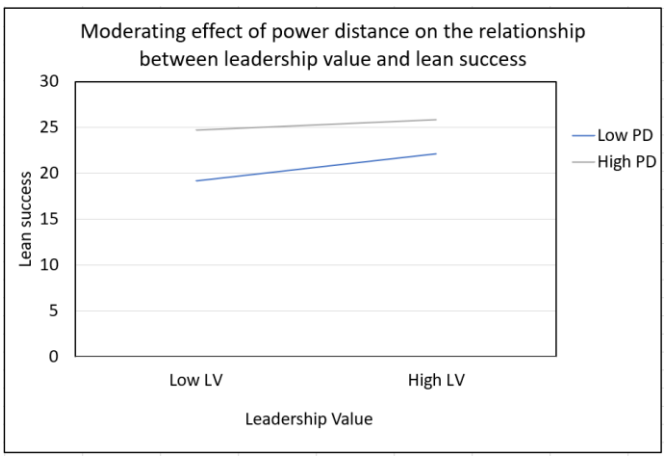
Table 4.2 – Moderation analysis of power distance in the basic value system

PD	Effect	se	t	p	LLCI	ULCI
21.3065	0.1639	0.0115	14.1988	0	0.1412	0.1866
25.3886	0.1377	0.0114	12.0466	0	0.1152	0.1601
29.4707	0.1114	0.0162	6.8657	0	0.0795	0.1434

At the Mean – 1* Standard deviation level, i.e., the 21.3065 score of power distance (representing low power distance), the relationship between the leadership style and lean success was positive and significant (b = 0.1639, p=0.000). Similarly, at the mean (25.3886) of power distance, the relationship between the leadership style and lean success was positive and significant (b = 0.1377, p=0.000). Finally, at Mean + 1*Standard deviation) level, i.e., the 29.4707 score of power distance (representing high power distance), the relationship between the leadership style and lean success was positive and significant (b = 0.1114, p=0.000).

Figure 4.14 explains the moderate impact of power distance on the role played by the basic value system in influencing lean outcomes. The effect of the mean value, +1 standard deviation, and -1 standard deviation against the mean power distance value is portrayed in Figure 4.14. This figure illustrates the fact that lean system success decreased when the magnitude of the power distance was higher.

Figure 4.14 - The moderation effect of power distance



As per Johnson-Neyman analysis (Refer to Table 4.3), the values above 37.52 of power distance, the basic value system has no significant effect on lean success.

Table 4.3 - Conditional effect of power distance moderation effect (Johnson-Neyman analysis)

Power distance	Effect	se	T	p	LLCI	ULCI
11	0.2301	0.0273	8.443	0	0.1765	0.2837
12.4	0.2211	0.0247	8.9577	0	0.1726	0.2697
13.8	0.2121	0.0222	9.5655	0	0.1685	0.2557
15.2	0.2031	0.0198	10.2839	0	0.1643	0.242
16.6	0.1941	0.0174	11.126	0	0.1598	0.2284
18	0.1851	0.0153	12.0847	0	0.155	0.2153
19.4	0.1761	0.0134	13.0966	0	0.1497	0.2026
20.8	0.1671	0.012	13.977	0	0.1436	0.1907
22.2	0.1582	0.011	14.3731	0	0.1365	0.1798
23.6	0.1492	0.0107	13.9046	0	0.1281	0.1703
25	0.1402	0.0112	12.536	0	0.1182	0.1621
26.4	0.1312	0.0123	10.6783	0	0.107	0.1553
27.8	0.1222	0.0139	8.8011	0	0.0949	0.1495
29.2	0.1132	0.0158	7.1516	0	0.0821	0.1443
30.6	0.1042	0.018	5.7867	0	0.0688	0.1396
32	0.0952	0.0203	4.6796	0	0.0552	0.1352
33.4	0.0862	0.0228	3.7823	0.0002	0.0414	0.131
34.8	0.0772	0.0253	3.0496	0.0025	0.0274	0.127
36.2	0.0682	0.0279	2.4448	0.015	0.0133	0.1231

37.52	0.0597	0.0304	1.9665	0.05	0	0.1194
37.6	0.0592	0.0305	1.9398	0.0532	-0.0008	0.1192
39	0.0502	0.0332	1.5134	0.1311	-0.015	0.1155

The current power distance mean value observed from case organisations was 25.389. This reminded the executive team that there was less room to reach the threshold value of 37.52, which makes the lean leader's basic value system a dormant one.

4.2.3 Mediation hypothesis

A mediation effect is created when a third variable intervenes between two other related variables (REF REQUIRED). In this study, the case leader's behavioural attributes were mediating their inherent basic value system to adopt a set of actions to achieve lean system success.

Hypothesis 6: Leaders' behavioural outcomes are mediating the basic value system – (Refer to Figure 2.2)

It is important to validate the mediating role played by the behavioural taxonomy theory (Refer to Figure 2.2). This section explains the mediation role of behavioural taxonomy theory and the role played by the basic value system in influencing lean success. Here both behavioural taxonomy theory and the basic value system were lateral constructs. There was a significant correlation found between leadership behaviour, basic value system, and lean success. Table 4.4 explains that the direct effect of the basic value system on lean success was 0.0875 with significance ($p<.05$). The indirect effect of leadership behaviour on lean success via the basic value system was 0.0791, which was significant to the strength of the direct effect ($p<.05$).

Table 4.4 – The mediation analysis of the role played by the behavioural taxonomy theory

Independent Variable	Mediating Variable	Dependent variable	Total Effect (p-value)	Direct Effect (p-value)	Indirect Effect (p-value)
Leadership Value	Leadership behaviour	lean success	0.1666 (0.000)	0.0875 (0.000)	0.0791 (0.000)
Leadership Value		Leadership Behaviour	0.4801 (0.000)		
Leadership Behaviour		Lean success	0.1647 (0.000)		

Figure 4.15 explains the mediation analysis outcome. The behavioural taxonomy partially mediated the relationship between the basic value system and lean success.

Figure 4.15 – The direct and indirect effect of leadership behaviour on lean outcome

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c cs
      .1666      .0108    15.4629      .0000      .1454      .1878      .6286

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c' cs
      .0875      .0141     6.2117      .0000      .0598      .1152      .3302

Indirect effect(s) of X on Y:
       Effect     BootSE   BootLLCI   BootULCI
LB      .0791      .0151      .0502      .1097

Completely standardized indirect effect(s) of X on Y:
       Effect     BootSE   BootLLCI   BootULCI
LB      .2984      .0509      .1976      .3976

******************************************************************************
```

Briefly, the mediation role played by behavioural taxonomy theory has significant and partial mediation on the basic value system as a latent construct.

4.3 Summary

This chapter discusses the direct impact of four constructs in scope, the moderation effect of power distance, and the mediation effect of behavioural taxonomy theory to ensure lean system success. It is observed that both leadership style and basic value system theories significantly and positively impacted the lean outcome. The power distance was not conducive to a lean program as this construct resulted in significant and negative moderation of leaders' behavioural attributes. The mediation role played by the behavioural taxonomy theory demonstrated the partial mediation effect of the basic value system to realize lean success. The findings from this quantitative analysis helped to address the research questions from this study and supported a workable lean leadership model to potential organisations.

The next chapter, Qualitative Analysis and Discussion, offers rich insights from case leaders across various leadership hierarchies and from blue-collar employees. This qualitative analysis offered different perspectives, like lean leaders' experiences, their encounters with their leaders and followers, critical incidents from lean initiatives, and potential solutions to ensure lean success despite many challenges. This qualitative analysis was useful in assessing the role played by each dimension in the four constructs used in this study. The lean leaders discussed the importance of each dimension from four theories from their organisational perspective, and they provided more information regarding the limiting role played by a few dimensions as well.

A few interesting observations were noticed in this qualitative analysis as a few dimensions from four constructs secured acceptance from a few hierarchical layers, and other layers did not follow these dimensions. The leadership standing of three leadership layers and blue-collar employees from case organisations was compared and contrasted in this chapter.

Chapter 5 – Qualitative Analysis and Discussion

5.1 Introduction

This chapter explains the rich insights gained from the detailed qualitative interviews across various hierarchical layers from three case organisations, which include senior, middle-level, and entry-level leadership teams and blue-collar employees. The comprehensive semi-structured qualitative interviews resulted in unique perspectives, insights, and achievements from the participants' lean journey. The participants' feedback about the roles played by leadership style, basic value system, behavioural taxonomy theory, and power distance to achieve the expected lean outcome were analysed in this chapter. The complementing and contrasting roles played by each dimension in the four major constructs were discussed in this chapter. Briefly, the comprehensive qualitative insights were useful in explaining the complex lean leadership phenomenon and addressed research questions from this study.

5.2 Qualitative analysis

5.2.1 Pilot qualitative data

As part of the pilot study, five participants were given detailed insights as part of the qualitative interview phase. Table 5.1 explains the consolidated findings from the pilot qualitative analysis. Table 5.1 explains how insights shared by participants were mapped against the list of parent nodes and child nodes defined with literature support, and how comprehensive details were logically grouped as per various dimensions from four constructs used in this study. As described in chapter 3, the purpose of the pilot study was to validate the usefulness of defining parent nodes and child nodes to capture participants' insights and ensure the adaptability of the content analysis method used in this study. In Table 5.1, the column 'parent node' denotes the four major constructs used in this study, the 'child node' column explains the dimensions of major constructs and the last column explains the importance given to each node by the participants.

The next section explains the detailed analysis results gained from primary qualitative interviews and the rich insights used to formulate answers to research questions from this study.

Table 5.1 - Consolidated content analysis summary for the pilot study

Sl No	Parent node	Chile node	Frequency
1	Leadership style – Transactional	Active management by exception	2
		Passive management by exception	2
		Contingent reward	10
2	Leadership style – Transformational	Idealized influence	41
		Not an idealized influence	8
		Individualized consideration	24
		Inspirational motivation	38
		Not an Inspirational motivation	8
		Intellectual stimulation	38
		Not intellectual stimulation	4
		Others	1
3	Basic value system	Conservation	26
		Openness to change	83
		Self enhancement	61
		Self transcendence	121
4	Behavioural taxonomy theory	Change related	126
		External related	34
		Relations related	115
		Task related	30
5	Power distance	Avoid disparity	46

		Maintain the status quo	16

5.2.2 Primary qualitative data

5.2.2.1 Leadership style analysis

Leadership style defines how leaders engage their followers to keep the organisation running and how they promote a sense of urgency among their followers. The leadership style mandated how lean leaders collaborate with their followers to practice various lean tools like 5S, Kaizen, Work Standardization, Andon Provision, Poka-Yoke, Single Piece Flow (SPF), Value Stream Mapping (VSM), and Pull Production. The case leaders practiced various leadership style patterns, and the necessity of adopting the right mix of both styles was reinforced by the case leaders. An entry-level leader articulated that,

"*Short-term and long-term goals are important to leaders, thus they need to embrace both leadership styles" (P15, LM).*

P8 (MM) articulated his style of working; a leader must adopt a leadership style approach as per the prevailing situation. P9 (MM) adopted both leadership styles, and he implemented Value Stream Mapping (VSM) as part of the transformational leadership style across the business functions at his plant to eliminate non-added value activities. A case leader expressed his viewpoint,

"*You have to adopt a different style according to the situation. We always try to connect with people, use their strengths, and motivate them" (P15, LM*).

The blue-collar employees expected guidance and support from their leaders. A blue-collar employee reaffirmed this position,

"We seldom approach the leaders who always force and closely monitor our daily work. Many times, this is psychologically affecting our position as we do feel that someone is standing next to us and watching us every second. Fortunately, most of the leaders from our organisation do not fall under this category" (*P20, BC*).

Transactional leadership style

Many case leaders wanted to ensure blue-collar employees accomplished basic results like achieving Takt time, daily production targets, or minimum quality standards by leveraging Statistical Process Control (SPC) tools. The leaders adopted various measures to enforce Standard Operating Procedures (SOP) among the followers, and the transactional leadership style played an important role in meeting this objective. In contrast, blue-collar employees perceived that transactional leadership style undermined their position as their leaders imposed pressure tactics to get the work done from them.

Contingent reward dimension

The case leaders leveraged the contingent reward dimension to ensure minimum behavioural adherence from their followers. The case leaders set unambiguous work expectations for their followers, like what they need to do, what to deliver, and when to deliver (P1, SM). They leveraged various benefits that included both tangible and non-tangible benefits to motivate their followers to meet the basic standards.

These leaders adopted various lean concepts like line balancing to deploy blue-collar employees as per client requirements and achieved the expected outcome from the blue-collar employees (P10, MM). Sometimes leaders wanted to maintain a close watch on their followers' performance, as one case leader said,

"*We can't leave everything to employees, so we must watch" (P1, SM).*

The blue-collar employees knew the process well, like practicing 5S and Visual Management Systems (VMS) at GEMBA. Blue-collar employees expected to get support and encouragement from their leaders.

"Our expectations from the supervisors are empathy, trust, and freehand, thus we can meet the expected results from our end without any follow-up. We do inform our leaders in case of any anticipated challenges" (P19, BC).

The followers were expected to understand the daily target; they attended daily stand-up meetings and focused meetings for about 20 minutes to ensure the activities were as per plan (P13, MM). The blue-collar employees echoed the same sentiment as they advocated daily stand-up meetings to maintain seamless communication.

"Daily meetings with fellow employees and supervisors to discuss the day's plans and issues from previous shifts are useful to establish seamless communication across the shop floor team" (P20, BC).

P13 (LM) implemented various recognition mechanisms to engage each follower and convinced his management to offer a variety of reward mechanisms. Some leaders have given more chances to defaulters, and they have offered necessary training programs to such employees as part of a multi-function training strategy. One leader shared his stand,

"*I will not waste my time in educating them. I will ensure a good proposition to performers than non-performers" (P10, MM)*.

The case leaders assessed their followers' performance and provided few chances for their followers to address any performance issues (P16, LM). However, these leaders' actions were time-bound, and they did not wait for a long time to see the expected performance from their followers. On the contrary, blue-collar employees viewed this kind

of managerial action with suspicion, as they felt their leaders must act based on verifiable details rather than personal bias. One blue-collar employee narrated,

"Sometimes, the leaders are carrying their preferences and biases in their mind, and they do wait for the right time and execute their plans in action. We do accept their decisions if it is beyond any debate and based on hard facts. Moreover, we may not raise our concerns in an open forum" (P21, BC).

The case leaders politely explained tough decisions to a few followers about their areas for improvement (P1, SM). P7 (MM) followed the Pareto principle, the 80:20 rule, 80 percent of quality work comes from 20 percent of good people. He found a chance to transform the large number of followers to demonstrate their best efforts. This leader explained his decision to his followers as to why they must change to become successful in their careers.

P9 (MM) claimed to have taken a different approach. He adopted a contingent reward approach when he took over the role of plant head. When some people tried to take advantage of the fluid situation, this leader motivated and rewarded good performers and punished defaulters. P15 (LM) adopted a holistic approach where he used to praise his followers in public, but he also advised his followers for any improvement in one-to-one meetings and initiated punishments like moving to other areas or a salary cut (P15, LM).

P20 (BC) shared his concerns on behalf of shop floor employees; some leaders did not provide enough support to blue-collar employees to not repeat the same mistakes. He mentioned that his organisation initiated various constructive approaches to realise the state of the focused factory, wherein multiple stakeholders got involved to solve issues. A blue-collar employee mentioned that,

"We respect the leaders to help us in tough times, rather than being questioned and punished by them. Otherwise, we follow our routine activities, not focusing on any new

ideas, the reason being that we know that we will get scolded by our leaders in case of any deviations" (P20, BC).

Management by exception dimension

The case leaders did not follow the 'management by exception' dimension, as this dimension created fear of failure in their followers' minds in both active and passive modes. One participant explained as,

"*Let us motivate people. Punishing them will not give the desired yield" (P4, SM)*.

P17 (LM) admitted that leaders must allow their followers to use their imagination and creativity to deliver a better job.

"We should motivate people. Punishment will not produce the desired results" (P17, LM).

In retrospect, case leaders mostly used the contingent reward factor of the transactional leadership style to ensure that their followers completed the tasks that were expected of them. They were not inclined to management by exception dimension as this construct created fear among employees for potential punishment. This finding was in line with the research study from Antonakis and House (2002) which highlighted the importance of the contingent reward dimension and downplayed the usage of the management by exception dimension.

These leaders maintained professional relationships with their followers and at times, were not satisfied with their followers' ability to achieve the minimum work to be done. Sometimes, they warned their followers in case of any deviations. Also, the case

organisations offered continuous training programs to sensitize the leadership team about how to carefully use transactional leadership style dimensions to meet organisational goals.

Transformational leadership style

The transformational leadership style was the preferred leadership style demonstrated by the case leaders. Transformational leaders transformed their follower's thinking patterns, confidently crossed their comfort zones to realise bigger objectives and kick-started improvement activities on their own.

Individualized consideration dimension

The *Individualized consideration* dimension was practiced by the case leaders to identify the hidden talent of each follower, nurture their capabilities through customised training programs, and offer a good environment for their natural growth. Lean principles like Total Productive Maintenance (TPM) needed a specific set of capabilities. The case leaders identified the right opportunities based on their assessment of their followers. P3 (SM) involved the right people in every lean pillar for successful lean implementation to achieve the expected results by leveraging the unique capabilities of individuals. P17 (LM) saw benefits from this individualized treatment and as he said,

"*I will give ownership to every person I put in a place. I will empower the person. They can very well act on the situation" (P17, LM)*.

Blue-collar employees value leaders who spend enough time to identify their potential. This process was challenging for the leaders, as they expected to find opportunities to better utilize their followers' unique capabilities. A blue-collar employee said,

"We perceive any leaders that explore our hidden talents as bold and decisive leaders. They genuinely care about our well-being and future opportunities unlike ordinary leaders who try to achieve a regular job from us" (P21, BC).

The case leaders helped each follower by offering necessary training programs, and this process supported raising leaders among the followers (P12, MM). This aspect motivated blue-collar employees to leverage their unique skills, and they made sincere efforts to make it happen (P19, BC). Lean concepts like Single Piece Flow (SPF) needed external experts' guidance, and case leaders convinced their management team to allocate the necessary budget for the same.

The case leaders enhanced their followers' capabilities by "*constantly empowering them, giving opportunities to followers to make mistakes and mentoring them when in need" (P5, SM).*

P10 (MM) shared his way of treating people as he assigned the activity to each follower as per their capability, and he did not bother about non-performers. P9 (MM) recalled his memory that his leaders offered chances to him based on his unique capabilities, identified higher positions based on his capabilities, and promoted him without any delay.

Intellectual stimulation dimension

The lean journey needed conviction from all employees, and the case leaders tried to rationalize existing processes through Value Stream Mapping (VSM) to establish a better workplace. The case leaders adopted various strategies to emulate their employees to proactively identify hidden improvement opportunities from GEMBA and motivated them to cross their concealed thinking patterns to see the big picture by themselves.

The blue-collar employees were ready to go the extra mile and embarked on self-initiated activities (P20, BC). Lean concepts like Single Minute Exchange of Dies (SMED) needed

employees' efforts to solve complex production issues, and this has not happened without motivating employees' desire to find new solutions.

P3 (SM) strongly advised the leaders to create the right environment to engage everyone to start innovative work by leveraging their intellectual capital. The case leaders installed a learning-related and growth-related environment to propel their followers into continuous improvement activities (P13, LM). The employees wanted to ensure meaningful contributions to the company as one leader endorsed,

"*People want to contribute, want to do good work, and want to do an innovative job; the leadership team must give the right environment to employees" (P3, SM).*

P12 (MM) recommended the leadership team to motivate the followers to pursue long-term benefits from lean initiatives. The case organisations were optimistic about lean benefits as their leaders stimulated their followers to adopt various lean practices (P12, MM). The fear factor or any punishment mechanism did not help promote the required capabilities among blue-collar employees.

"*I should give people the opportunity to use their imagination and creativity to find work. Otherwise, simply following my orders will result in doing only what I said. This won't help blue-collar employees by any means in terms of development and they would always wait for orders" (P17, LM)*.

The case leaders stimulated their followers' intellectual capability to achieve bigger organisational objectives and maintained harmony within the team (P12, MM).

The case leaders implemented the Genchi Genbutsu technique, a lean tool to achieve objectives like transportation time reduction, to address manpower issues, and address raw material storage issues (P17, LM). The case leaders established an assortment of Small Group Activities (SGA) for their followers and leveraged these groups based on the

people's intellectual capacity to tackle business problems. (P17, LM). P11 (MM) practiced GEMBA continuously and addressed various issues in collaboration with blue-collar employees to see the actual issues. P8 (MM) shared his personal experience as follows,

"*I have been to Japanese plants, and they give a lot of space to their employees for continuous improvement activities. Some companies are allocating 3 hours per week to only work on continuous improvement activities" (P8, MM)*.

P11 (MM) cautioned against the approach taken by many leaders based on their industry experience to arrive at important decisions rather than data. Few lean concepts like Total Productive Maintenance (TPM) require collective wisdom and a data-based decision-making culture among blue-collar employees. The necessity to adopt a data-based decision-making process to encourage followers' intellectual growth, as articulated by a leader,

The leaders cannot adopt *"decisions based on assumptions and should not let their work experience fog their listening process" (P11, MM*).

Another leader (P16, LM) has taken a differentiated approach to imparting end-to-end business knowledge to their followers like the finance team visiting the customers to understand the selling process. This leader articulated this necessity as,

The leaders need to *"provide an opportunity to the team, also needs to ensure if they leverage the opportunity well" (P16, LM)*.

The blue-collar employees were looking for the required support from their leaders to experiment with innovative initiatives (P19, BC). P1 (SM) advocated the multifunctional training approach among followers to capitalize on their intellectual ability. P17 (LM) shared his success criteria for motivating followers to see successful lean organisations around the region.

"*People who have exceptional leadership qualities can be taken to other organisations with a successful lean track record and see how they perform" (P17, LM)*.

Transforming the workforce's intellectual capital required consistent leadership commitment, and the case leaders carefully planned awareness and training programs to motivate their followers (P12, MM). In this process, the collective intellectual capital of an organisation is utilized to add value to its customers and eliminated Non Value-Added Activities from business processes (P12, MM). The structured training programs helped the followers like,

"*What they stand to gain, what type of system we are going to implement, what we are going to adopt in our company, and where we are lagging behind" (P17, LM).*

P9 (BC) explained that his leaders demonstrated how to remove waste from business processes by leveraging value stream mapping concepts. The followers preferred to work in an authentic, enthusiastic, and collaborative environment to display their full potential (P11, MM). As a leader, P9 (MM) educated his followers about validating the merits and demerits of various problems and how to find solutions for long-pending issues. One leader cautioned that empowered employees got the required freedom to make their own decisions, but it also left a lot of ambiguity, so the leaders must guide their followers until they deliver as per management expectations (P17, LM). The case leaders used lean tools like A3 problem-solving to address process issues and encouraged blue-collar employees to use this tool.

The leaders understood the fact that not all employees were accepting lean at the initial stage (P20, BC). They identified a few good followers, implemented lean concepts with their assistance, and inspired others to copy in their area. People talked about success stories, and they avoided failures (P20, BC).

Inspirational motivation dimension

The case leaders implemented a companywide cultural transformation to realise lean success, and this was possible as they inspired their followers to think beyond their boundaries (P3, SM). A case leader articulated that,

"*Demonstrate how you adopt and practice what you say – Lead by example" (P5, SM)*.

The case leaders tried various methods, like acquiring new skills and demonstrating their capabilities in lean initiatives (P12, MM). The followers accepted their leaders when they found their leaders practiced what they preached (P15, LM). The followers were happy with the presumption that their leaders genuinely cared about their well-being (P9, MM).

"*If the company takes care of its employees, in turn, the employees will take care of their company. This shows that the organisation is taking care of you like family members" (P9, MM)*.

The case leaders adopted various ways to win their employees' confidence in the lean journey. P3 (SM) shared his style of working by identifying a model Cellular Manufacturing (CM) area for lean implementation and involved a selected list of people with a positive attitude. P17 (LM) responded that the model area concept was an important one in lean initiatives as an all-out lean implementation approach across the organisation did not work well for many organisations.

Continuous encouragement, support, and not threatening the followers were some good tips proposed by the case leaders to encourage their followers (P1, SM). P8 (MM) demonstrated himself as a trusted person to his followers for any help, and he leveraged both internal and external agencies to solve his team's issues. A case leader commented

that the followers were looking for a trust-based environment to demonstrate their capabilities.

"*Everyone will get inspired and do innovative work" (P2, SM),* and *"the employees would not stop till they achieve their goals in the right environment".*

Sometimes, the case organisation used external lean experts to lay the foundation for a sustained lean journey.

The leaders played a "*proactive role to motivate and inspire their followers to go for sustained long-term gains from the lean" (P16, LM)*.

The leader's consistent presence in GEMBA passed a compelling message to their followers that their leaders were aligned with them, and they expected the best from their followers (P12, MM). The follower got empowered in the process to apply various tools to eliminate non value added activities from the processes and kick-start continuous improvement activities as their own (P12, MM).

The leaders *"must practice GEMBA to make real progress and nothing will happen from the office room" (P4, SM)*.

P10 (MM) leveraged external consultants to support his team, as he valued the relationship with his team. The case leaders motivated their followers both in formal and informal settings.

The leader can adopt a *"walk the talk approach to understand employees' achievements and challenges and support the employees to get engaged in a lean project" (P11, MM)*.

The engaged employees implemented Kaizen improvement activities on their own without a push from their leaders. P15 (LM) shared a real example as one hundred and one followers formed Quality Circles (QC) on their own to solve business challenges, and this leader attributed this phenomenon to the outcome of the inspired workforce. P5 (SM) acted immediately for any performance deviations among followers.

Sometimes, the leaders faced challenges while managing the team, like setting expectations for some defaulters. Despite the difficulties this assignment presented for the case leaders, they conveyed a clear message to them, as stated by one of the leaders below,

The leaders cannot *"satisfy everyone and can be polite and explain cohesively what they are doing and why this is not possible for a particular employee's case" (P1, SM)*.

P18 (LM) articulated that people's resistance to change was heavier on the process side than on the system side. The main issue on the process side was change acceptance among the blue-collar employees.

"Once the leader sets up a new system, but if he keeps the old process, which may result in sub-optimal productivity and post-deployment standardization issues" (P18, LM).

Inspired followers from case organisations benefited from lean initiatives, and they executed their activities with pride (P13, SM). P2 (SM) listened to his follower's suggestions for both strategic and operational decisions.

"*The followers assume ownership and accountability once the leaders make them part of the decision-making process" (P2, SM)*.

The idealized influence dimension

The *idealized influence* dimension helped the leaders nurture the expected cultural orientation and performance outcomes from their followers. Many case leaders secured their followers' acceptance through their self-confidence, technical capabilities, and team-building skills as part of their resolve to leverage this behavioural construct.

P2 (SM) articulated that any leader without gaining employees' confidence was treated as *"a fake leader, a talkative leader, not a true leader"* by their followers.

"*Every operator knows what he (the leader) is doing, what is his target, what he needs to do" (P1, SM).* This statement explained why the case leaders were looking for acceptance among their followers.

P15 (LM) explained that the CEO of his organisation led the lean initiative and monitored it continuously. This executive team's relentless efforts pacified the followers that the leaders were serious about lean implementation (P10, MM).

Typically, in every organisation, there is "*30% of the people want to implement a program and 60% would be back-seaters who watch, and 10% of the people will spoil. How to convert this 10% is the main focus for the leadership team and these 10% people get a solid message if the executive team maintains tight vigilance" (P15, LM)*.

Changing employees' perceptions across the organisation was a challenging task. P18 (LM) shared his experience as he arranged multiple levels of change management workshops and various modes of communication to gradually walk followers through the lean journey.

Leaders must have an *"intelligence quotient, emotional quotient, and spiritual quotient to create the positive influence among the followers" (P15, LM)*.

The management team stressed the vision and mission statements among employees, and the case leaders leveraged many tools to achieve these objectives (P9, MM). A leader mentioned that,

It is important to educate the workforce that *"the lean is not a project for them, but it is a long-enduring journey to change basic thinking patterns" (P2, SM)*.

Conclusion

This section explained the leadership style positions taken by various hierarchical levels across the case companies and the overall conclusion about leadership style adoption in lean initiatives. This study revealed the necessity of managing a mix of both transactional and transformational leadership styles across various hierarchies. This study explained that the leadership style mix varied and aligned with each layer's mandate, roles, and responsibilities bestowed on them and the degree of their interaction with blue-collar employees.

Senior leadership team: They focused on higher-order responsibilities to run the organisation as per stakeholders' mandates. They sponsored the necessary resources for the lean journey and practiced lean principles as a role model for their followers. They aligned with a transformational leadership style to motivate their followers to assume bigger responsibilities and encourage them to realise the empowerment process.

They maintained an interaction with blue-collar employees from GEMBA to get first-hand information about lean status and any challenges faced by blue-collar employees. They supported their followers to secure external resources and closely monitored the overall lean journey. They did not prefer the transactional leadership style and practiced all four transformational leadership style dimensions in the lean journey.

Middle-level leadership team: These leaders adopted a balanced mix of transformational and transactional leadership styles. They actively worked with the senior

leadership team to appreciate the strategic and tactical decisions and passed crucial information to their followers, the entry-level leadership team. They frequently met blue-collar employees from GEMBA as part of their planned efforts to spend quality time with them.

Close monitoring of behavioural adherence among blue-collar employees, providing required guidance to blue-collar employees, and spreading a continuous improvement culture among blue-collar employees were their focus areas. Leveraging collective intellectual assets among blue-collar employees, installing a collaborative working environment to get maximum output from limited resources, and practicing data-based decision-making processes were some of the initiatives taken by these leaders. They followed the transformational leadership style to inspire their followers, but this approach did not work as their followers were facing significant challenges. This made these leaders invoke the transactional leadership style at times, and their preferred transactional leadership construct was the contingent reward. They practiced all four transformational leadership style dimensions.

Entry-level leadership team: These leaders adopted a balanced mix of transformational and transactional leadership styles. Their primary focus areas were to ensure daily targets, honour client commitments, and ensure quality compliance. They faced a variety of challenges like blue-collar employee absenteeism, machine breakdowns, quality issues, and raw material shortages; thus, they were under pressure to meet their targets. They motivated blue-collar employees to meet targets despite many challenges, and these leaders used the contingent reward dimension of transactional leadership style in this context. For blue-collar employees, this leadership style communicated a clear message; good performers got suitable rewards and low performers faced repercussions from their superiors.

These leaders were facing two challenges here; they were busy with daily target achievement and found less time to nurture a transformational leadership style among blue-collar employees. These leaders organized multiple levels of training programs and maintained communication channels to ensure expected behavioural adherence among their

followers. These leaders spent enough time with blue-collar employees to streamline improvement activities like Kaizen projects and positioned them as the go-to person to secure the required support to achieve long-term goals.

These leaders leveraged their daily interaction with blue-collar employees to gather any concerns and pass these details on to their leaders to embark on necessary actions to restore blue-collar employees' confidence. These leaders leveraged all four dimensions of the transformational leadership style.

Blue-collar employees: The blue-collar employees disapproved of the use of transactional leadership styles in lean initiatives. They did not prefer the management by exception dimension from their leaders and perceived any leader leveraging the contingent reward dimension with suspicion. The blue-collar employees rejected the close supervision from the leaders, as they felt uncomfortable seeing someone standing next to them and closely watching them. Instead, they expected more freedom from their leaders to perform their tasks independently. Their expectations from their leaders were empathy, tolerance to accept any mistakes while carrying out any new improvement projects, bias-free opportunities for all employees, and involvement of their followers in decision-making processes. They preferred all four dimensions of transformational leadership style from their leaders.

The above arguments explained that the transformational leadership style was the preferred style used by the case leaders to empower, motivate, and inspire their followers to appreciate the long-term benefits of lean initiatives. These leaders adopted 'individualistic consideration' dimension to identify the hidden talents of their followers and provide them with enough opportunities. The intellectual stimulation dimensions played a critical role in large-scale transformational movements like lean, where it was not possible to reach the end state without channelling the intellectual capital of each employee. The inspirational motivation dimension played a pivotal role as the leaders earned their followers' acceptance, as employees must get a feeling of security and belongingness from their leaders. The last dimension, idealized influence, helped the leaders demonstrate higher-order attributes like uncompromised integrity, self-confidence,

and unique capabilities to motivate and empower their followers. These leaders leveraged the contingent reward dimension from the transactional leadership style in lean initiatives.

5.2.2.2 Basic value system

The case leaders and blue-collar employees shared valuable insights about their basic beliefs, and this section explained a detailed analysis made of four broad basic value system constructs: self-transcendence, self-enhancement, openness to change, and conservation.

Self-transcendence dimension

The case leaders adopted the self-transcendence value dimension as they focused on meeting their followers' requirements in need. They demonstrated their care for their employees' future and allowed their employees to make mistakes in experimenting with new ideas.

P15 (LM) wanted to develop a new culture, and he asserted that this dream was not possible unless he carefully understood their followers' needs. This same sentiment was echoed by P2 (SM) as follows:

"*A leader is supposed to behave like a lean resource person, kind of a torchbearer, he must show his commitment, he must be on the front end, and he must appropriately treat the people" (P2, SM)*.

The supervisor's approach made a significant impact on the mental well-being of the followers. A blue-collar employee said that,

"We can achieve higher-order goals and think beyond our boundaries as long as we have supportive supervisors from GEMBA" (P21, BC).

The case leaders understood followers' challenges and why they struggled despite various support mechanisms in place *(*P2, SM). They worked with their followers to implement various lean tools like Value Stream Mapping (VSM), Andon, and Poka-Yoke to address the process issues. They coached their followers about how to approach continuous improvement activities, how to observe issues from GEMBA, identify obstacles, identify the root causes, and how to remove those obstacles (P2, SM). A leader articulated that,

"I *give opportunities to my followers to make mistakes and mentor my team when in need" (P4, SM)*.

The blue-collar employees expected their leaders to discuss business issues with them, spent more time practicing GEMBA than in office rooms, and offered all possible support to them in need. The case leaders demonstrated the benefits of lean tools like A3 problem-solving to their followers. A blue-collar participant deliberated as,

"We are ready to do hard work to meet the targets, but we belong to the worker's category and do not enjoy the powers like our supervisors. We can contribute our level best as long as our supervisors are empathetic and sympathetic to our needs and they need to talk with the management team for necessary resources" (P20, BC).

The empowerment process was found effective once blue-collar employees made informed decisions for themselves (P1, SM). The case leaders provided the necessary skills, as per the Multifunctional Training Strategy (MTS) to their followers to implement the relevant lean practices. The case leaders demonstrated tolerance for accepting failures or shortcomings from their followers in this empowerment process. A senior leader mentioned that,

"*Empower the team and give them the confidence of support irrespective of outcome - success or failure" (P5, SM)*.

The case leaders demonstrated seriousness about upskilling their followers' capabilities and adopted various innovative approaches to educating their followers (P6, SM). One case leader adopted the below approach:

"I organize lean awareness program for people in batches like what is lean, how we are going to implement, how we are going to adapt to our company, where we are lagging" (P3, SM).

The blue-collar employees wanted to attend both formal classroom training to understand emerging lean concepts and on-the-job training lean principles (P, 19; P20, BC).

P6 (SM) consciously involved his followers in various group activities like quality improvement teams, innovative projects handled by engineers, and small group activities handled by blue-collar employees. P3 (SM) wanted to leverage the collective wisdom among the team to solve any issues, as he said,

"*For any problem, we can find the right person from the team, what is the problem, what is the root cause, fix the target date, and follow the Plan-Do-Check-Act cycle (PDCA) cycle to fix the issues" (P3, SM).*

Apart from lean tool training, P1 (SM) organised a lot of personality development programs in a separate forum wherein the blue-collar employees were not disturbed by production activities. The lean training program series contained lean fundamentals, performance tools, visual management tools, and continuous improvement programs (P12, MM). In this upskilling process, the case leaders established a seamless communication mechanism where the followers confidently shared their training requirements with them (P11, MM). P1 (SM) suggested that companies must plan for a more people-centric process than a process-centric procedure to engage blue-collar employees.

Self-transcendence value dimension consumed a lot of effort as leaders worked along with their followers in a collaborative environment, understood their requirements, and appreciated followers' untold needs. One of the lean leaders said,

"*It is not an immediate process because it happens over a period as people take time to adjust to the changes being implemented" (P16, LM)*.

Self-enhancement dimension

The case leaders spent a good amount of time mastering lean tools like A3 problem solving, Value Stream Mapping (VSM), Single Piece Flow (SPF), and Kanban to demonstrate newly acquired skills to their followers. The lean required sustained and consistent efforts; thus, case leaders consistently upgraded their knowledge to succeed in their attempts.

The followers watched their leaders' capabilities in the decision-making process (P7, MM). This mandated the leaders to establish themselves as trusted people among their followers. The case leaders upgraded their skills to address business challenges more effectively and communicated the benefits to their followers. This sustained communication created a sense of alertness and urgency among blue-collar employees to enhance their competency in a sustained manner (P7, MM). A leader articulated that,

"*The leaders must go to the transformation area to see how customer value addition activities are performed by their followers, if there are any challenges faced, they should clarify their mistakes and make sure to address these issues" (P15, LM)*.

The case leaders shared the benefits of newly acquired capabilities among their followers, and a blue-collar employee articulated that,

"The employees are happy to talk about leaders who do something different, constantly willing to introduce better ways of doing things and out-of-the-box ideas. Such leaders occupy the imagination of the blue-collar employees, and we seldom appreciate leaders without new initiatives" (P21, BC).

P2 (SM) argued that long-term commitment was the important success factor in the lean journey of the leaders, and in this case, leaders invested their efforts towards the self-enhancement dimension as part of their daily lives. The blue-collar employees watched their leaders' actions, and they came to know their leaders' capabilities quickly (P20, BC).

"*I always upgrade my skill level. Honestly, I didn't take other people's credit for my opportunity. I used to promote my followers to my higher-ups if they deserved it" (P9, MM).*

Sometimes, the leadership team did not commit their time to up-skill their competency to meet lean challenges. A blue-collar employee narrated,

The leaders were *"enthusiastic when introducing the lean system at the start of the journey, but suddenly they disowned their direct responsibilities and delegated the accountability to their followers. The leadership team must provide continuous coaching sessions and mentoring programs to the leaders to behave in the right ways" (P19, BC)*.

Many times, the blue-collar employees formed small group activities and nominated a supervisor as a leader for this small group initiative and that leader played a pivotal role in arranging all resources to ensure the success of Kaizen activities. This phenomenon has been explained by a blue-collar employee as follows,

"The leaders play a significant role in directing and motivating us to succeed in continuous improvement activities. They bring necessary expertise, and many times they cross their departmental boundaries to reach the right set of resources for us" (P20, BC).

Many leaders enjoyed the benefits of transformational changes in the workplace once they demonstrated newly acquired capabilities to their followers, and they felt happy to share such memories. A senior leader articulated one incident as follows,

"*Even if I was not available, my followers used to call me and asked what to do. I can do everything over the phone, even though I work in the automotive industry I can work like working from Information Technology sector" (P1, SM)*.

Openness to change dimension

The case leaders learned new concepts and unlearned outdated processes as part of their daily routine (P14, LM). Any leader who did not adapt to the changes was perceived as a weak leader among their followers, and this position was reflected by a blue-collar employee as,

"*The leadership team must have hands-on experience; empty talk is a waste of time. The leadership team must be busy with innovative activities". (P21, BC)*.

P2 (SM) practiced lean values as part of his daily routine to set an example for others. The leader's willingness to accept changes plays a critical role in creating a positive attitude among their followers. A lean leader made the below argument,

The leader's *"mindset to accept the change and see the result is important. Systems without the involvement and lack of clear vision are unproductive". (P18, LM)*.

The case leaders leveraged past learning and sought advice from the outside world to experiment with new ideas. P12 (MM) recommended considering past failures when starting a new initiative to avoid similar issues. Accepting failures and being honest were some of the higher-order values practiced by case leaders (P5, SM). P2 (SM) transformed

his mindset to accept changes and emphasized the necessity of nurturing the change management culture among the leadership team as the first step in the right direction. This leader shared an example,

"Our organisation conducted three days top management conclave program delivered by external consultants to address the misconception and change mindset to start real lean implementation" (P2, SM).

P5 (SM) argued about the benefits of changes from GEMBA, and he advised the leaders to adopt new ideas from GEMBA. The case leaders practiced GEMBA to realise the necessity of introducing new changes in a step-by-step approach (P17, LM).

The case leaders met their followers, collaborated to perform various tasks, and verified details from GEMBA. A case leader explained the necessity of leaders' adherence to lean practice as follows,

"*Leaders cannot delegate their lean work to their followers, this is something they must perform by themselves, and this unique factor differentiates lean system from other management philosophies" (P7, MM).*

P1 (SM) recommended listening and observing as key skill sets required for any change-oriented leader. He carefully listened, seamlessly absorbed the information from followers, and acquired the necessary resources to implement the required changes. The case leaders demonstrated their commitment and transformed the current state into the future state based on their learning from GEMBA. The case leaders formed the winning strategy and sustained it for a long time by nurturing a positive change management culture among their followers (P6, SM).

"*The management's involvement is important. Lean needs cultural transformation and this cultural transformation is tough to accomplish" (P9, MM)*.

P6 (SM) explained his top management's active involvement in the lean journey and their willingness to allocate necessary resources to cater to customer requirements. P2 (SM) blamed the inconsistency in sustaining the change from the leadership team, as the management team became reluctant at times. He cautioned the leadership team to proactively identify such events to avoid any negative perceptions among blue-collar employees.

The leadership team was *"aligned at the initial stage, after that their involvement will slowly come down from the alignment, they won't find time to meet people, won't go and see what is happening, won't perform lean audit" (P18, LM)*.

The blue-collar employees endorsed the above phenomenon as they found few leaders not receptive to lean system expectations and avoided maintaining consistent communication with blue-collar employees from GEMBA. They noticed only a few deviants from their experience (P20, BC).

The case leaders created a trust-based culture across the organisation to emphasize the importance of lean, and the blue-collar employees witnessed authentic enthusiasm from the leadership team. The case leaders prepared themselves and motivated their followers to follow major change management initiatives as a part of their daily routine (P11, MM). The case leaders explained the urgency of promoting the change manager culture among their followers in a holistic way and not in a silo manner. P13 (LM) advised leaders to explore, experiment with new ideas, and learn new processes in the lean journey. P2 (SM) articulated the benefit of practicing the change-oriented value construct as follows,

"*The followers can develop long-term thinking patterns, improve their performance, and avoid looking good in front of their management" (P2, SM)*.

The consistent practice of lean values and continuous monitoring of the right lean practices were some success factors adopted in case organisations (P12, MM). The leaders ensured a deep drive initiative across the organisation with everyone's participation and

ensured that the mix of both theory and practice was instrumental in the lean journey (P2, SM). The employees received motivation from case leaders, and these leaders aimed for a team-driven organisation to excel in lean initiatives (P12, MM). A case leader mentioned about the importance of team collaboration as,

"*The best quality of a leader is to make blue-collar employees come together to make continuous improvement activities as a routine process" (P8, MM)*.

Conservation dimension

The conservation dimension found no patronage by lean leaders across case organisations. Some leaders leveraged this dimension to remind their erring followers about their position in the organisation and urged them to deliver the minimum outcome. This conservation dimension was not supporting lean progress as leaders were forced to continue their old traditions to safeguard their long-held position.

Conclusion

This section outlined the value system positions adopted by various leadership layers and blue-collar employees from case organisations.

Senior leadership team: They assumed higher responsibilities in lean initiatives and established their commitment to motivate the entire workforce to capitalize on their higher-order value dimensions. They invested significant time in coaching their followers to appreciate the necessity of using higher-order value constructs in lean initiatives. They organized personality development programs to sensitize the workforce about the importance of value system adoption in lean initiatives. They spent enough time interrogating their followers' needs and came up with various intervention mechanisms to augment their followers' capabilities. These leaders exhibited the attitude of caring for their followers and stood along with them in challenging times.

These leaders were given enough understanding about how failed lean attempts suffered from leaders' improper usage of various value system dimensions, and they consistently demonstrated their commitment to practicing relevant value dimensions like upgrading their capabilities and embracing new changes. Senior leaders practiced GEMBA frequently and they practiced lean principles with rigour to set an example for others. These leaders passionately identified the potential capabilities of their followers, gave them sufficient competency-building opportunities, and identified higher-order responsibilities for their followers. They established a culture of approaching innovative ideas with confidence without worrying about the outcome. These leaders were practicing all basis value system dimensions except the conservation dimension.

Middle-level leadership team: These leaders have taken part in lean initiatives and various improvement projects from GEMBA, closely worked with their followers, and maintained sustained connections with blue-collar employees. These leaders assumed significant accountability to ensure lean practice adherence in their organisation; they empowered their followers and created the importance of practicing lean values as a routine.

These leaders had three focus areas; made the entry-level leaders achieve daily targets from blue-collar employees, motivated the entry-level leaders to follow lean practices themselves, and made them responsible for promoting lean principles among blue-collar employees. These leaders practiced lean principles as a routine, did not delegate their responsibilities to their followers, and realised the fact that they had been closely watched by their followers. These leaders enhanced their capability around business processes to motivate their followers to confidently embrace innovative ideas. Many leaders in this category acknowledged the hardships faced during their careers and have proactively decided to eliminate similar challenges from their followers' career progression. They noted down various challenges from the lean journey and cautioned their followers with lessons learned from past failures when they started new activities. These leaders practiced all dimensions of the basic value system other than the conservation dimension.

Entry-level leadership team: They secured a unique role unlike the middle-level and senior leaders; they actively worked with the middle-level leadership team as their

superiors and spent most of their time with their followers from GEMBA, blue-collar employees. These leaders found both these stakeholders' expectations in different standings and exhibited applicable basic value constructs accordingly. These leaders cared about blue-collar employees' requirements and implemented necessary support mechanisms for them. Self-transcendence was the main basic value construct used by these leaders when they dealt with blue-collar employees. They understood the fact that blue-collar employees assumed higher responsibility when their leaders demonstrated empathy and supported them in need.

These leaders demonstrated their faith in learning lean principles, and they continuously enhanced their lean expertise. The blue-collar employees closely watched them, and any deviation noticed may potentially create a negative mindset among blue-collar employees not to follow lean principles. They encountered less educated blue-collar employees, and they encouraged blue-collar employees to speak out about any ideas or concerns with confidence. They acknowledged the fact that the new cultural orientation among blue-collar employees was a long-term process, and they passionately waited a long time to nurture the right attitude among blue-collar employees despite many challenges. These leaders were leveraging all the basic value dimensions except the conservation dimension.

Blue-collar employees: Blue-collar employees expected their leaders to listen to their concerns and offer the necessary resources to carry out their jobs with confidence. They wanted freedom from their leaders to do their job and did not prefer close supervision from their leaders. They expected their leaders to proactively identify required training programs to enhance their competency and help them acquire the necessary support while implementing new ideas. They preferred the executive leadership team to offer reinforcement training programs among their leaders to hold higher-order value constructs, as they found deviations among their leaders at times. They were happy when they noticed their leaders were part of continuous improvement projects, tried to solve issues along with them, and passionately listened to their concerns.

They admired their leaders who took new initiatives, and they were ready to take part in these initiatives if they found their leaders as their role models. They seldom accepted any

leader without the urge to implement lean principles with vigour and long-term results in mind. These blue-collar employees preferred all basic value system dimensions from their leaders except the conservation dimension.

The case leaders actively demonstrated the self-transcendence dimension as they cared about their followers' well-being, career growth, and success. People's development was the main aim of this self-transcendence dimension. Case leaders embraced the self-enhancement dimension to learn the new skills required to ensure lean success and demonstrated themselves as successful in front of their followers. The lean leaders practiced openness to change value dimension to meet lean expectations. The case leaders rejected the conservation dimension as they limited the leader's desire to explore innovative ideas and forced them to safeguard their long-held positions.

5.2.2.3 Behavioural taxonomy theory

The behavioural taxonomy plays an important role in deciding the lean leader's approach to their followers, and this theory explains the rationale behind leaders' various behavioural encounters with their stakeholders from an organisational context. The followers keenly watched their leader's behavioural patterns, how they led the organisation in challenging times, and the followers framed their perception of their leader's worthiness by their behavioural attributes.

Task-related dimension

The task-related behavioural dimension found less patronage among case leaders as the employees were asked to focus on a specific set of daily tasks rather than seeing long-term perspectives. The employees followed their leader's directions, which reminded them of the prevalence of the traditional command and control system. A blue-collar employee expressed his comments as follows,

"*Each operator knows what he is doing, what is his target, how he has to complete the work" (P21, BC)*

P18 (LM) promoted two objectives among his followers; basic task completion and the quest for a continuous improvement mindset. He advocated this task-related behavioural construct at times. The leaders defined targets for their followers to match Takt time requirements of the client and made them accountable for the outcome (P17, LM). The case leaders managed the basic work of followers and motivated their followers to leverage lean tools like line balancing to ensure lean success. A case leader explained the necessity of maintaining a clear message to followers as,

"*I never compromised on what I want from my followers for the sake of maintaining a healthy relationship" (P9, MM)*.

P17 (LM) urged the leaders to keep a close watch on the task completion of their followers. P2 (SM) recommended that leaders to change their perception of the use of task-related behavioural dimension.

Blue-collar employees admitted their goal to complete the daily work and complained that some leaders did not provide development opportunities at times (P19, BC). They attributed this outcome to some leaders' inclination to practice this behavioural construct at times.

Relations related dimension

The case leaders leveraged relation-related behavioural constructs to motivate their followers to be part of a larger group to meet corporate objectives. The case leaders followed the relation-related behavioural construct to establish a long-term relationship with their followers and elaborately talked about this construct in interviews.

The case leaders demonstrated an awareness of the requirement to put this behavioural construct into practice to create the right environment with empowered employees. To maintain their individualised contact with their followers, they employed a variety of tactics, such as attending followers' personal events like marriage functions (P18, LM). According to a participant from the blue-collar sector, the organisation as a whole worked together to achieve the lean goals.

"*Everyone will involve connecting the dots, only then the full benefit of lean is derived, else they will witness meagre benefits" (P20, BC)*.

The case leaders promoted the organisational goals and mission among their followers, and they motivated the blue-collar employees to align with the lean expectations (P2, SM). This transformation happened as they maintained friendly relationships with their followers (P11, MM). Informal communication mode has been practiced by these leaders to develop an understanding with their followers, and they leveraged short breaks as an opportunity to hear their followers' official and personal concerns (P1, SM).

The leaders *"arranged the teatime room wherein they can engage in a casual chat with their followers, where the followers share their ideas, and this accomplished so many things" (P1, SM)*.

P18 (LM) offered some guidelines to develop relationships with followers like engaging with employees by adopting various approaches.

The leader can "*foster people's participation through the walk the talk and lead change management efforts by positively influencing the behaviour among them" (P18, LM)*.

The case leaders leveraged their rapport with their followers to push them to exceed their boundaries, try out new experiments, and assume additional responsibilities. One leader articulated that,

"*If we command them to do, they will simply do the work and wait for feedback from you, and they will not take the ownership" (P3, SM).*

The blue-collar employees expected encouragement and support from their leaders to do improvement activities beyond their daily work (P20, BC). The case leaders implemented a few lean concepts like Single Piece Flow systems, with their followers' commitment to achieving optimum solutions.

The case leaders affirmed this trend as one leader proclaimed, "I *support them in all aspects. I will consider their requests" (*P10, MM).

P5 (SM) identified applicable reward and recognition mechanisms as per follower needs, and the relationship aspects helped him identify the untold needs of the followers. The personal rapport motivated the blue-collar employees to reach their leaders for any required support (P21, BC).

P8 (MM) maintained personal rapport with followers, and he provided "*space to speak up, empower them for taking their decisions and allocating budget for experimentation" (P8, MM)*.

The case leaders convinced their followers to experiment with new ideas, and they achieved behavioural change among their followers by leveraging their rapport with them (P4, SM).

"*I never use my power to implement what I want. I convinced people for their conviction to change" (P9, MM)*.

Continuous GEMBA practice by case leaders passed a powerful message to the followers; they valued employees' time, were determined to develop individual

relationships with the followers, and were committed to continuous improvement initiatives (P2, SM). One participant emphasized that he spent quality time with blue-collar employees to motivate them to follow the improvement journey from GEMBA, and he articulated it as,

"*I always connect with people through GEMBA" (P9, MM)*.

The leaders advocated various tactics to involve their followers in the decision-making process, offered potential guidelines to them, and encouraged them with motivational words (P17, MM). A blue-collar employee admitted to this fact,

"*One-man show is not going to help if the leaders are sitting at their office. Everyone should engage in brainstorming new ideas including us. We will share ideas and the leadership team must help us to implement these ideas in reality". (P19, BC)*.

Change-related dimension

The case leaders demonstrated consistent efforts to create a positive attitude among their employees to pursue the habit of experimenting with new ideas like Cellular Manufacturing, Single Piece Flow (SPF), and Pull Production as part of the lean journey. Blue-collar employees accepted the urgency and necessity to embark on new initiatives and out-of-the-box thinking approaches apart from their regular work to succeed in the lean attempt. One blue-collar employee articulated that,

"*The leaders must act fast, go to GEMBA to see where the problem is arising, must walk around the GEMBA, see the facts, and see the real happenings. They need to collaborate with us to embark on various change management programs. This is the kind of potential behaviour the leaders must show" (P19, BC)*.

The case leaders practiced GEMBA as a routine and appreciated various difficulties from the transformation activities (P12, MM). This leader advocated a continuous improvement culture among their followers, and he stressed consistent GEMBA practice by leaders (P12, MM).

"*Successful leaders do accept the necessity of changing themselves in learning new ideas from GEMBA and successful leaders learn what they do not know from GEMBA" (P2, SM)*.

There were some good examples shared by the case leaders. A leader narrated that,

"*Our management led by example, they visit GEMBA very often, guided the blue-collar employees in all aspects while the blue-collar employees in return learned those techniques of changes and contributed to the growth of the organisation. There were hardly any hurdles from the formulation of lean changes to its implementation in our organisation" (P6, SM).*

The case leaders created the right vision for all employees to adopt change management as a habit in the lean journey (P4, SM). The case leaders promoted change-related behavioural dimension among followers by addressing their challenges (P1, SM). The case organisations delivered long-term and sustained attitudinal change initiatives among the leaders and followers rather than short-term-related behavioural changes (P14, LM).

One blue-collar employee said,

"*Once we implement Kaizen solutions, we feel happy with a new way of doing things and it encourages us to kick start similar initiatives with more vigour" (P19, BC)*.

Change management happened in case organisations as a collaborative process with blue-collar employees' involvement. The necessity of encouraging blue-collar employees has been endorsed by a leader as follows,

"Fundamental point is blue-collar employees are one of the stakeholders in the success, without empowering them we cannot achieve the organisational goal, hence empowering blue-collar employees comes first" (P5, SM).

The case leaders were determined to create the right behavioural change among them to sustain the lean journey (P2, SM). They admitted the necessity of transforming themselves to become change agents in the long term. One of the lean leaders explained the current industry's stand as follows,

"*I would say that less than 10% of people have got the right mindset to implement lean and rest of them do not have long-term thinking and people development mindset, they just try to boost their performance to others" (P2, SM)*.

P4 (SM) emphasized the need for constructive changes across the organisation, and he argued that the change must start with the leadership team. Another lean leader explained that,

"We must motivate the blue-collar employees, empower them, and allow them to demonstrate their capabilities" (P4, SM).

The case leaders demonstrated their commitment, led various change management initiatives, and demonstrated their seriousness in adopting new trends from GEMBA (P5, SM). The case leaders achieved major milestones by promoting strong change-related behaviour among blue-collar employees.

P10 (MM) recalled his achievement as "*I moved the entire plant to a new location within three days, which is an extraordinary accomplishment to anyone like me"*.

P6 (SM) shared an example from his lean journey; his leadership team nominated a team of four people who went to the UK for one year to learn about systems engineering and returned to implement the same concept in his organisation. Another participant admitted his close inclination to daily changes as,

"*If I stop daily improvement activities, I cannot see other opportunities. I need to have the right attitude and behaviour to perform daily improvement activities" (P2, SM)*.

The case leaders implemented lean tools like pull production, process capability, and statistical process control along with their followers' support to embrace the required changes. The case leaders implemented meticulous change management interventions to build the basic pillars of lean, like Kanban from GEMBA (P17, LM).

The data-based decision-making process introduced by the case leaders was a good practice to be followed in lean initiatives (P17, LM). Achieving superior quality was one priority area, and a case leader mentioned,

"*Focus on continuous improvements. Focus on quality assurance. Focus on quality improvement with higher-order statistical tools. Go for innovation in different levels" (P7, MM).*

Motivated employees adopted fascinating ways of working to meet the organisation's goals (P14, LM). P8 (MM) sent his team for necessary technology training programs, and he motivated them to leverage emerging technologies to reap benefits.

"In the c*urrent situation, technology is necessary. Information and communication technology is mandatory, and I always encourage my team to learn new things like bringing supply chain visibility across the organisation" (P8, MM)*.

Another case leader articulated that,

"*Our leaders were progressive, were open to all the changes in terms of technology, implemented in the company on the part of the lean system and they were qualified engineers" (P6, SM)*.

External related dimension

The case leaders admitted their limitations in meeting lean requirements and secured external help many times. Lean pushed the case leaders to their limitations, and they explored various sources to find solutions, including professional consultants, coaches, trade bodies, and other external stakeholders.

Many lean organisations depended on external lean experts until the company groomed the lean expertise across the organisation (P3, SM). The case organisations invited professional lean practitioners from Japan to kick-start their lean journey, invited industry veterans to do regular auditing, and nominated the leadership team for various external training programs including overseas training programs (P10, MM). Sometimes, the case leaders were trained by Japanese consultants, as they had observed first-hand benefits of such good training and mentoring programs.

"*I got a chance to get trained by leading foreign consultants and Mr.Yamakuchi from Japan was one of the coaches" (P9, MM)*.

P8 (MM) sent his team for external training programs, for example, emerging technology adoption, to achieve manpower reduction and increase efficiency (P8, MM).

Conclusion

The degree of behavioural orientation of each hierarchical layer varied as per their responsibilities and their interaction with blue-collar employees. This section explained how different hierarchical layers made their behavioural choices and compared similarities and differences noticed among various hierarchies.

Senior leadership team: These leaders dealt with qualified and responsible middle-level leaders to run the business and sustain lean momentum. They nurtured the necessity of adopting challenging lean principles among middle-level leaders, and these leaders exhibited a change-related behavioural dimension to promote the aptitude to undertake necessary changes as part of lean initiatives among middle-level leaders. They practiced GEMBA to steer the change management initiatives across the organisation despite many challenges. They gave importance to promoting change-oriented behavioural adherence among employees by implementing multiple training sessions and institutional mechanisms.

They leveraged trust-based behavioural dimension to empower middle-level leaders with enough authority to steer lean initiatives. They consistently practiced GEMBA, a process wherein they spent quality time with blue-collar employees to solve business challenges. They achieved two objectives from GEMBA; they learned about unknown areas of business and passed a message to everyone that they were closely monitoring lean progress. These leaders secured various resources outside of their organisation to supplement the lean journey, and they leveraged this chance to demonstrate their seriousness about lean success to all stakeholders. Essentially, these leaders leveraged all behavioural dimensions except the task-related behavioural dimension.

Middle-level leadership team: These leaders strived to motivate their followers, entry-level leaders, to believe in sustaining lean principles. They exhibited change-related behavioural dimension to encourage their followers to adopt innovative ideas as a routine. They maintained touch with blue-collar employees to provide a platform to share their feedback, as sometimes blue-collar employees did not share their transparent feedback with their immediate leaders.

They conducted coaching sessions for their followers to accept suggestions from blue-collar employees with an open mind and encouraged a team-based culture in the organisation. They nominated their followers for various technical training programs and convinced the management team to implement the necessary technology platforms in their organisations. These leaders sensitized their followers not to use their power to accomplish results among blue-collar employees; rather, they promoted the collaborative culture to convince the blue-collar employees to realise the benefits by themselves.

Sometimes, middle-level leaders used task-related behavioural dimension in case of any deviation noticed by their followers. They reached out to their leaders to get the required support from external sources to sustain the lean momentum, despite many challenges. These leaders leveraged all four behavioural dimensions in the lean journey.

Entry-level leadership team: These leaders focused on sustained attitudinal change among the blue-collar employees to carry out lean values as a daily routine. They acknowledged that achieving this objective would not be simple, so they provided a variety of competency-building programs, one-on-one counselling sessions, and a personal touch to encourage their followers to adopt creative thinking. They understood the fact that Indian employees respect trust-based relationships with others, and they practiced the necessary intervention mechanisms to keep personal touch with blue-collar employees. They consciously built personal rapport with blue-collar employees to secure their confidence; they spent enough time and attended personal events with blue-collar employees.

They gave enough space to blue-collar employees to share their feedback in various forums, like daily stand-up meetings and weekly quality control meetings. They sensitized blue-collar employees to use a fact-based approach to address issues rather than personal judgment, and they meticulously implemented various process-based approaches as per the lean mandate.

Their main responsibility was to ensure daily business targets, and this focus made these leaders apply task-related behavioural dimensions at times. There were many reasons; many challenges were noticed at GEMBA like absenteeism and unexpected equipment breakdowns. These leaders practiced this behavioural dimension, though they appreciated the limitations of this approach. These leaders were given enough training from their managers not to sacrifice minimum targets from blue-collar employees for the sake of maintaining good relationships. These leaders faced challenges from GEMBA, and many times they convinced their leaders to secure the necessary resources from external sources to solve challenging issues. Briefly, these leaders leveraged all four behavioural dimensions as per the prevailing organisational context.

Blue-collar employees: They expected their leaders not to practice short-term tactics like task-related behavioural dimension to get the basic work done. In such scenarios, these employees preferred to be confined to the tasks given to them rather than investing their efforts in implementing innovative ideas from GEMBA. They expected the necessary support and empowerment from their leaders to discharge their duties on their own. The entry-level leaders took the necessary steps in this direction and created confidence among blue-collar employees. These blue-collar employees enjoyed a sense of achievement once they witnessed the benefits of the improvement programs implemented by them with little assistance from their leaders. They expected their leaders to maintain an informal relationship with them, as blue-collar employees knew the business processes well and they expected empathy and motivation from their leaders.

The task-related behavioural dimension found less patronage among lean leaders as the followers were expected to follow their leader's directions. The case leaders leveraged the relation-related dimension to establish a meaningful relationship with their followers. The

change-related behavioural dimension found higher acceptance among case leaders as they convinced their followers to accept a new way of doing business. The case leaders sourced external support like consultants, agencies, and industry bodies to help resolve various challenges and achieved lean objectives.

5.2.2.4 Power distance

The case leaders practiced various measures to eliminate the fear of authority among their followers and empowered them to make necessary decisions. In the case organisations, the case leaders' actions were in the same line; to reduce or avoid the power distance among their followers to realise lean success.

Sometimes, case leaders wanted to maintain the power distance to remind followers who deviated from the stated targets, but the numbers of such instances were low. A few reasons were that followers did not show the expected behavioural adherence, distressed others on the pretext that they were close to the management team, and played a divide-and-play role among colleagues to take advantage of the situation.

Offer equal opportunities

The case leaders treated their followers in an equal manner, perceived every person as equal, gave equal opportunities to all, and did not select the individual based on their personal preferences (P1, SM; P17, LM). A senior leader said,

The leaders to *"remove bias from their mind and give equal opportunities to all blue-collar employees"* (P1, SM).

P10 (MM) provided a fair share of opportunities to everyone based on their capabilities, and there were no individual biases based on the follower's socioeconomic background,

religion, or location. The case leaders were bold enough to maintain a neutral stance and took various corrective actions from that angle (P1, SM).

If the leader *"prefers someone always, the others will be demoralized, and this could be one of the reasons for followers' non-acceptance of their leaders' position" (P3, SM)*.

The blue-collar employees understood their leaders' limitations, so they expected the executive team to offer continuous awareness and mentoring programs to the leadership team (P20, BC).

Respect others

The case leaders realised the power of incorporating meaningful suggestions from the followers (P17, LM). They made it happen once they started treating the blue-collar employees with dignity and mutual respect. The blue-collar employees were ready to be involved with various improvement activities as they secured proper treatment, acceptance, and recognition from their supervisors (P21, BC).

The leader *"should not take any decision from the board room or not behave like a commander with typical command and control" (P2, SM).*

The case leaders educated their followers that they were not something different from them, but both leaders and followers had different roles in the same company (P1, SM). P9 (MM) shared his experience below, and this incident changed his follower's perception forever.

"*Once I took an employee in my car to the hospital as there was no ambulance available. That incident changed the blue-collar employees' hostile attitude against the management" (P9, MM)*.

P8 (MM) used to take his team to restaurants and help those in need by leveraging his close relationship with followers. The case leaders practiced active listening as a habit to understand their followers' challenges and offered appropriate solutions to them. The active listening habit among case leaders helped to reduce the power distance between them and their followers.

"*If my followers come with options, I will help them to choose the better one. If there is a budget required for improvement activities, I can help the team to do it and if they have the budget, they can happily engage in experimentation" (P8, MM)*.

Sometimes, leaders' efforts to reduce the power distance backfired, and the case leaders learned some lessons from their experience. P8 (MM) shared his hard-earned experience; he called his followers during a weekend to address an important activity, but they felt their personal lives were impacted by weekend work, and the matter escalated to senior management. This incident made the leader respect his followers' right to maintain a balance between their professional and personal lives.

The role of emerging technologies

The case leaders leveraged various technology platforms to augment lean tools like Andon and Visual Management Systems (VMS). The followers witnessed the power of these emerging technologies and recommended the use of similar platforms to check the power distance impact among the leaders.

The case leaders established necessary platforms and created norms that empower blue-collar employees to voice out their suggestions and opinions (P11, MM). A case leader explained how this kind of communication platform deterred the leaders from favouring a selected individual against the team as below,

"*By encouraging and enabling open communication channels, the blue-collar employees feel empowered to share their unanimous feedback about their leaders" (P4, SM).*

Technology has the power to dramatically collapse the space between individuals of different standings, and these communication channels have brought a lot of value propositions to organisations (P7, MM). Sometimes, the leaders were not receptive to such a transparent system in organisational settings.

"*Many leaders may show resistance in adopting such a transparent communication platform" (P5, SM).*

The executive team from case organisations requested the human resources team to conduct various training programs to create awareness among blue-collar employees to leverage such transparent communication systems to raise their concerns in case of any deviation from their leaders. The case organisations created easy frameworks to enable blue-collar employees to voice their suggestions and opinions (P11, MM). The leaders eventually learned to value the new system, and they realised how suggestions from blue-collar employees resulted in timely course corrections (P5, SM).

Self-reflection dimension

The case leaders learned by doing from the GEMBA, and they spent enough time with their followers to appreciate the challenges (P2, SM). P7 (MM) explained his perspective that he was open to accepting any suggestions from his followers, and he accepted criticism from his followers as well. Few case leaders reinforced this point as follows,

"*The leaders must be accommodative to criticism" (P5, SM)*.

"Nothing is wrong to say that I don't know. If I know I know, otherwise, I don't" (P8, MM).

P6 (SM) shared his experience of open conversation with his followers in need, and he did not worry about admitting his limitations in providing applicable solutions to blue-collar employees. He reached out to experts to arrive at the right solution and overcame his limitations in the decision-making process.

"I usually prefer an open forum where the followers and I engage in a decisive conversation ... If expert opinion is required, I will not hesitate to take it to the top management's table to get it done without further delay" (P6, SM).

The case leaders managed a balanced position when they dealt with power distance; they maintained a good relationship with followers, and they were not arrogant (P9, MM). To inspire the followers, they found excellent ideas in a forum where blue-collar employees were actively participating and selected those ideas based on merit (P5, SM).

Break the traditional mindset

The case leaders abolished their superior state of mind like they knew everything than their followers, and their followers were depending on them (P7, MM). Many times, they leveraged valuable suggestions from their followers to upskill themselves through the lean journey. One leader said,

" *I will encourage the blue-collar employees to raise their voice because let us understand what they want to say, that's something that is very, very important...I do not think that they are questioning my authority, he is a kind of critic trying to improve my capability"* (*P16, LM*).

The case organisation saw positive outcomes as a result of the lean leaders' informal gatherings that fostered idea-sharing among followers (P1, SM). The case organisations contained the power distance by providing enough opportunities for blue-collar employees to do experiments and empowering them with sufficient authority (P7, MM). This phenomenon resulted in a higher level of confidence among the followers, and they demonstrated their willingness to claim higher responsibilities.

Eliminate traditional hierarchy structures

The blue-collar employees from case organisations accepted their leaders' positions based on their capabilities, and these blue-collar employees did not factor in their leaders' status alone to make their judgments about their leaders (P5, SM). P17 (LM) advocated a novel way to eliminate several tiers inside an organisation; eliminate the intricate hierarchical structure and create a new position known as a lean leader to settle in between top management and blue-collar employees. In the new role, the lean leader helps their leaders with information on how to improve the lean process (P17, LM). This leader recommended dropping down or eliminating the typical hierarchical structure in an organisation.

"Too many layers to be removed. A layer called lean leader is to be created between senior management and blue-collar employees" (P3, SM).

P10 (MM) maintained a close relationship with his followers, and there was a time when his Chief Executive Officer (CEO) cautioned him not to maintain a close relationship with blue-collar employees and engineers. But he defied his superior's advice in this regard, and he said,

"*I am the kind of person to join with employees' family functions and birthday parties. I used to take my team for lunches on special occasions" (P10, MM)*.

Feedback mechanisms

Transparent feedback from all stakeholders, mainly blue-collar employees, provided the ground realities to the executive team, as they have taken the necessary corrective actions. A leader mentioned that,

"*We need 360-degree assessment with feedback from all stakeholders including blue-collar employees, and the feedback must be anonymous" (P8, MM)*.

Exceptions

Sometimes, the case leaders took tough decisions and wanted to implement power distance in a calibrated manner. P1 (SM) closely observed his followers when they did not demonstrate the expected work behaviours.

"We *can't leave or take everything to employees, and we must watch" (P1, SM*).

The same leader asserted that he empowered his followers, but he expected respect from his followers despite age differences, as he said,

"*There might be a person who has been working for more than 15 years, elder than me, but he should understand that he is working under me. He needs to obey" (P1, SM).*

Some leaders offered special treatment to handle some deviants. P11 (MM) shared his way of dealing with such incidents as,

"*I took them into custody to educate them about their work ethics and behaviour, ultimately educating them on the company's objectives though these people took time to change their attitude and perspective" (P11, MM)*.

Conclusion

This section provided a complete picture of each hierarchical layer's position on power distance and explained similarities or differences found among these hierarchical layers.

Senior leadership team: The senior leaders laid the foundation for the entire organisation about how everyone approaches power distance construct within organisational boundaries. They set various auditing provisions to check the role of the power distance construct within the organisational ecosystem. They ensured the availability of a transparent feedback platform as a whistle-blower mechanism to highlight any biased decisions by leaders. These leaders empowered their followers to make both strategic and tactical decisions by themselves and made enough efforts to reduce the power distance between themselves and the middle-level leadership team.

Middle-level leadership team: These leaders built personal rapport with entry-level leaders and empowered them with enough authority to make operational decisions. They worked with both entry-level leaders and blue-collar employees to ensure a healthy environment. They shared important details with senior leaders, stressed the need to take intervention mechanisms as a correction measure to contain the power distance impact, and informed vital decisions to entry-level leaders to build trust-based relationships with blue-collar employees.

Entry-level leadership team: Case organisations expected entry-level leaders to encourage blue-collar employees without fear to discharge their daily activities. Sometimes, blue-collar employees were wary of leaders' biased decisions toward their preferred employees. These leaders understood this reality and created a sense of transparency and trust among blue-collar employees. They offered equal opportunities to

everyone, avoided special treatment for their preferred employees, and maintained transparent communication. Sometimes, entry-level leaders informed blue-collar employees with subtle language to remind them about attitude issues or productivity issues.

Blue-collar employees: They wanted the power distance to be slashed between them and entry-level leaders. Though they felt so, the prevailing Indian cultural pattern created a lot of challenges for their leaders to reduce the impact of power distance. The blue-collar employees closely observed their leaders' motives. The blue-collar employees wanted their voices heard by the senior leadership team if they found any deviation from entry-level leaders.

This comprehensive qualitative analysis provided detailed information and insights about lean leadership attributes practiced by various leadership hierarchies in three case organisations. Table 5.2 explains the lean leadership position of case leaders.

Table 5.2 – Lean leadership attributes of case leaders and blue-collar employees

Hierarchical layer	**Case organisation**	**Participant**	**Leadership style**	**Basic value system**	**Behavioural taxonomy theory**	**Power distance**
Senior leadership team	1	1	Transformational leadership style: Embraced three dimensions; Inspirational motivation, intellectual stimulation, and individualized consideration. Transactional leadership style: No inclination	Practiced self-transcendence, openness to change, and self-enhancement dimensions Not practiced the conservation dimension	Practiced relations-related, change-related, and external-related dimensions Not practiced task-related dimensions	No appreciation of power distance
	1	2				
	2	3				
	2	4				
	3	5				
	3	6				
Middle-level leadership team	1	7	Transformational leadership style: Embraced three dimensions; Inspirational motivation, intellectual	Practiced self-transcendence, openness to change, and self-enhancement dimensions.	Practiced relations-related, change-related, task-related, and external-	No appreciation of power distance
	1	8				
	2	9				
	2	10				
	3	11				
	3	12				

			stimulation, and individualized consideration. Transactional leadership style: Embraced contingent reward dimension.	Not practiced conservation dimension	related dimensions.	
Entry-level leadership team	1 1 2 2 3 3	13 14 15 16 17 18	Transformational leadership style: Embraced four dimensions; Inspirational motivation, intellectual stimulation, idealized influence, and individualized consideration. Transactional leadership style: Embraced contingent reward dimension.	Practiced self-transcendence, openness to change, and self-enhancement dimensions. Not practiced conservation dimension	Practiced relations-related, change-related, task-related, and external-related dimensions.	No appreciation of power distance, but in rare incidents, they reminded their followers by leveraging power distance construct
Blue-collar employees	1 2 3	19 20 21	They expected their leaders to practice the transformational leadership style; Inspirational motivation, intellectual stimulation, idealized influence, and individualized consideration. Transactional leadership style; Not aligned.	They expected their leaders to practice self-transcendence, openness to change, and self-enhancement dimensions. Not aligned with the conservation dimension	They expect their leaders to practice relations-related, change-related, and external related-dimensions. Not aligned with task-related dimension	No appreciation of power distance

5.3Summary

This chapter explains the rich insights gained from qualitative analysis. The case organisations, lean leaders, and blue-collar employees shared their insights, experiences, and personal encounters from their careers. This chapter explored the position taken by the lean leaders regarding the applicability of each dimension from four constructs in scope. The case leaders leveraged the contingent reward dimension of the transactional leadership style, and they did not follow the management by exception dimension as this dimension created fear factors among the employees. The applicability of basic value dimensions was endorsed by the lean leaders, except for the conservation dimension.

The behavioural taxonomy theory supported the case leaders to effectively adopt relevant decisions for the lean journey. The task-related behavioural dimension was not encouraged by the case leaders, as this factor limited the follower's focus areas and was used to execute the leaders' directions alone. The case leaders mentioned that the power distance was not desirable to ensure lean success, and they mentioned various innovative methods to encourage their followers to speak up and overpower the limitations posed by the power distance construct. The leaders admitted the necessity of accepting the new order and ceased their traditional command and control system to empower their followers. This chapter explained how various hierarchical layers were agreed upon and differed among various dimensions among the four major constructs used in this study. Both leaders from varying hierarchical layers and blue-collar employees were inclined to practice basic value patterns, behavioural outcomes, and leadership style orientation as per their mandates.

The next chapter discusses the comprehensive findings from both quantitative and qualitative analysis and answers the research questions from this study. A holistic lean leadership framework was proposed based on the insights gained from both quantitative analysis and qualitative interviews. This framework provided the necessary orientation and guidance to the potential organisations' leadership team to confidently begin their lean journey.

Chapter 6 – Discussion

6.1 Introduction

The purpose of this chapter is to provide answers to four research questions, using insights obtained from both quantitative and qualitative analyses of this study. The comprehensive qualitative insights from chapter 5 were useful in explaining the complex role played by internal constructs from major theories, and the quantitative insights from chapter 4 were useful to generalise the findings across the population, the automobile industry in India. This study demonstrated that the leaders of the case organisations adopted a unique set of leadership traits and inclusive ways of accommodating blue-collar employees into the decision-making process.

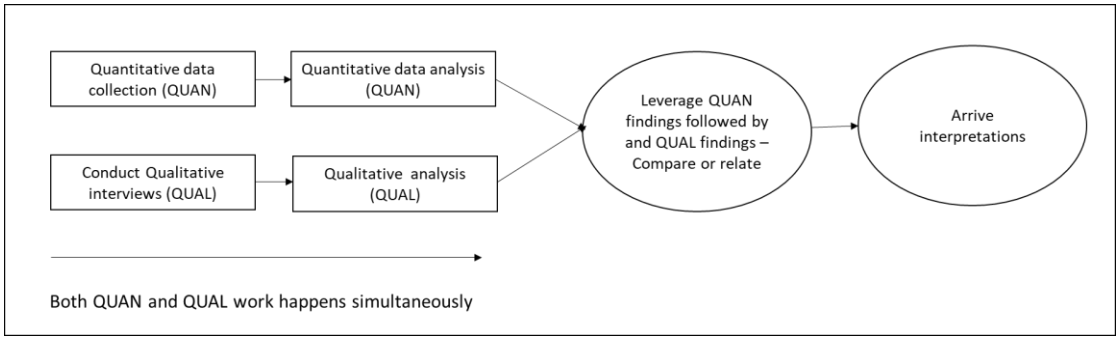
This study revealed some interesting observations; the leaders preferred informal ways of maintaining trust-based relationships with their followers, altered their behavioural attributes, and changed the style of treating their followers as per lean requirements. The case leaders leveraged various strategies to address the limitations of prevailing cultural patterns in India, and they ensured their followers were an integral part of the decision-making process. Positive attributes like togetherness, helping each other, and maintaining a family-like environment were visible in these case organisations. The employee-friendly environment noticed from case organisations diverged from traditional companies with command-and-control systems where the blue-collar employees were dominated by fear factors in their minds.

Each research question was discussed with a triangulation approach in this study, and a lean leadership framework was proposed to offer a comprehensive leadership framework to the potential lean tenants based on the insights from this study. This lean leadership framework may guide potential organisations to appreciate the current standing of their leadership team and mentor them to acquire the necessary leadership traits to succeed in their lean journey. The guidelines to implement the proposed lean leadership framework and potential pitfalls in this journey were discussed in this chapter.

6.2 The methodological rationale for answering research questions

The strengths of both quantitative and qualitative methods were leveraged to find answers to the research questions from this study. The convergent parallel mixed method design proposed by Creswell (2014) has been leveraged by this study to adopt insights from both quantitative and qualitative analyses to address research questions. Figure 6.1 explains the process of convergent parallel mixed method design. This method contains five phases; design parameters, data collection, analysis, interpretation, and validity. Chapter 3 provided details about the design aspects, data collection, and analysis methods for both quantitative data and qualitative interviews. This section explains how the interpretation from both quantitative results and qualitative insights were considered to provide answers to research questions. This section explains the validity aspects of the proposed answers to research questions as well.

Figure 6.1 – The methodological rationale (Adopted from Creswell, 2014, pp.270)



As part of the interpretation stage, this study used the quantitative results to provide answers to various hypotheses as per this study's theoretical model. These quantitative results provided insights into various constructs used in this study like the basic value system. The qualitative insights were leveraged to provide the role-played various dimensions from each construct in lean initiatives. In this process, both quantitative and qualitative data complemented each other to frame the answers to the research questions. In this process, literature evidence was used to support the answers to the research

questions and explained how these answers effectively addressed the gaps identified from the extant literature.

This study found the convergent alignment from both quantitative results and qualitative insights as part of the validation phase. Both quantitative data and qualitative insights complemented each other without major differences in this study. The direct impact of the power distance construct resulted in a divergent view among quantitative analysis and qualitative insights on lean outcome. The justification for ignoring the quantitative results of the direct impact of power distance has been provided in chapter 3. The moderation impact of power distance along with qualitative insights were considered in this study and this combination resulted in convergence to answer the fourth research question.

A few validation measures have been followed for this study to avoid a divergent approach. Enough sampling criteria have been selected for both quantitative and qualitative phases, and the same variables have been used in both phases to avoid the divergent results in this study (Creswell, 2014).

6.3 Leadership style

The leadership style shaped the case leaders' interaction with their followers whether they encouraged their followers to adopt the values of lean or allowed them to stay in their comfort zones. (Van Elp *et al*., 2022). This study demonstrated that the case leaders practiced both transactional and transformational leadership styles as per the given organisational contexts. Their leadership style alternated between transactional and transformational at different times, and they combined the two styles at times.

The answer to ***'Research Question 1 (RQ1): 'How do the internal constructs from lean leaders' leadership styles shape the automotive industry's lean system progress in India?'*** is discussed below.

The statistical significance of p<.01 was explained by the simple linear regression analysis presented in chapter 4, which explained the positive influence of leadership style on lean outcomes in this research. The statistical results of this study supported the findings of research by Benders *et al* (2019) and Laureani and Antony (2019), which showed that both transactional and transformational leadership styles had a favourable impact on lean projects. Gellis and Elshennawy (2021) and Benders *et al (*2019) research studies' results about the positive role played by both leadership styles in lean initiatives found similarity with this study's findings.

The quantitative analysis explained how leadership style as a major construct complemented and contrasted with the other three major constructs in this study. A common pattern was found among leaders' basic values, behaviours, and leadership styles in this study. All three constructs were statistically significant and positively impacted the lean outcome. Ojha and Venkatesh (2022) study revealed the positive role of basic values in selecting the right leadership styles, and the findings of Van Dun and Wilderom's (2021) study on the influence of behavioural traits to determine the appropriate leadership decisions were aligned with this study's findings. This research demonstrated similarities with the findings of studies conducted by Seidel *et al* (2019) and Schilke *et al* (2018) regarding the intricate relationship between a leader's behavioural system and basic value system in determining the appropriate leadership style to ensure lean success.

The qualitative analysis explained that the case leaders preferred a mix of both transactional and transformational leadership styles as leaders like P15 (LM) articulated that "*leaders need to embrace both leadership styles" and* P9 (MM) explained that a leader *"cannot be a transformational leader always".* Regarding the acceptability of both leadership styles by lean leaders, the results of this study showed similarities to those of Grigg *et al* (2020) study outcomes.

Regarding the transactional leadership style, justifications were noticed from case leaders to exercise the contingent reward dimension to ensure business continuity (P18, LM). The case leaders did not recommend management by exception dimension of transactional leadership style (P4, SM). This study's results found similarities with those of

other researchers like Srimathi and Narashiman (2021) and Samal *et al's* (2019) studies about leaders' inclination to leverage transactional leadership styles at times. This study proposed an interesting observation from blue-collar employees who rejected the transactional leadership style of their leaders due to psychological discomfort and fear of punishment (P20, BC). The association of blue-collar employees with transactional leadership style in the lean journey was not captured in the literature (Connor and Cormican, 2022; Samal *et al*., 2019). This study highlighted the blue-collar employees' standing on transactional leadership style in lean initiatives.

Both leaders and blue-collar employees expressed the importance of practicing transformational leadership style in qualitative interviews (S1, SM; 21, BC). This outcome from this study complemented results from Gellis and Elshennawy's (2021) and Laureani and Antony's (2019) study results as transformational leadership style became the choice for lean leaders.

The case leaders leveraged the *individualized consideration* dimension to identify the right fitment for their followers' challenging tasks, identify hidden talents, and provide enough opportunities to demonstrate their followers' capabilities (P3, SM; P17, LM). This study outcome complemented the results from the Netland *et al* (2020) study about the pivotal role played by the individualized consideration construct to realise employee empowerment in lean initiatives. The *inspirational motivation* dimension found patronage from the leaders to inspire their followers to see a better future from the lean journey, cross their self-made boundaries to experiment with better ideas and foster the culture of collaborating with others (P5, SM; P12, MM). Latif and Vang (2021) and Anderson and Sun (2015) articulated the leaders' role in propelling followers' imaginations from the lean journey, and this study's results were in line with their research outcome.

The followers closely observed their leaders' adoption of the *idealized influence* dimension to determine the capabilities of their leaders (P2, SM). The findings of Benders *et al* (2019) and Anderson and Sun's (2015) research were reinforced by the essential function of the idealized influence construct in securing followers' acceptance of the worthiness of their leaders. The case leaders adopted the *intellectual stimulation* construct

to leverage the intellectual capital of their followers to meet lean objectives (P3, SM). Van Elp *et al* (2022) and Gellis and Elshennawy's (2021) research findings were aligned with this study's results highlighting the important role played by the intellectual stimulation construct to collectively leverage the precious human talent across the organisation to reach lean goals.

This study explained the necessity to practice all transformational leadership style internal constructs to fulfil Indian expectations and noticed a contrast to the findings from the Rafferty and Griffin (2004) study, which highlighted the role of two transformational leadership style constructs, idealized influence, and inspirational motivation, to motivate leaders. This study's findings were in line with the findings from Antonakis and House's (2002) research study, which highlighted the importance of the contingent reward dimension and downplays the usage of the management by exception construct in transactional leadership style.

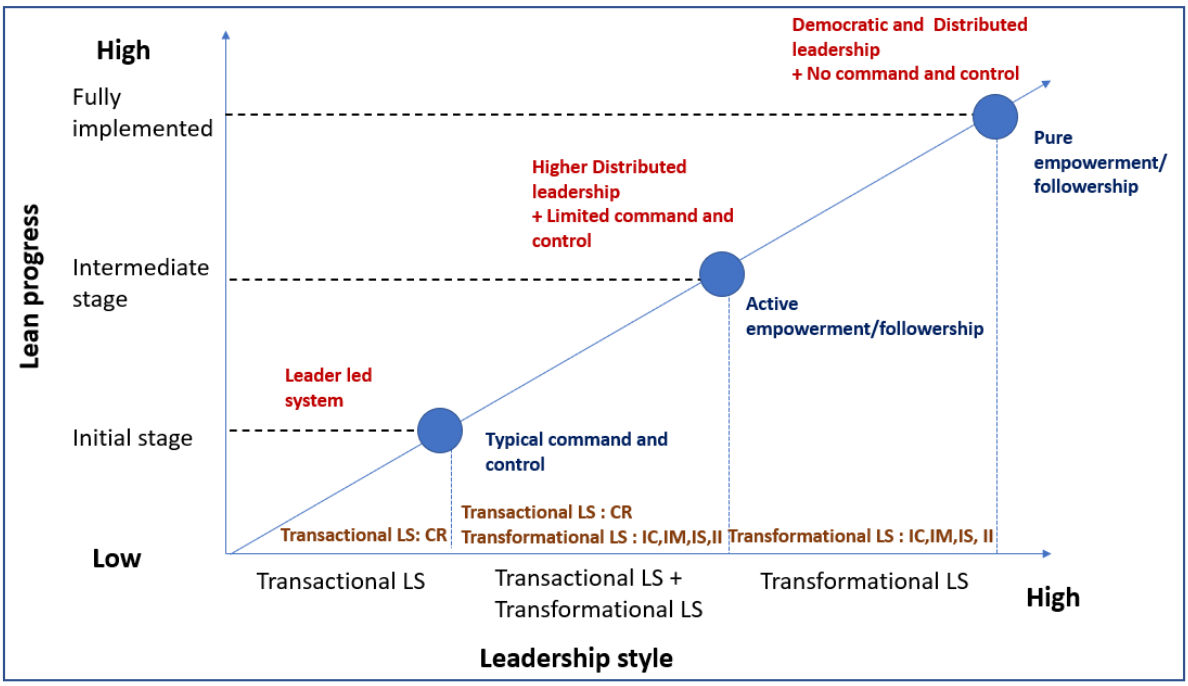
This study adequately filled in the gaps in the literature by providing an extensive examination of the leadership style characteristics utilized in the lean journey. (Ojha and Venkatesh, 2022; Van Elp *et al.*, 2022). The detailed account of the leadership styles' role in Indian lean initiatives was explained by this study as per recommendations from Gellis and Elshennawy (2021) and Dave and Sohani (2019). The extant literature did not notice the Indian-specific results to explain the role of leadership styles in lean initiatives (Gellis and Elshennawy, 2021; Dave and Sohani, 2019). Therefore, this research offered an in-depth description of the role played by leadership style dimensions in Indian lean initiatives.

In a nutshell, the executive leadership team demonstrated the adoption of the transformational leadership style, the middle-level management team adopted a mix of both transactional and transformational leadership styles, and the lower-level leadership team adopted a mix of both transactional and transformational leadership styles, while blue-collar employees preferred the transformational leadership style rather than the transactional leadership style. The extant literature focused on the senior leadership team's standing on the role played by both transactional and transformational leadership styles in

lean initiatives, and both middle-level managers' and blue-collar employees' accounts were not noticed in the literature (Reynders *et al.*, 2022; Holmemo and Ingvaldsen, 2016). This study effectively offered a thorough explanation of different leadership hierarchies and the viewpoints of blue-collar employees regarding the function of transactional and transformational leadership styles in lean projects.

Figure 6.2 explains the role played by various constructs from both leadership styles to influence the lean outcome in automobile companies in India. In the Y-axis, the case leaders divided their organisation's lean journey into three stages. In the X-axis, the applicability of both transactional and transformational leadership styles was mentioned.

Figure 6.2 – The role of leadership style dimensions



Initial lean stage (Implementation stage): The case leaders leveraged the transactional leadership style at this initial stage. Behavioural adherence among the followers was the main objective and case leaders leveraged the contingent reward dimension from the transactional style. The case leaders offered both monetary and non-monetary benefits to

motivate their followers. The lean leaders were optimistic that this sustained and positive behavioural compliance among the blue-collar employees was crucial for their empowerment at the later stage. The case leaders avoided the management by exception dimension as this dimension created fear and confusion among blue-collar employees and was detrimental to lean success. Various programs were arranged to spread the spirit of transformational leadership style among the blue-collar employees, thus the employees were aware of the empowerment process and got ready to claim bigger responsibility.

Intermediate stage (Sustenance stage): This is the crucial phase as both leaders and followers migrate from the transactional leadership style to the transformational leadership style. The executive team actively promoted the transformational leadership style among various leadership hierarchies to empower their followers and established a trust-based working environment that is beneficial to both leaders and followers.

The *Individualized consideration* dimension helped the leaders to spot the hidden talent from the blue-collar employees, offer customized training programs, and nurture their capabilities by offering potential opportunities. The *Intellectual stimulation* dimension helped the leaders to encourage the blue-collar employees to look beyond their boundaries and instil faith in their capabilities to materialize lean objectives. The *inspirational motivation* dimension helped blue-collar employees to see through the future state of a better organisational position by implementing the lean system in place. The *idealized influence* dimension positioned the leader as an admired personality by blue-collar employees by noticing unique capabilities, self-confidence, and uncompromised integrity adopted by the leaders. The case leaders did not use the transactional leadership style at this phase.

Fully implemented (Matured stage): The leadership team fully leveraged the power of all four dimensions from the transformational leadership style to motivate the blue-collar employees to reach the next stage. Blue-collar employees were vested with enough knowledge, motivation, and authority to begin any improvement initiatives on their own and without waiting for their leader's approval. The followers updated their leaders on any

new initiatives as feedback, they were not worried to seek their leader's approval for every new initiative.

6.4 Basic value system

This study emphasised how the core components of the basic value system were crucial in achieving the lean outcome. The answer to the '***Research Question 2 (RQ2): How do the internal constructs from the lean leader's value system shape the automotive industry's lean system progress in India?'*** is addressed below.

It is observed from this study that the case leaders' basic value system played three important roles in the lean outcome; direct and significant impact to enhance the lean system outcome, moderated by power distance to determine the lean outcome, and mediated by behaviours to decide the lean outcome. The linear regression analysis from chapter 4 explained the statistical significance of $p<.01$, thus the positive role of leaders' basic values on lean outcomes has been demonstrated by this study. Ojha and Venkatesh (2022) and Van Dun and Wilderom (2021) research findings about the positive role played by leaders' basic value systems to embark on appropriate managerial decisions in lean initiatives were aligned with this study's outcome.

The moderation analysis explained the negative moderation impact of power distance, and this demonstrated the limiting effects of higher power distance, to downgrade the positive role of leaders' basic values in the lean journey. This study examined the moderation influence of power distance on leaders' choice to leverage their unique values and addressed the questions posed by Farooq and Tripathi (2021), Siddique *et al* (2020), and Mathew and Taylor (2019) regarding the moderation role played by power distance in lean initiatives.

The findings of this study addressed Van Dun *et al* (2017) attempt to investigate how leaders' actions and values relate to lean initiatives. The mediation analysis explained the fact that when leaders demonstrated the positive and applicable behavioural attributes from

GEMBA, these leaders positively utilized their basic value parameters to ensure lean success. This study outcome addressed the call of Kurtmollaiev *et al* (2018) to explore the relationship between leaders' values and behaviours and addressed a gap to explain the mediation role of behaviours on leaders' basic values in lean initiatives (Van Dun and Wilderom, 2021; Netland *et al*., 2020; Van Assen, 2018). This study's results were aligned with the observation from Seidel *et al* (2019) and Schilke *et al* (2018) research studies that leaders' behavioural attributes mediate their basic values to adopt appropriate managerial action, including choosing relevant leadership styles.

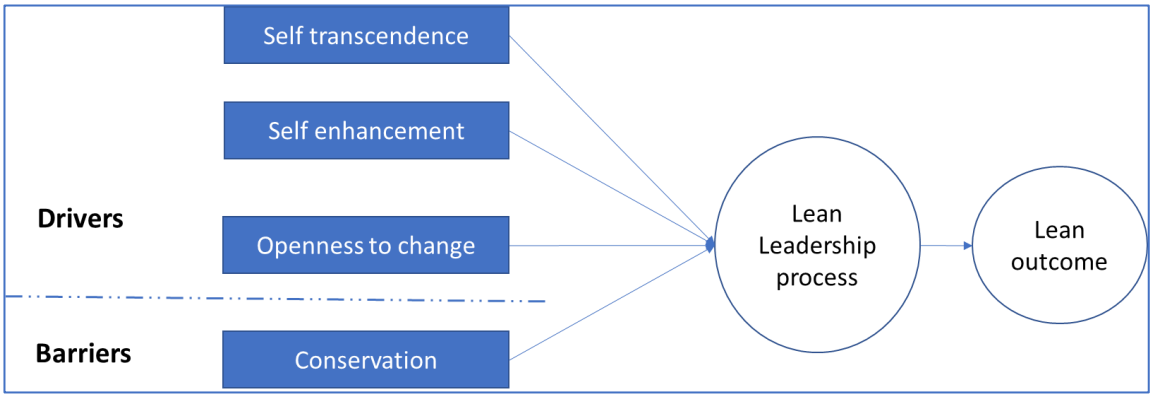
This study highlighted the fact that the *self-transcendence* dimension found high-level adoption from the case leaders (P15, LM), and blue-collar employees respected leaders who cared about their well-being and overall growth (P21, BC). This observation from this study supported the fact that leaders uphold values that are important to them, and their followers' welfare was an important obligation to them (Van Dun and Wilderom, 2021, McMackin and Flood, 2019; Wang *et al.,* 2018). The case leaders used the *self-enhancement* value dimension to demonstrate their faith in long-term behavioural initiatives to set a positive tone among their followers, their conviction to adopt new perspectives, and a continuous learning culture among their followers (P2, SM, P3, SM). This study's results articulated the fact that case leaders have chosen value constructs with a focus on specific practical and social implications, acquired new capabilities to gain higher status, and demonstrated their worthiness to their followers (Schwartz *et al*., 2012; Bardi and Schwartz, 2003).

The case leaders adopted the *openness to change* value system dimension to incorporate innovative ideas in the enduring lean journey. Careful listening, keen observation from GEMBA, and active collaboration with followers were some of the notable attributes of the openness to change construct suggested by case leaders (P1, SM). Van Dun and Wilderom's (2021) study pointed out that, leaders opted for value-ridden actions with goals in mind and Ojha and Venkatesh (2022) explained that leaders leveraged their values as a strategic option to make a positive impact on their followers. This study's results were consistent with the findings of the studies by Van Dun and Wilderom (2021) and Ojha and Venkatesh (2022). The *conservation* value dimension found no patronage from case

leaders, as they were sensitized by the executive leadership team about the limitations of the conservation value dimension. The extant literature did not talk much about this value dimension in the lean journey, and this study outcome provided disapproval from both leaders and blue-collar employees of lean initiatives in the Indian automobile industry.

Figure 6.3 explains the outcome of this study. The case leaders explained the positive role played by three basic value system dimensions self-transcendence, self-enhancement, and openness to change, and rejected the conservation dimension in their lean journey.

Figure 6.3 – The role played by basic value system dimensions



This study filled a significant vacuum in the body of existing literature by examining how each basic value dimension affects lean programs and how each value dimension encouraged the leaders to display particular behavioural outcomes (Kurtmollaiev *et al*., 2018; Schilke *et al*., 2018). This study's findings addressed the gap identified by Schwartz *et al* (2012) about complementary and challenging roles performed by basic value system dimensions in lean initiatives. This study offered a solution about how leaders can leverage promising basic value system dimensions as a soft lean tool to ensure expected lean outcomes (Van Dun *et al*., 2017). Solutions to a few gaps in the literature like the nature of the intricate relationship between leaders' value systems and their behavioural attributes, how value systems were impacted by power distance, and how leaders' value systems played a pivotal role in resulting applicable managerial actions including

leadership style selection in lean initiatives were explained in this study (Ojha and Venkatesh, 2022; Van Dun and Wilderom, 2021).

This study stipulated novel insights into the lack of Indian-specific narratives regarding the significance of the fundamental value system in lean initiatives, how the Indian cultural context moderates leaders in India, how leaders are driven to display particular behavioural traits, and how they are persuaded to make different managerial choices. (Van Dun *et al.,* 2017; Schwartz *et al.,* 2012). Other research studies like Van Dun *et al* (2017) highlighted the use of self-transcendence and openness to change value dimensions in lean initiatives, and this study added another perspective, the critical role played by the self-enhancement value dimension to ensure lean success in the Indian context. This study found that the conservation value dimension found no patronage by the case leaders in India, and this study outcome was aligned with the results from Van Dun *et al* (2017) study. This research study's findings were comparable with Van Dun *et al* (2017) research study with a focus on self-transcendence and openness to change value dimensions and results from Waldman *et al* (1998) and Larsson and Vinberg (2010) studies.

The extant literature explained the role of senior leaders' value systems in lean initiatives, and Van Dun *et al* (2017) identified middle-level leaders’ alignment with openness-to-change values and self-transcendence value dimensions. There was a gap noticed in explaining the value system adoption by entry-level leaders. This study provided a detailed account of values from all three leadership layers and captured valuable insights from blue-collar employees as well.

6.5 Behavioural taxonomy theory

This study explained how the case leaders carefully demonstrated their positive behavioural constructs to establish a collaborative environment with their followers in the lean journey (Tortorella *et al*., 2021).

The answer to '***Research Question 3 (RQ3): What is the role of the leaders' behavioural taxonomy internal constructs towards the automotive industry's lean system progress in India?'*** is addressed here.

The regression analysis from chapter 4 demonstrated the significance of $p<.01$, thus a positive effect of behavioural taxonomy theory on the lean outcome was noticed in this study. The case leaders selected enabling behavioural constructs to ensure lean success, as these leaders were particular about their value-ridden actions (Van Dun and Wilderom, 2021; McMackin and Flood, 2019). This study's results affirmed the positive role played by behavioural taxonomy theory on lean initiatives mentioned by Bhasin and Found (2021) and Sahoo (2020).

The mediation analysis demonstrated the partial mediation effect of leaders' behavioural taxonomy theory with a significance of $p<.05$. This result explained the intricate relationship between a leader's basic values and behavioural attributes; the leaders were determined to leverage their higher-order value dimensions to ensure lean success, and their behavioural attributes mediated them to embark on deliberate managerial decisions, including leadership style selection (Schwartz, 1992). Previous research studies highlighted the existence of the mediation effect of behavioural attributes on leaders' value systems, but did not explain a detailed account of the mediation effect (Netland *et al*., 2020; Seidel *et al.,* 2019). This study provided a detailed account of the role of the behavioural system in lean initiatives, the positive and significant impact on lean system outcomes, and how behavioural theory partially influenced the leaders' basic value systems toward lean success. (Van Dun and Wilderom, 2021; Van Assen, 2018; Schilke *et al*., 2018).

Blue-collar employees were less welcoming of the task-related dimension (P21, BC) and this dimension received mixed responses from leaders (P2, SM; P17, LM). This research contradicted the findings of studies by Netland *et al* (2020), Van Dun *et al* (2017), and Larsson and Vinberg (2010); the task-related behavioural dimension was not appropriate for lean initiatives. Instead, this study provided new insights into the task-related behavioural dimension that case leaders adopted to address the basic requirements

of their followers. The blue-collar employees from case organisations rejected the adoption of task-related behavioural dimension, and this result found similarities with these researchers' outcomes.

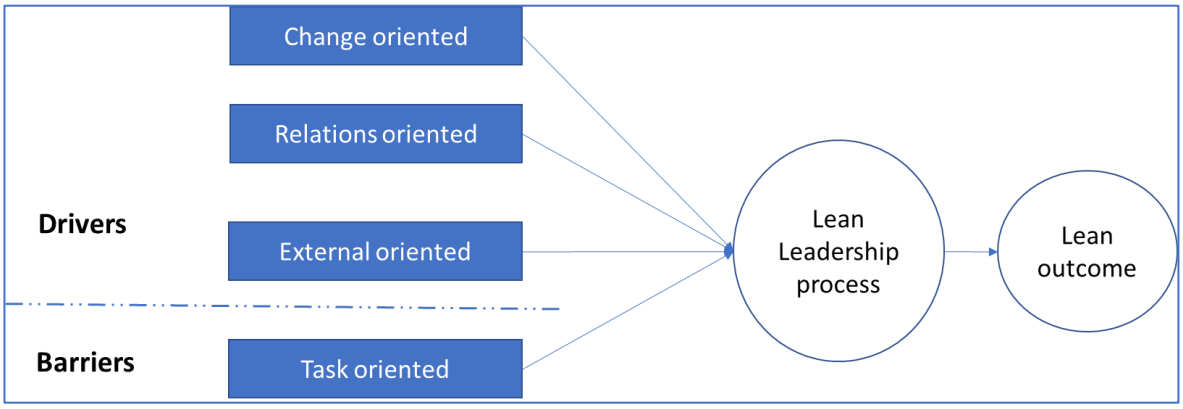
The case leaders leveraged *relation-oriented* behavioural dimension to build trust-based relationships with their followers (P18, LM). Both leaders and followers endorsed the power of good relationships in the lean journey; the followers valued the relationship with their leaders and the successful leaders invested good efforts to establish rapport with their followers (P10, MM; P20, BC). Various researchers like Van Dun and Wilderom (2021), Tortorella *et al* (2020), and Netland *et al* (2020), described relation-related behavioural dimension as the preferred behavioural dimension of lean leaders, and the findings of this study aligned with their studies results.

The case leaders consistently used the *change-related* behavioural dimension to create a sense of urgency to experiment with new ideas among their followers (P2, SM). Introducing structural changes among Indian employees like continuous improvement activities on their own despite the prevailing cultural ecosystem is a challenging one (Mathew and Taylor, 2019; Yukl *et al*., 2002), and this study demonstrated how the case leaders consistently took various change management initiatives to bring expected behavioural changes among their followers. This study found similarities with results from Tortorella *et al* (2021), Van Dun and Wilderom (2021), and Mathew and Taylor (2019) studies, which highlighted how successful leaders used change-related behavioural dimension to nurture experimentation behaviour among their followers.

The case leaders were realistic in accepting the limitations of their organisation to meet lean requirements, and they convinced their management team to secure the required support from external sources (P14, LM). The results of this study corroborated the findings made by Sahoo (2022) that successful organisations motivated their leaders to introduce strategic initiatives from external sources to bring expected behavioural changes among their followers. This study outcome found similarities with the assertion of Van Dun and Wilderom (2021) study that successful leaders convinced their management team to offer necessary support from external sources to their followers in the lean journey.

Bhasin and Found (2021) called for further research studies to experiment with the role played by leaders' behavioural dimensions, as inconsistent use of the behavioural dimensions resulted in leaders' failure in the lean initiative. This study effectively addressed the shortcomings listed here and provided a detailed description of case leaders' behavioural dimensions' role in lean initiatives from India. This study revealed that three behavioural dimension; change-related, relation-related, and external-related were practiced by case leaders, and they used task-related dimension at times to set the behavioural adherence among their followers (Refer to Figure 6.4).

Figure 6.4 – The role played by behavioural taxonomy dimensions



Some behavioural elements observed from this research found similarity with the outcome of Van Dun *et al* (2017) research study. The research study of Van de Ven (2007) demonstrated specific behaviour elements in lean leaders, and these findings were comparable with the outcome of this research study. The in-depth description of case leaders' behavioural decisions in this research study satisfied Yukl's (2012) research requirements, including specific insights about how each behavioural dimension was used, the reasoning behind leaders' selection of those dimensions, and how these dimensions resulted in various business outcomes. This study aligned with Hines (2022) research proposition that leaders must leverage a set of behavioural dimensions rather than a particular behavioural dimension to ensure lean success. This study's results explained the

goals of how case leaders leveraged a set of behavioural dimensions, and how they deprecated certain challenging behavioural dimensions as described by Yukl (2012).

This study's results provided a set of behavioural insights to achieve behavioural flexibility and how leaders can adopt the right set of behavioural constructs as per prevailing organisational requirements to achieve superior results from lean initiatives (Van Dun and Wilderom, 2021; Sahoo, 2020; McClean *et al*., 2019).

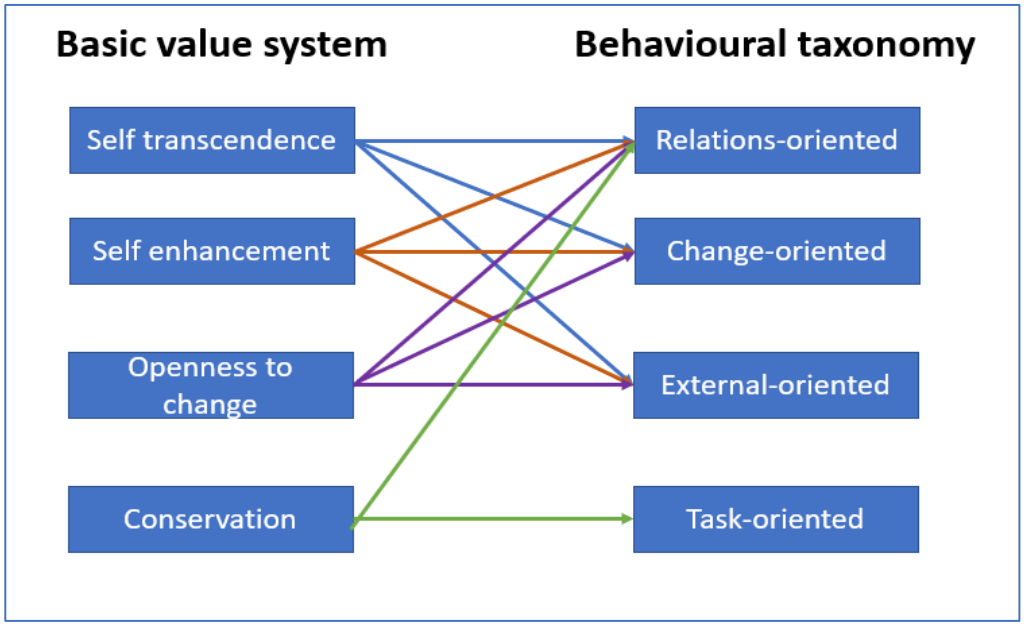
Since previous research studies concentrated on the function of relation-related and task-related behavioural aspects in change management initiatives, this study contributed novel insights into this discipline. This study highlighted the role played by all four behavioural dimensions that include task-related and external-related behavioural constructs in lean initiatives. The Van Dun and Wilderom (2021) study highlighted the fact that leaders used relation-related, change-related, and task-related behavioural constructs as per the prevailing organisational context, but the leaders frequently leveraged the relation-related behavioural construct in lean initiatives. The research outcome of Larsson and Vinberg (2010) was aligned with this study's results other than the external relation-related behavioural construct.

There was a common pattern noticed among the case leadership hierarchies concerning the adoption of behavioural taxonomy constructs. The senior leaders adopted all behavioural constructs except task-related construct and both middle-level leaders and entry-level leaders adopted all four behavioural constructs.

A delicate relationship among leaders' values, behaviours, and leadership style, along with the effect of power distance on lean initiatives was noticed in this study. Lower power distance motivated the leaders to adopt higher-order value constructs (Sahoo, 2022) and higher-order behavioural constructs (Van Dun and Wilderom 2021). As a consequence, these leaders were determined to take superior managerial actions like choosing the right set of leadership style constructs (Tortorella *et al*., 2021; Kurtmollaiev *et al*., 2018).

Van Dun *et al (*2017) called for a detailed study to experiment with the intricate relationship between leaders' values and behaviours in lean initiatives. Sahoo (2020) articulated the need for subsequent studies to explain how leaders' success was shaped by a mix of value and behavioural constructs in the lean journey. This study offered a detailed account of the role played by value constructs and behavioural constructs and how case leaders handled better decisions in their lean journey by leveraging a better mix of enabling constructs in lean initiatives. Figure 6.5 explains the relationship between the basic value system and behavioural taxonomy theory from the rich insights gained from this study.

Figure 6.5 – The relationship between behavioural taxonomy and basic value system dimensions



This study addressed a few important gaps noticed in the literature; exploring the complex relationship between leaders' values and behaviours (Kurtmollaiev *et al*., 2018), and how to nurture the right mix of values and behaviours among lean leaders (Ahlstrom *et al.*, 2021: Tortorella *et al*., 2020; Camuffo and Gerli, 2018). In accordance with the recommendations of Van Dun *et al* (2017) and Schwartz *et al* (2012), this study provided a

detailed description of the values and behaviours chosen by case leaders that influenced lean initiatives in India.

6.6 Power distance

The case leaders practiced various innovative measures to manage the power distance within the threshold limit and decentralized their power to empower their followers as per various research recommendations (Farooq and Tripathi, 2021; Tortorella *et al*., 2021). All case leaders agreed to reduce or avoid the power distance between them and their followers to realize lean success. Some case leaders occasionally sought to use their influence to warn a few blue-collar employees who behaved inappropriately, but these instances were rare.

The answer to *'**Research Question 4 (RQ4): How does the lean leaders' power distance construct shape the automotive industry's lean system progress in India??**'* is addressed here.

The moderation analysis demonstrated that the power distance was negatively moderated with a significance of $p<.05$ on the basic value system toward a lean outcome. This study explained that the chance of lean success decreased when the leaders started leveraging the power distance in an organisation. This study's analysis provided clarification on the gaps noticed in the literature about the moderation effect of power distance on leaders' value systems (Farooq and Tripathi, 2021; Siddique *et al*., 2020; Mathew and Taylor, 2019). This study explained how case leaders overcame the traditional Indian workforce's obsession with power distance to ensure lean success in India (Mathew and Taylor, 2019). This study addressed the requirements to analyse the moderation role played by power distance in lean initiatives and how companies leveraged various organisational interventions to check the limiting role played by power distance (Tortorella *et al.*, 2021; Mathew and Taylor, 2019; Belhadi *et al*., 2018).

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Mathew and Taylor (2019, pp.15) highlighted two main challenges faced in the Indian cultural system of power distance; decentralization and delegation, where followers were not ready to take on great responsibilities and leaders were not ready to relinquish their authority. This study's results were consistent with outcomes from Tortorella *et al* (2021) and Farooq and Tripathi (2021) studies, which found that lower power distance facilitated leader-follower cooperation and significantly increased the likelihood of lean success. Interestingly, a lot of innovative approaches and ideas were shared by the case leaders, like how they contained power distance from their organisations and promoted innovative approaches to install a vibrant ecosystem with empowered blue-collar employees.

This study established the fact that power distance is an acceptable norm in traditional societies like India, and both leaders and followers were comfortable keeping their traditional positions in the absence of the executive team's close watch (Sahoo, 2022). The case organisation's executive team understood the incompatibility between traditional Indian socio-cultural patterns and demanding lean principles (James and Jones, 2014), and they transformed their leadership team with proper mentoring programs to establish a collaborative environment with empowered followers (P1, SM; P9, MM).

The case leaders appreciated the necessity of maintaining a neutral stand, adopted unbiased decisions, and did not favour any individuals based on their proximity (P1, SM; P17, LM). This study's results found similarities with recommendations from Samal *et al* (2019) study as leaders must gain their followers' confidence by providing a bias-free work environment.

Erthal and Marques (2018) and Taherimashhadi and Ribas (2018) highlighted their findings that leaders carried the responsibility to instil a collaborative and fear-free environment by demonstrating their respect to their followers. The blue-collar employees from case organisations expressed the same expectations from their leaders; mutual respect and recognition from their leaders (P21, BC). This study explained how the lower power distance adoption by case leaders resulted in better managerial decisions and their determination to achieve lean success as per the Tortorella *et al* (2021) research study

recommendations. These findings from this study offered a solution to the challenges raised by Mathew and Taylor (2019) regarding their observations of the prevailing industry context in India with less privileged followers and authoritative leaders.

Mathew and Taylor (2019) and Mathew and Jones (2013) called for leaders' interventions to eliminate the hierarchical pyramid structure from their organisations to establish a decentralised decision-making system and ensure direct communication between decision-makers and blue-collar employees. This study's results echoed the observations from Mathew and Taylor's (2019) and Mathew and Jone's (2013) research studies, as case leaders called for a flat organisational structure without many hierarchical levels to reduce power distance among leaders and followers (P17, LM).

The case leaders recommended considering followers' feedback to assess the overall performance of the leadership team to avoid any favouritism (P8, MM). These innovative strategies from case leaders in this study found similarities with recommendations from Sahoo's (2022) and Samal *et al* (2019) research studies about creating an employee-friendly environment with motivated followers' stake in the decision-making process. This study contrasted with the findings from Shim and Steers (2012), who recommended maintaining the hierarchical structure to set expectations for followers in lean initiatives.

This study addressed one of the major gaps noticed in the literature; to experiment with the role of power distance in lean initiatives (Sahoo, 2022; Belhadi *et al*., 2018) and addressed the gap raised by Erthal and Marques (2018) to assess one of the under-researched national cultural dimensions, power distance in lean initiatives. This study provided an answer to Sahoo's (2022) question about how successful leaders leveraged various organisational intervention mechanisms to contain the power distance to ensure lean success.

James and Jones (2014) called for a study to explore the role of cultural aspects in lean initiatives from India. Mathew and Taylor (2019) argued that a poor understanding of power distance in India resulted in a few industrial unrest events, and they called for a

research study to investigate how the leadership team leverages various strategic initiatives to limit the adverse role of power distance in lean initiatives from India. James and Jones (2014) argued that leaders cannot copy the lean approach from one country to another, as every country has unique sociocultural patterns, and there is a need to study how the Indian socio-cultural footprint affects lean initiatives. This study provided solutions to the gaps posed by Mathew and Taylor (2019) and James and Jones (2014). It provided an in-depth description of the role that power distance in Indian lean initiatives, and case leaders implemented several strategic actions to carefully manage power distance to ensure the success of lean in India.

6.7 Proposed lean leadership model

According to Ojha and Venkatesh (2022), the Indian industry adopted lean as a strategic decision to achieve competitiveness. Lean may further propel the industry's growth and position to gain global prominence. The need to conduct specific research studies to explore the challenges around lean adoption in the Indian automobile industry has been endorsed by Ojha and Venkatesh (2022), Habidin *et al* (2016), and Swarnakar and Vinodh (2016).

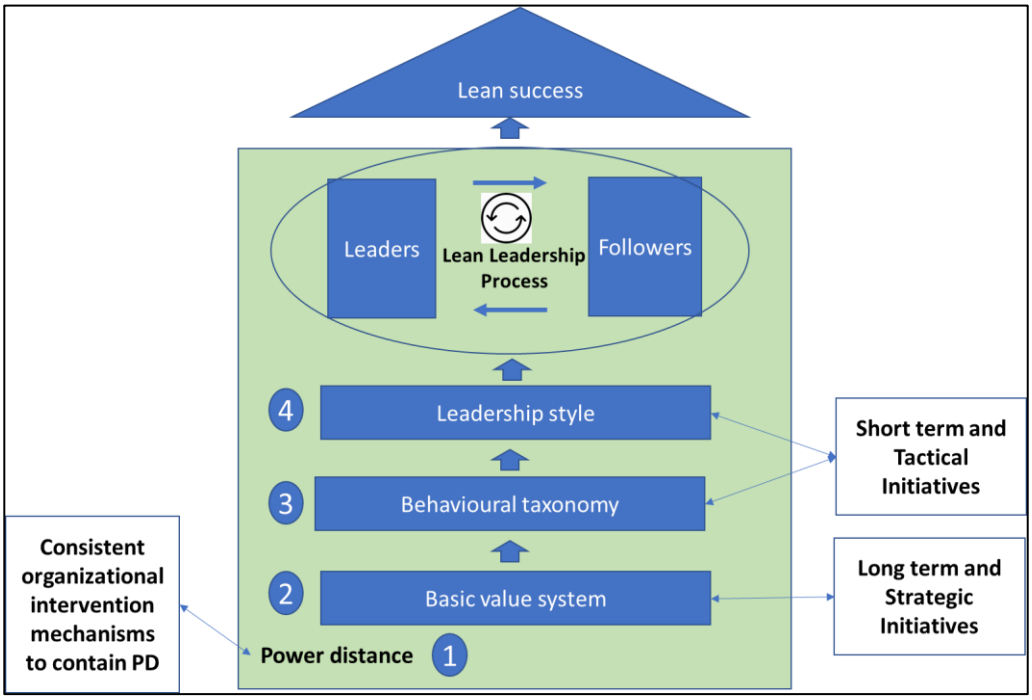
There is a scarcity of data noticed in the extant literature to guide prospective and existing lean tenants about appropriate leadership frameworks to support lean initiatives (Holmemo *et al*., 2023; Sisson, 2019; Lacerenza *et al*., 2017). While some studies discussed the role of senior leadership in lean initiatives in a stand-alone manner, the majority of the literature that has already been published has not addressed much of the role of blue-collar employees, and middle-level and entry-level leadership teams in lean initiatives (Reynders *et al*., 2022).

A comprehensive lean leadership model has been proposed by this study to explain how, in addition to excessively concentrated hard lean practices, employee empowerment, and appropriate leadership practices were critical components of lean success (Bhasin and Found, 2021; Cusumano *et al*., 2021; Martensson *et al*., 2019). A lean leadership

framework has been proposed based on the findings from this research study (Refer to Figure 6.6). This diagram resembles the house of the Toyota Production System (Liker, 2004), as the roof resembles lean success and the foundational pillars represent four constructs used in this study;1. Power distance, 2. Basic value system, 3. Behavioural taxonomy, and 4. Leadership style.

This study proposed a novel approach called the leadership graph, a calibrated leadership assessment tool based on this study outcome. This assessment mechanism will measure four leadership attributes of lean leaders; the leader's leadership style, their core beliefs, their behavioural preferences, and finally their approach towards power distance. This leadership graph offers an accurate portrayal of the different leadership qualities possessed by leaders, explaining their areas of strength and weakness, most importantly, how organisations plan different forms of intervention, such as training and mentorship programs, to improve their capability in lean initiatives.

Figure 6.6 - The proposed lean leadership framework



1. Power distance pillar

The answer to research question four from this study was leveraged to offer this power distance pillar as part of this framework. In India, power distance influences everyone from childhood to offer high respect to elders and superiors (Sahoo, 2022). Any organisation that works in India is eventually subjected to national cultural dimensions applicable to India, and it will continue to influence its strong impact on corporate organisations (Mathew and Taylor, 2019). Potential lean tenants need to appreciate the power distance dynamics in India, and they can proactively leverage various organisational intervention mechanisms outlined as per this study outcome to achieve lean success.

This study issued a warning to aspiring leaders, and advised them to utilize their influence with discretion to maximize the benefits of every stakeholder involved in lean initiatives. This approach is akin to a trade-off system in which leaders relinquish their authority and empower their followers in exchange for notable advancements. Through this process, their followers gained the empowerment and independence to take the lead and manage the lean excellence program independently.

Despite a long and successful lean journey for case organisations, there were some elements of doubt noticed by both leaders and followers in this power-sharing process. Though the leaders were in favour of giving more power to their followers, they wanted to keep a watch on defaulters. The followers simultaneously harboured a slight suspicion that their leaders were unfair, and biased in favour of their favourite individuals. Higher power distance was being rejected by the blue-collar employees in lean initiatives.

This study outlined some intervention techniques, such as providing transparent, technology-based communication channels and a comprehensive feedback system from all stakeholders, including blue-collar employees. The blue-collar employees wanted to strip the power vested in their leaders to make unilateral and biased decisions, and they wanted to make their leaders' decisions visible to all.

2. Basic value system pillar

Briefly, the basic value system influenced lean leaders' subconscious actions and their spontaneous decisions to decide what is right and what is wrong in the workplace environment. Organisations can understand why their leaders behave in certain ways by analysing their basic values. The answer to research question two was leveraged to frame this solution pillar as part of this framework.

This study explained that if any organisation wanted to implement large transformational initiatives like lean, they must understand their leader's core persona. To make the right decisions, this study suggested that leadership teams assess their basic value system orientation; are they conservative, self-transcendence-related, open to new ideas, and striving to broaden their horizons?. The case organisations invested a great deal of investment to ensure that their leaders and blue-collar employees adhered to the appropriate set of basic value constructs.

The case organisations appreciated the status quo; it was not possible to drastically change their leaders' core beliefs to support the lean initiative. To achieve lean objectives, they implemented a practical solution and reminded their leaders to adhere to higher-order value constructs within organisational boundaries.

This study demonstrated that self-transcendence, openness to change, and self-enhancement dimensions were drivers, and the conservation dimension was a barrier to lean programs in India. This reminds the executive team to sensitize the leadership team about various value system dimensions and motivate them to make appropriate managerial decisions to meet lean objectives.

3. Behavioural taxonomy pillar

The answer to research question three is used to define this behavioural taxonomy pillar as part of this lean leadership model. This study conveyed an important message; lean tenants

must nurture the right set of behavioural dimensions among their leaders, and this eventually enhances the success of lean.

The right adoption of behavioural actions by case leaders passed a compelling message to their followers about the leader's ability, and the followers made their conclusions about their leaders based on their judgment about their leaders' behavioural orientation. As a result, the leaders had to carefully consider how to handle their followers to preserve all of their important skills such as exceptional job records, professional vocations, and excellent educational backgrounds.

This study explained the strong relationship between a leader's basic values and their ability to make appropriate behavioural decisions. There were many combinations derived based on the basic value system dimension and behavioural taxonomy theory dimensions, but not all combinations were enablers for lean initiatives. All constructs from both the basic value system and behavioural taxonomy theory were useful to achieve lean success, except the conservation construct from the basic value system and the task-related construct from behavioural taxonomy theory.

Senior leaders shall adopt all four behavioural constructs except relations-oriented, while both middle- and entry-level leaders can adopt all four behavioural constructs in lean initiatives.

4. Leadership style

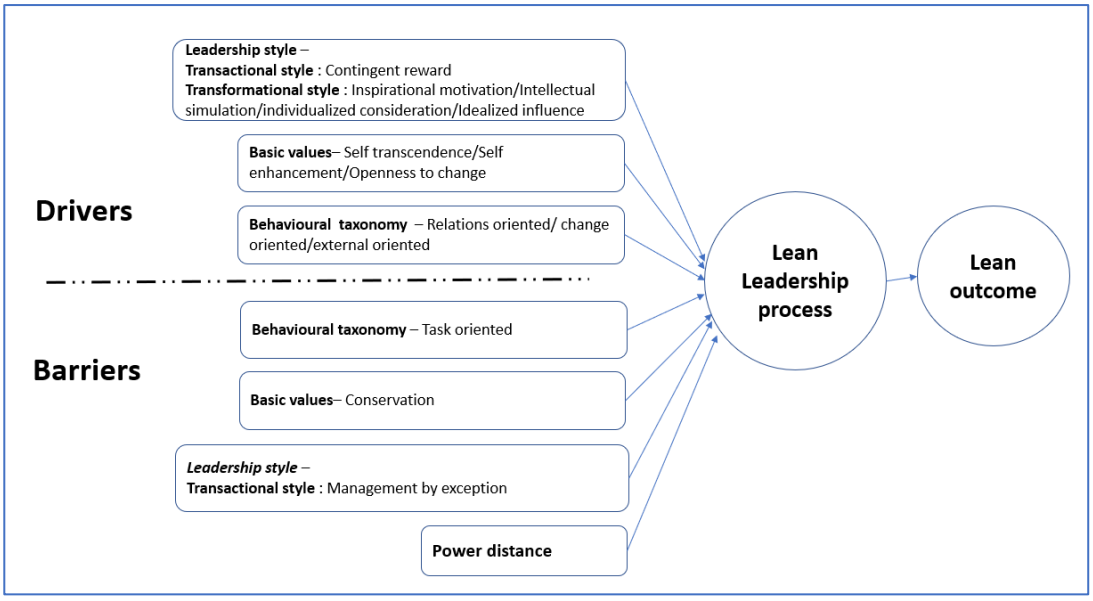
The answer to research question one leveraged here is to define the leadership style pillar as part of the lean leadership framework. This study articulated a successful leader's choice to adopt two prominent leadership styles; transactional and transformational leadership styles to discuss different organisational expectations and their approaches to managing different types of followers. The leaders executed their preferred leadership style in an organisational context to set long-term agreements with their followers, and other interwoven theories like the basic value system and behavioural taxonomy theory enabled these leaders to practice their preferred leadership style accordingly.

This study advocated the promotion of the driving dimensions of transactional and transformational leadership styles among the leaders and reminded them to use limiting dimensions. Lean leaders can leverage the contingent reward dimension from the transactional style to offer both monetary and intangible benefits to their followers in the lean journey. The qualitative analysis of this study depicted important observations. As an exception, leaders tend to punish their followers in the event of any performance issues or deviation from expected work. Leaders must avoid using the management by exception dimension of the transactional leadership style, as this dimension creates a fear of potential punishment among the followers. The transformational leadership style encourages leaders to leverage all four dimensions - individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence to gain acceptance from their followers.

These transformational leadership dimensions enabled lean leaders to identify potential strengths among their followers convinced them to gain confidence in improvement activities and made them self-starters by demonstrating superior capabilities.

Figure 6.7 provides a comprehensive snapshot of drivers and barriers from this study to ensure lean success.

Figure 6.7 – The comprehensive list of drivers and barriers to the lean journey



Finally, the leadership team and blue-collar employees were groomed by custom-designed training and mentoring programs; they adopted the drivers from three theories, namely the basic value system, behavioural taxonomy theory, and leadership style, and rejected the barriers from these theories. The leaders were sensitized to divest their command and control to favour the blue-collar employee empowerment process and contained the traditional power distance from GEMBA.

Blue-collar employees have been given consistent awareness, training, and mentoring programs by both internal and external experts about their expected roles. The followers must be well-moderated, empowered, and willing to do their best to meet the objectives of the lean journey. They are not reactive employees who wait to hear directions from their leaders; instead, they could take proactive improvement activities on their own and request their leaders with the necessary resources. These followers demand their righteous position in the decision-making process from their leadership team. The trust-based ecosystem prevails, wherein the leadership team takes care of their employees, and the employees take care of the organisation's objectives. Both leaders and followers complement each other, and both parties try to capitalize on maximum value propositions from the democratic and collective decision-making process.

6.8 Summary

This chapter discusses the answers to four research questions from this study. This section established a detailed framework to direct the leadership team over which constructs to prioritize and which to discard; outlined both positive and limiting roles from the four key constructs employed in this study. This study explained that most of the dimensions of leadership style, basic value theory, and behavioural taxonomy theory promoted lean success in the Indian context. The leaders handled power distance with caution, as they may not have leveraged the higher-order value proposition in a high-power distance environment.

This chapter proposed a holistic lean leadership model with four building blocks to establish a lean leadership model in an organisation with sensible leaders and purpose-driven employees. This framework offered comprehensive guidance to the executive team like where to start, a to-do list from each pillar, and various tactical and strategic intervention mechanisms to transform the leadership team across various leadership hierarchies. The approach defined in this framework will serve as a helpful reminder to the executive team to follow best practices from each pillar and to move forward with checkpoints.

The conclusion of this research study is described in the following chapter. There is a detailed discussion of the study's distinctive contributions, which include how these research findings addressed long-standing difficulties in lean practice and strengthened the theory. The expected lean leadership ecosystem for an organisation and its short and long-term managerial intervention methods are discussed in detail. In the following chapter, the significance of this study for the researcher's intellectual development and the managerial implications for the lean practice of confidently embracing the lean journey is addressed. The following chapter highlights the limitations and prospective areas for future research.

Chapter 7 – Conclusion

7.1 Introduction

This chapter outlines this study's several contributions to theory, practice, managerial contributions to lean practice, limitations, and future research opportunities. This research offered insightful information about how lean differed from other management philosophies, how leaders applied different leadership constructs depending on the organisational context, and how different leadership layers collaborated with blue-collar employees to ensure lean success.

This study added to the body of knowledge by highlighting the unique role of leaders' basic value system constructs and how the behavioural taxonomy theory of leaders influences their basic value systems in lean initiatives?. The details about the role of leadership style constructs in lean initiatives and the role of power distance in lean engagements were discussed in this study. This study contributed to the literature in terms of the proposed lean leadership model to transform the leadership team with an inclusive mindset to establish a collaborative environment. This lean leadership model has four pillars to offer a calibrated approach, like how to start the lean journey and to secure a good understanding of the driving factors and barriers in the lean journey.

Lean experts and academic fraternities offered feedback on the research findings, and overall, this study contributed managerially to lean practice. The study aimed to explore the perspectives of leaders regarding the efficacy of the lean leadership model and the various methods employed to foster appropriate traits across various leadership layers. Prospective lean tenants can leverage various takeaways from this study like how they promote the right blend of leadership skills among their leadership team, various leadership traits to unite blue-collar employees to achieve expected lean outcomes and mitigation strategies to address any challenges in the lean journey. This study found that case organisations had a well-coordinated approach, as exemplified by the way different

leadership levels worked together on strategic lean initiatives and how they gradually fostered employee empowerment despite numerous challenges in the lean journey.

The leadership graph concept from this study supported the management team to ascertain whether the leadership team aligns with necessary drivers from various theories as per this study. Various limitations and potential future research opportunities were discussed in this section to help academics carry out subsequent research studies based on this study outcome.

7.2 Contribution to theory and literature

Contribution to theory

This study added some unique contributions to the four academic constructs used in this study, along with Indian-specific results. A comprehensive lean leadership framework with four pillars has been proposed by this study to prospective lean tenants as a measure to address a gap in the literature; the non-availability of a detailed lean leadership framework (Netland *et al.,* 2020; Benders *et al.,* 2019).

Leadership style

This study enhanced the understanding of both transactional and transformational leadership styles proposed by Bass (1985). This study offered a significant contribution to the blue-collar employees' reaction to the transactional leadership style role in lean initiatives; they rejected the transactional leadership style due to the micromanagement focus among their leaders. The blue-collar employees' association with transactional leadership style in the lean journey was not captured in the literature, and this revelation was a significant addition to the lean and leadership style theory from this study. The extant literature accounted for the role of two transformational leadership style dimensions, idealized influence, and inspirational motivation, to transform leaders in lean initiatives (Rafferty and Griffin,2004). This study explained the need to adopt all four

transformational leadership style dimensions to fulfil lean initiative expectations in India and made a significant contribution to transformational leadership style theory.

The existing literature provided details about senior leaders' alignment with leadership styles in lean initiatives but largely ignored how both middle-level and entry-level leaders' positions with leadership styles in lean initiatives (Reynders *et al.*, 2022; Holmemo and Ingvaldsen, 2016). This study offered details to the literature about all three leadership layers and their approach to each dimension of leadership styles in lean initiatives. The optimum mix of transactional and transformational styles to realize lean initiatives was an important contribution from this study to the theory (Grigg *et al.*, 2020). Gellis and Elshennawy (2021) and Dave and Sohani (2019) articulated that there was a gap in the literature to explain the role of leadership styles in lean initiatives from India. This study added Indian-specific details about the role played by each dimension of both transactional and transformational leadership styles in lean initiatives.

Basic value system

The seminal basic value system theory proposed by Schwartz (1999) and Schwartz *et al* (2012) was leveraged by this study to experiment with the role of leaders' complex basic beliefs in lean initiatives. This study added significant details about the role played by the self-enhancement value dimension in lean initiatives, though the extant literature covered the role played by self-transcendence and openness to change value dimension (Van Dun *et al.*, 2017). The extant literature covered the role of senior leaders and middle-level leaders' value systems in lean initiatives, and this study added insights into all three leadership layers, including entry-level leaders' value system adoption in lean initiatives (Van Dun *et al.*, 2017).

One of the major contributions of this study was the detailed explanation of the role played by each value system dimension in lean initiatives, which was a noted gap from the literature (Bhasin and Found, 2021; Van Dun and Wilderom, 2021; Sahoo, 2020). This study provided a comprehensive explanation of the intricate role played by leaders' basic

value system in lean initiatives; how did the power distance affect leaders' capacity to implement the essential managerial changes, and how did behavioural theory affect the leaders' ability to implement the necessary changes to influence the lean outcome?

A detailed account of the negative moderation role played by power distance on leaders' basic value system in lean initiatives has been added by this study, and this study addressed the gap identified by many researchers about the moderation role played by power distance in lean initiatives (Farooq and Tripathi, 2021; Siddique *et al.*, 2020; Mathew and Taylor, 2019; Van Assen, 2018).

The intricate relationship between leaders' basic values and behaviours and how these two influential constructs impacted lean initiatives have been accounted for by this study, thus this study addressed one of the major gaps noticed in the literature (Van Dun and Wilderom, 2021; Netland *et al*., 2020; Kurtmollaiev *et al.,* 2018; Van Assen, 2018). This study has been a maiden research attempt in India to examine the role of leaders' basic belief systems and their behavioural outcomes in the lean journey.

Behavioural taxonomy theory

The seminal behavioural taxonomy theory developed by Yukl *et al* (2002) and Yukl (2012) was used in this research to explore the role played by leaders' behavioural constructs in lean initiatives (Van Dun and Wilderom, 2021; Camuffo and Gerli, 2018). Details like how leaders avoided selecting inconsistent behavioural constructs, how leaders chose positive value constructs, and when and how leaders used these behavioural constructs were captured by this study and added to the theory (Bhasin and Found, 2021). The role of leaders' behavioural attributes in reaching behavioural flexibility as per their value-ridden actions in lean initiatives has been confirmed by this study (Bhasin and Found, 2021; Sahoo, 2020).

The previous studies highlighted the chance of a mediation effect from behavioural taxonomy theory in lean initiatives, but this study offered a detailed account of the partial mediation role of behavioural taxonomy theory (Van Dun and Wilderom, 2021; Netland *et al*., 2020; Seidel *et al*,, 2019; Schilke *et al*., 2018; Van Assen, 2018). The rich insights about positive dimensions and limiting dimensions from both basic value theory and behavioural taxonomy theory and how successful lean leaders leveraged an optimum mix of value dimensions and behavioural dimensions have been added by this study to the theory (Netland *et al*., 2020; Van Dun *et al*., 2017). The findings of this study provided fresh insights into the task-related behavioural dimension that case leaders employed to fulfil the fundamental tasks of their subordinates. These findings contrast with those of previous studies conducted by Netland *et al* (2020), Van Dun *et al* (2017), and Larsson and Vinberg (2010), which classified task-related behavioural dimension as a lower-order behavioural dimension.

The study added some important insights about the role played by task-related behavioural dimension in lean initiatives in India. The leaders preferred this dimension to ensure basic work, and this piece of theory contrasted with findings from Netland *et al* (2020), Van Dun *et al* (2017), and Larsson and Vinberg's (2010) studies. The insights about the role played by external-related behavioural dimension in lean initiatives from this study have been a novel addition to the theory, as previous studies neglected this behavioural dimension. This research added its findings to the theory about blue-collar employees' rejection of task-related behavioural dimension in lean initiatives from India. A detailed account of the positive role played by leaders' relation-oriented and change-oriented behavioural dimensions to bring positive culture and nurture the habit of experimentation among the followers has been added to the theory through this study (Tortorella *et al.*, 2021; Van Dun and Wilderom, 2021; Netland *et al.*, 2020; Tortorella *et al.*, 2020).

The previous research studies focused on the critical role of senior leaders' behavioural attributes in the lean journey, and this study provided a detailed account of the behavioural encounters of middle-level and entry-level leaders along with senior leaders to offer a comprehensive understanding of how the entire leadership team dealt with their

behavioural constructs in lean initiatives (Gellis and Elshennawy, 2021; Netland *et al*., 2020).

This study has been the first attempt in India to explore the important role of leaders' behavioural choices in collaboration with their inherent belief systems toward lean initiatives (Schwartz *et al.,* 2012; Van Dun *et al.,* 2017). This study added a list of Indian-specific behavioural elements to the theory. A few of those notable elements were employee engagement, celebrating success, continuous learning, shop floor visits, and reliable feedback.

Power distance

This study leveraged the seminal cultural theory introduced by Hofstede (1980) and Hofstede *et al* (1991), which has been significantly enhanced by House *et al* (2004). This theory has two aspects; national cultural and organisational cultural frameworks. The power distance construct from the national cultural framework has been used in this study. There was a long-standing gap noticed in the literature to experiment with the role of power distance in lean initiatives in general (Erthal and Marques, 2018; Narayanamurthy and Gurumurthy, 2016) and to explore the critical role played by power distance in lean initiatives in traditional countries like India, where prevailing socio-cultural patterns influence both leaders and blue-collar employees (Mathew and Taylor, 2019).

This study added rich insights about the negative moderation role played by power distance on leaders' basic value system in lean initiatives and effectively addressed one of the long-standing gaps in the literature; the moderation role of power distance in lean initiatives (Farooq and Tripathi, 2021; Siddique *et al*., 2020; Mathew and Taylor, 2019). This study contributed to the theory about how leaders successfully navigated various challenges from the employee empowerment process, how they managed the limiting role played by power distance in lean initiatives and provided an answer to Sahoo’s (2022) question about how leaders managed the challenging role of power distance to ensure lean success.

This study contrasted the findings from Mathew and Taylor's (2019) study, which stated decentralization and delegation were not possible in the Indian cultural context as leaders maintained power and followers were not part of any decision-making process. This study added finer details to the theory about various organisational intervention mechanisms leveraged by Indian leaders to limit the impact of power distance in lean initiatives, thus addressing Mathew and Taylor's (2019) questions about Indian leaders' seriousness about employee empowerment. The detailed accounts from both the leadership team and blue-collar employees about their opinions about the power distance role and what they wanted from other stakeholders were encapsulated by this study.

This study offered details about how power distance impacted lean initiatives in India, as Indian employees' compliance with respect given to leaders, obsession with the hierarchical system, and silence in organisational settings undermined the core principles of lean (Mathew and Taylor, 2019). This contribution to the theory from this study was significant, like how to avoid potential unpleasant industrial events in India due to improper cultural assessment of local socio-cultural patterns and how to appreciate local countries' unique socio-cultural patterns to undertake appropriate mitigation strategies (James and Jones, 2014). A few notable organisational intervention mechanisms leveraged by the Indian leaders noted in this study were offering equal opportunities, respecting others, establishing transparent communication channels, self-reflection, breaking the traditional mindset, installing effective feedback mechanisms, and managing expectations.

Proposed lean leadership model

The lack of a comprehensive lean leadership model was noted as a gap in the literature, although some studies provided standalone solutions for lean leadership that concentrated on particular leadership traits or on process-oriented solutions that imparted very little importance to leadership aspects (Holmemo *et al*., 2023; Bhasin and Found, 2021; Sisson, 2019). This proposed leadership model offered comprehensive perspectives about the active role played by leaders in lean initiatives. The difference between the proposed lean leadership model and existing models from the literature has been explained here. Spear's (2004) leadership doctrine provided a set of guidelines to the leaders and this model did

not explore the basic leadership attributes of a lean leader. Liker (2004) offered a set of directives from both leadership and lean tools perspectives to ensure lean success. Liker's (2004) model did not explain the vital leadership traits of lean leaders. Martyn and Crowell's (2012) model elaborated on various hard lean tools aspects alone in lean initiatives. Dombrowski and Mielke's (2014) lean strategy explained the focus areas for lean leaders but did not explain the vital leadership traits among lean leaders. Mann's (2014) work provided a better apperception of lean tools focus areas for leaders. Netland *et al*'s (2020) lean model provided the list of focus areas for lean leaders to bring an accepted culture across the organisation and accountability aspects to various hierarchies.

This study contributed a comprehensive lean leadership model to theory with necessary leadership attributes and guidelines to augment talent aspects to achieve lean success. This model included four foundational pillars to establish a sustainable leadership momentum with motivated leaders and empowered followers; power distance, basic value system, behavioural taxonomy, and leadership style constructs. This lean leadership model has been an important addition to theory. This study captured the role played by three leadership layers in lean initiatives, as the extant literature captured the senior leaders' role alone in lean initiatives (Reynders *et al*., 2022).

Contribution to literature

Leadership style

This study employed the full-range leadership theory, first presented by Bass (1985) and later improved by Bass and Avolio (1997), to identify the role of transactional and transformational leaders in lean initiatives. This study explained how both leadership styles from Bass (1985) and Bass and Avolio (1997) found acceptance in Indian lean initiatives, which was not done earlier (Gellis and Elshennawy, 2021; Dave and Sohani, 2019). Moreover, this study explained the usage of all four transformational leadership style dimensions in lean initiatives, as previous research studies highlighted the use of two transformational leadership dimensions, idealized influence and inspirational motivation in lean initiatives (Rafferty and Griffin, 2004). This study provided a detailed account of the

three leadership layers' alignment with leadership styles and their preference for favourable leadership style dimensions. This study leveraged leadership style insights from blue-collar employees and is a maiden attempt at lean initiatives.

Basic value system

The basic value system theory from Schwartz (1999) and Schwartz *et al* (2012) was used by this study to decode the leaders' unique value patterns and how these value patterns motivated the leaders to take various behavioural outcomes that eventually resulted in managerial decisions. The limited applicability of Schwartz's (1999) basic value theory to lean initiatives was one of the gaps in the literature that this study addressed this gap. The study yielded insightful findings regarding the reasons for leaders' adherence to specific value constructs that complement their core beliefs to achieve their goals (Van Dun and Wilderom, 2021). This study was a novel attempt to apply the basic value theory from Schwartz *et al (*2012) in the Indian context. This study contributed to testing this basic value system theory in the Indian context to decide Indian leaders' preference for basic value dimensions in lean initiatives (Van Dun *et al.,* 2017). This study identified some unique values practiced by Indian leaders in lean initiatives.

The extant literature highlighted the use of self-transcendence and openness to change dimensions in lean initiatives (Van Dun *et al.*,2017), and this study added the acceptance of the self-enhancement value dimension in lean initiatives. This study enhanced the overall knowledge around the basic value system, like how this theory was related to behavioural taxonomy theory and how power distance is influenced leaders' basic values (Farooq and Tripathi, 2021; Siddique *et al.*, 2020; Mathew and Taylor, 2019; Hofstede, 1980). This research supplemented the relationship between basic value theory and behavioural taxonomy theory along with other studies (Van Dun and Wilderom, 2021; Netland *et al*., 2020; Van Assen, 2018). This study covered the role played by the basic value system among middle-level and entry-level leaders in lean initiatives, as the extant literature articulated this theory to senior leaders alone (Van Dun *et al.,* 2017).

Behavioural taxonomy theory

The behavioural taxonomy theory from Yukl (2012) was used in this study to experiment with leaders' behavioural outcomes in lean initiatives. This study detailed the positive role played by leaders' external-related behavioural dimension in lean initiatives, as the extant literature did not specifically mention the role played by this behavioural dimension in lean initiatives. This study revealed that middle-level and entry-level leaders used task-related behavioural dimension cautiously in lean initiatives. The blue-collar employees disapproved this behavioural dimension in lean initiatives. This study validated the behavioural theory proposed by Yukl (2012), such as leaders' choices for certain behavioural dimensions and how and why they adopted these behavioural dimensions to meet lean initiatives?.

The application of behavioural taxonomy theory to senior leaders and middle-level leaders in lean initiatives was covered by the Van Dun *et al* (2017) study, and this study applied this behavioural theory to three leadership layers that included entry-level leaders and blue-collar employees. This study applied the behavioural taxonomy theory to the Indian context as a first attempt in literature and enhanced the reach of behavioural taxonomy theory boundaries. The relationship between value system dimensions and behavioural taxonomy dimensions in lean initiatives was explained by this study; thus, this study significantly enhanced the overall appreciation of both theories.

Power distance

This study leveraged the power distance theory from the research of Hofstede (1980) and House *et al* (2004) to explain why Indian leaders were subjected to cultural traditions that were challenging and did not support lean initiatives. The answer to Mathew and Taylor's (2019) questions about decentralization and delegation challenges in lean initiatives was addressed by this study. This study demonstrated that both delegation and decentralization were possible in India through the careful orchestration of the empowerment process and thoughtful adaptability of certain organisational intervention mechanisms by leaders in lean initiatives.

This is a novel study to experiment with how the power distance construct moderated the leaders' basic beliefs and how matured leaders leveraged various organisational intervention mechanisms to limit the challenging role of power distance in lean initiatives (Farooq and Tripathi, 2021; Siddique *et al*., 2020; Mathew and Taylor, 2019). This study captured detailed insights and perspectives about power distance from both leadership teams and blue-collar employees. The power distance concept from Hofsted (1980) and House *et al* (2004) has been applied for the first time to Indian lean initiatives in this research.

7.3 Personal impact

As a lean professional, the researcher was wondering how only a few organisations succeeded in their lean journey despite many attempts?. The researcher dealt with lean initiatives with great anticipation and encountered a variety of leaders with differing goals; some were enthusiastic about lean, while many others were not serious about the concept. The researcher recognized similar bewilderment among other lean experts and lacked a theory for this leadership phenomenon in practice.

Through this study, the researcher was able to gain a deeper knowledge of leaders' responses to lean initiatives, including the reasons for their distinct behaviours, how they tackled employee empowerment differently, and why they adhered to their core beliefs. The lean tenants' executive team was aware of these challenges from their leadership team, but they did not have any intervention mechanism to measure their leadership teams' orientation towards the lean journey. Lean professionals like the researcher also faced a similar constraint due to the non-availability of a suitable mechanism to measure the leadership teams' approach to lean.

Based on the theoretical knowledge acquired from this research project, the researcher felt equipped to advise lean tenants with greater efficacy. Overall, this study enhanced the researcher's conceptual thinking to approach the lean with a more mature approach with strong theoretical underpinnings. The researcher acquired advanced research

methodologies and critical analytical skills from this study to address intricate business issues from the lean journey.

7.4 Managerial contribution

A successful lean continued to be challenging task for even established manufacturing organisations due to the structural complexities involved in a long and enduring lean journey, especially in terms of talent aspects (Gellis and Elshennawy, 2021; Netland *et al*., 2021). Indian industry was awaiting to secure an appropriate lean implementation methodology to suit the local cultural ecosystem, and any potential leadership intervention mechanism will benefit the Indian manufacturing industry (Sahoo, 2022; Gellis and Elshennawy, 2021; Dave and Sohani, 2019). Several researchers have emphasized the need to foster the urgency of lean thinking across leadership layers with specific objectives and a suitable lean leadership model (Hernandez *et al*., 2020).

In this context, this study offered a tangible lean leadership model to support lean tenants. These study results have been shared with two stakeholders to secure their feedback; Lean leaders from case organisation and the academic fraternity. The feedback from these stakeholders informed about the effectiveness of this research outcome and the proposed lean leadership framework from this study.

Feedback from case leaders

The researcher had a face-to-face discussion with three case organisations' leadership teams to explain the results, various leadership traits, and the role of the proposed lean leadership framework from this study. The case organisations feedback is discussed in this section.

Case organisation one: The senior leadership team accepted the fact that they ignored the critical role played by middle-level and entry-level leaders in the ongoing lean journey.

They informed their human resources department to conduct brainstorming sessions to discuss this important topic with all stakeholders. The training team has been asked to chart our various mentoring sessions for senior leaders to sensitize them to divest their authority to middle-level and entry-level leaders in ongoing lean initiatives. They planned to conduct various training programs for middle-level and entry-level leaders to claim high stakes in the lean journey.

The role of emerging technologies to contain power distance and blue-collar employees' feedback to decide the overall performance appraisal of the leadership team gained attention from this case organisation. This organisation intended to take some time to raise team awareness, determine the appropriate time to use the leadership graph to secure the leadership qualities of individual leaders, and then create specialized intervention methods in accordance with this research findings. A piece of advice came from this organisation to consider all national cultural dimensions to provide a thorough understanding of how the Indian cultural ecosystem affects lean initiatives. They stressed the point that India is a traditional country with long-held cultural traditions followed by generations, and there is less clarity known to organisations about how these national-level cultural constructs supplement or challenge lean initiatives in India.

Case organisation two: This case organisations' senior leaders found the significance of this research and requested the researcher to brief middle-level and entry-level leaders about this research outcome. They noted the intricate relationship played by leaders' basic value dimensions and behavioural dimensions that resulted in various managerial decisions. They explained the rationale for this observation, as sometimes a leader made good decisions, and the same leader failed in other instances with inferior managerial decisions. This case organisation plans to conduct specific awareness sessions to sensitize its leadership team about the right mix of basic values and behavioural attributes based on this study outcomes.

They realized the fact that their leadership teams were using task-related behavioural dimension against their perception that their leadership teams were motivating their followers with an empowerment process. Also, they noted that some leaders were adopting

conservation value dimension in rare instances, and the case organisations' leadership team was surprised to note this finding. These observations made the leadership team consider the leadership graph concept from this study to generate individual leadership standings and plan intervention mechanisms accordingly in case of any deviations found from their leadership team.

Case organisation three: The case organisations' leadership team acknowledged the fact that they were conducting a lot of leadership training programs based on senior leadership team suggestions, and sometimes they considered feedback from other leadership layers. They appreciated the role of various leadership theories from this study and decided to plan specific training programs as per this study's outcome. They mentioned that the empowerment process worked well in many functions, but they noticed challenges in some functions. They offered some training programs to entry-level leadership teams to sensitize them about this empowerment process; they observed expected turnaround in some instances, and they noticed challenges in other instances. This study explained the reasons behind these challenges; the case organisation needed to appreciate the nature of their leadership teams' traits; why the leader believed in certain areas, why they behaved in certain ways, and why they maintained a specific style of treating their followers?.

The case leadership team understood the need to capture their leadership team's leadership traits as per this study, and they requested the researcher to come out with a consulting program to slowly introduce necessary intervention mechanisms as per this study. They received feedback from blue-collar employees that some leaders were aligned with some known personalities, and they favored them in work allocation and other benefits. The case leadership team noted the recommendations from this study about various organisational intervention mechanisms to reduce leaders' bias, and this organisation wanted to implement suggestions from this study to contain leaders' favoritism and power distance. The case organisation requested their important suppliers to start implementing lean, and they started offering various support, like free consulting services and training programs, to their suppliers as part of the supplier development program. The case leadership team indicated that they might use the results from this study

to chart out various relevant training and mentoring programs to ensure a successful lean turnaround among their important suppliers.

Feedback from the academic fraternity

This research has produced a book chapter and presentations at two internal conferences. The feedback from these academic sources helped the researcher incorporate the required changes into this research work. The publications details are captured in the section 'Publications and conference presentations from this research'.

Book chapter: This study produced a book chapter to address lean requirements from India based on leadership style literature review results from this study and leveraged two constructs from extant literature; followership theory and Indian cultural traditions. This academic work positioned the lean leadership model as a suitable candidate to meet Indian corporate objectives in the long term by leveraging lean concepts and Indian traditional values like maintaining peace with everyone and helping each other in organisational settings. A few pieces of feedback received from book editors were articulating the relevance of lean leadership as an overall management philosophy to meet Indian-specific leadership expectations, incorporating Indian values like stability and maintaining peace with everyone in the proposed model, and explaining how the proposed model differentiated from existing leadership models. This feedback was incorporated into the revised manuscript and published in the book.

27th EurOMA Conference : A piece of literature review work from this study was presented at the EurOMA 2021 international conference. This academic work proposed a mix of transactional and transformational leadership styles suited for various phases of lean initiatives and the role played by both leadership style dimensions. Some notable feedback from peer reviewers and conference participants were; to explain the mix of leadership styles based on situational or contingent factors, provide more details about the nature of these two leadership styles, explain the difference between results from the discussion

section of this work and results from the literature review. The researcher incorporated this feedback into the revised manuscript and presented it to the conference.

EURAM 2021 international conference: Based on the qualitative data gathered during this study's pilot phase, the researcher submitted an article based on the leadership role in lean initiatives. This work has been selected for a paper development session at the EURAM conference, and the researcher secured feedback from the conference chair and participants. This academic work explained the case organisations' stand on various dimensions from the four theories used in this study. This work provided rich insights from a list of case leaders' accounts on the role played by each dimension from four theories and proposed a leadership framework to suit Indian cultural requirements. A few feedback comments were; the empirical data collected from the pilot study was not sufficient to make solid conclusions from this study, more details were required to rationalize the nodes used in qualitative analysis, and justification for the content analysis method used in this study. The researcher considered this feedback, incorporated it into the revised manuscript, and presented it to the conference.

Many times, lean professionals managed their client leadership team based on their experience rather than a principle-based approach. The broader leadership perspectives gained from this study will help the lean consulting professionals to approach the client executive teams with a set of lean leadership frameworks rather than mere assumptions and experience. This study will augment lean professionals with an array of leadership theories and a lean leadership framework to create a justification for the client leadership team to follow the lean professionals' suggestions.

This study offered a leadership graph concept based on the study's results. This leadership graph provides a comprehensive perspective about leaders' unique personas; how they approach power distance, whether they are naturally inclined to empower their followers, their belief pattern, whether they are looking for dramatic improvements, and whether they are looking for task completion from their followers or vouching for a long-term relationship with their followers?. The organisations shall leverage the mechanism used in this research study to get the leadership graph for their leadership team and take

intervention measures accordingly. This study demonstrated that leadership traits are not generalizable across countries, the country-specific cultural uniqueness and contextual factors affect how the leadership phenomenon is manifested at different hierarchical levels. In this context, this study offers rich insights to both lean professionals and potential lean tenants about how they can navigate the unique socio-cultural boundaries of India and what they do to make their lean attempts successful in India?.

7.5 Limitations

Like other research studies, this study has a few limitations, and future research studies may focus on addressing these limitations. This study focused on automobile manufacturing organisations with a successful lean track record in the state of Tamil Nadu in India. A constraint pertains to India's diversity and cultural background; additional research from different regions of the country might be carried out to extrapolate this approach to the entire Indian automobile sector.

This research outcome may not be generalizable across lean initiatives from other industry segments in India like pharmaceuticals, heavy engineering, and petrochemical industries without conducting further research studies. Other industry segments may gain insights into how automobile organisations were managing various leadership challenges in their lean journey as per unique automobile industry requirements. At the same time, other industry segments may not copy this study’s outcome which is more aligned with automobile industry requirements. Focused research studies are necessary to address industry-specific issues in the lean journey for several reasons, including the competitive landscape, the focus areas of the leadership team, and the nature of industry dynamics.

This study considered successful lean case organisations from India; thus, both leaders and followers have given positive feedback through survey instruments and qualitative interviews. The limitation of this approach was not considering failed lean organisation accounts; thus, balanced lean leadership perspectives were not secured from this study.

This study considered male participants' insights from qualitative interviews, and the non-availability of female participation is one of the limitations of this study.

This study focused on the automobile sector in India and did not consider other countries with varying power distance influences, basic value systems, or behavioural combinations. The limitation of this approach resulted in the non-generalization of the proposed solution from this study to other geographies.

This study focused on three leadership layers from case organisations to collect the primary data and derive the proposed solution. Though this approach offered a comprehensive understanding of the lean phenomenon, this study did not offer a detailed account for each leadership level, like senior, middle-level, or entry-level leaders. This study collected qualitative primary data from the leadership team about their rich insights from their lean journey. This method invited some bias from any individual who talked about themselves.

This study collected 21 qualitative interviews from case organisations. This study considered the unit of analysis as each leadership layer, compared the leadership qualities among the three leadership layers from case organisations, and derived the proposed lean leadership model. The limitations noticed in this study were the non-comparison of each leader’s leadership traits and the non-comparison of leadership capabilities among case organisations.

7.6 Future research areas

Future studies may implement the suggested lean leadership model from this study for a few lean tenants. This attempt will help the researchers validate the adaptability of the proposed lean leadership framework to prospective lean tenants. This study focused on case organisations with a successful lean track record. Future research can be planned to repeat this study on companies with failed lean implementation track records. This will

provide a balanced and comprehensive platform to compare the research findings from successful and failed lean tenants.

India is a diversified country with a multicultural environment, and further studies can be conducted in other parts of India to generalise this solution across the automobile sector in India. Further research studies may extend this study to other countries with varying power distance influences, basic value systems, and behavioural combinations; thus, this research outcome can be generalised to the automobile industry as a standard solution across geographies. The lean implementation requirements of other industry sectors may vary from those of the automobile industry; hence, future research studies are required to explore the applicability of the proposed lean leadership framework to other industry segments, and a generalisable solution can be derived.

Further research studies are needed to replicate this study in knowledge-intensive industries like information technology (IT), where followers are professionally qualified. In the IT sector, the relationship between leaders and followers is a little more lenient, and the influence of power distance is less apparent within this type of organisation. Subsequent studies shall contribute to the generalisation of the lean leadership paradigm, which applies to both manufacturing and service sectors.

Another potential research area is to focus on the lean maturity stage at a given point in time, like implementation, sustenance, and the maturity phase; thus, further studies can focus on the applicable leadership theories and power distance that are unique to the stage of lean implementation.

Further research studies can focus on specific leadership layers to secure detailed perspectives and lean leadership frameworks applicable to that specific leadership layer. Each leadership layer of an organisation carries its priorities and challenges, and further research studies can focus on specific leadership layers to secure detailed perspectives and a lean leadership framework applicable to that specific leadership layer.

There are two major cultural dimensions affecting an organisation's performance, organisational cultural dimensions and national cultural dimensions. This study focused on the power distance construct from national cultural dimensions and its relationship with the other three leadership theories to decide the lean outcome. Further research studies may focus on the dynamic role played by organisational culture in the lean leadership phenomenon. Further studies shall incorporate case organisations from other countries and industries; thus, such studies will bring rich insights into how to realise lean success despite various challenges as per the given country's challenges and country-specific leadership orientation.

Naturally, the workplace environment and organisational culture will transform significantly based on the infusion of new management practices and human resources policies from the outside world. India is not an exception; thus, further research studies are required to repeat this study longitudinally. This kind of longitudinal study will highlight how leadership practices and power distance are evolving in Indian scenarios and their impact on lean success.

Further studies can consider the comparison of each leader's leadership traits among three leadership layers to gain a comprehensive understanding of leaders' composition from a typical lean tenant, either with successful or failed lean track records or both. The comparison among lean case organisations may provide a better appreciation of how an organisation's unique environment influences lean leaders' effectiveness and capabilities in the lean journey. Further research studies can be planned to address this limitation. Further empirical study should focus on collecting qualitative primary data from the followers, and this approach will offer an unbiased perception of their leaders and address the problem in scope.

7.7 Summary

The several contributions provided by this research study such as the inclusion of theory and literature, were explained in this chapter. Several significant contributions have been

introduced to the theory to improve the boundaries of the four theories that were employed in this research, and a four-pillared lean leadership model has been suggested. This study has added insights into how to navigate complex Indian socio-cultural patterns to realize lean success. This study added a book chapter and two international conference presentations as a new addition to lean leadership literature based on this study's findings. The contributions added more insights into the various authors' work used in this study and enhanced the literature on the lean leadership topic.

From a lean practice perspective, this study secured valuable feedback from lean professionals on how to leverage the proposed lean leadership model with four pillars and the leadership graph concept to support lean tenants. This study offered various tactical and strategic intervention mechanisms to bring expected behavioural adherence among leaders and how to transform the reactive leadership team into lean leaders. The lean practitioners can leverage the proposed theoretical underpinnings from this study to embrace confidence among the lean tenants' executive team to start and sustain the lean journey with confidence. This study offered various intervention mechanisms to navigate complex socio-cultural environments in India. This chapter articulated various limitations and further research areas to extend lean leadership research to other industries and countries.

References

Aasland, M.S., Skogstad, A., Notelaers, G., Nielsen, M.B. and Einarsen, S., 2010. The prevalence of destructive leadership behaviour. *British Journal of Management*, 21 (2), pp.438-452.

Ahlstrom, P., Danese, P., Hines, P., Netland, T.H., Powell, D., Shah, R., Thurer, M. and Van dun, D.H., 2021. Is lean a theory? Viewpoints and outlook. *International Journal of Operations & Production Management*, 41(12), pp.1852-1878.

Aij, K.H. and Rapsaniotis, S., 2017. Leadership requirements for Lean versus servant leadership in health care: a systematic review of the literature. *Journal of healthcare leadership*, 9, pp.1-14.

Alexander, P., Antony, J. and Rodgers, B., 2019. Lean Six Sigma for small-and medium-sized manufacturing enterprises: a systematic review. *International Journal of Quality & Reliability Management*, 36 (3), pp.378-397.

Allsop, D.B., Chelladurai, J.M., Kimball, E.R., Marks, L.D. and Hendricks, J.J., 2022. Qualitative methods with Nvivo software: A practical guide for analyzing qualitative data. *Psych*, 4 (2), pp.142-159.

Anderson, M.H. and Sun, P.Y., 2015. The downside of transformational leadership when encouraging followers to network. *The Leadership Quarterly*, 26, pp.790-801.

Antomarioni, S., Bevilacqua, M., Ciarapica, F.E., De Sanctis, I. and Ordieres-Mere, J., 2021. Lean projects' evaluation: the perceived level of success and barriers. *Total Quality Management & Business Excellence*, 32 (13-14), pp.1441-1465.

Antonakis, J. and House, R. J., 2002. The full-range leadership theory: The way forward. In: Avolio, B.J. and Yammarino, F.J., eds. *Transformational and charismatic leadership: the road ahead*. Amsterdam: JAI Press, 2002, pp. 3-34.

Antony, J. and Gupta, S., 2019. Top ten reasons for process improvement project failures. *International Journal of Lean Six Sigma*, 10 (1), pp.367-374.

Antony, J., Psomas, E., Garza-Reyes, J.A. and Hines, P., 2021. Practical implications and future research agenda of lean manufacturing: a systematic literature review. *Production planning & control*, 32 (11), pp.889-925.

Aycan, Z., 2000. Cross-cultural industrial and organizational psychology: Contributions, past developments, and future directions. *Journal of cross-cultural psychology*, 31(1), pp.110-128.

Aydin-Duzgit, S. and Rumelili, B., 2019. Discourse analysis: Strengths and shortcomings. *All Azimuth: A Journal of Foreign Policy and Peace*, 8 (2), pp.285-305.

Balzer, W.K., Brodke, M.H., Kluse, C. and Zickar, M.J., 2019. Revolution or 30-year fad? A role for IO psychology in Lean management. *Industrial and Organizational Psychology*, 12 (3), pp.215-233.

Barclay, S., Todd, C., Finlay, I., Grande, G. and Wyatt, P., 2002. Not another questionnaire! Maximizing the response rate, predicting non-response and assessing non-response bias in postal questionnaire studies of GPs. *Family practice*, 19 (1), pp.105-111.

Bardi, A. and Schwartz, S.H., 2003. Values and behavior: Strength and structure of relations. *Personality and social psychology bulletin*, 29 (10), pp.1207-1220.

Bass, B.M. and Avolio, B.J., 1997. *Full range leadership development: Manual for the Multifactor leadership questionnaire*. Redwood City, CA: Mind Garden.

Bass, B.M. and Riggio, R.E., 2006. *Transformational leadership*. New York: Psychology press.

Bass, B.M., 1985. *Leadership and performance beyond expectations*. New York: Free Press.

Bass, B.M., 1990. *Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications*. 3rd ed. New York: Free Press.

Bass, B.M., 1997. Does the transactional–transformational leadership paradigm transcend organizational and national boundaries?. *American psychologist*, 52 (2), pp.130-139.

Bagla, G., 2008. *Doing Business in 21st-Century India: How to Profit Today in Tomorrow's Most Exciting Market*. London: Hachette.

Bamber, L. and Dale, B.G., 1999. Lean production: A study of application in a traditional manufacturing environment. *Production Planning and Control*, 1 (3), pp.291-298.

Belhadi, A., Touriki, F.E. and Elfezazi, S., 2018. Evaluation of critical success factors (CSFs) to lean implementation in SMEs using AHP: A case study. *International Journal of Lean Six Sigma*, 10 (3), pp.803-829.

Benders, J., Van Grinsven, M. and Ingvaldsen, J. A., 2019. The persistence of management ideas: How framing keeps ‘lean’ moving. In: A. Sturdy., S. Heusinkveld., T. Reay. and D. Strang., eds. *The Oxford handbook of management ideas.* Oxford: Oxford University Press, 2019, pp. 271–285.

Bhasin, S. and Found, P., 2021. Sustaining the lean ideology. *Management Decision*, 59 (3), pp.568-585.

Bhaskar, R., 2008. *A realist theory of science*. Abingdon: Routledge.

Bisman, J., 2010. Postpositivism and accounting research: A (personal) primer on critical realism. *Australasian Accounting, Business and Finance Journal*, 4 (4), pp.3-25.

Bortolotti, T., Danese, P., Flynn, B.B. and Romano, P., 2015. Leveraging fitness and lean bundles to build the cumulative performance sand cone model. *International Journal of Production Economics*, 162, pp.227-241.

Bose, J., 2001. Nonresponse bias analyses at the National Center for Education Statistics. In: 2001. *Proceedings of Statistics Canada Symposium*. Statistics Canada, pp.1-9.

Bouranta, N., Psomas, E. and Antony, J., 2022. Human factors involved in lean management: a systematic literature review. *Total Quality Management & Business Excellence*, 33 (9-10), pp.1113-1145.

Bryman, A. and Bell, E., 2015. *Business Research Methods*. 4th ed. London: Oxford University Press.

Budhwar, P.S., Varma, A. and Patel, C., 2016. Convergence-divergence of HRM in the Asia-Pacific: Context-specific analysis and future research agenda. *Human Resource Management Review*, 26 (4), pp.311-326.

Burawat, P., 2019. The relationships among transformational leadership, sustainable leadership, lean manufacturing and sustainability performance in Thai SMEs manufacturing industry. *International Journal of Quality & Reliability Management*, 36 (6), pp.1014-1036.

Burell, G. and Morgan, G., 1979. *Sociological paradigms and organisational analysis. Elements of the sociology of corporate life*. Aldershot : Ashgate publishing.

Burton-Jones, A., 2009. Minimizing method bias through programmatic research. *MIS Quarterly*, 33 (3), pp.445–471.

Byrne, A., 2013. *The Lean Turnaround*. New York: McGraw Hill.

Camuffo, A. and Gerli, F., 2018. Modeling management behaviors in lean production environments. *International Journal of Operations & Production Management*, 38 (2), pp.403-423.

Chaple, A.P., Narkhede, B.E., Akarte, M.M. and Raut, R., 2021. Modeling the lean barriers for successful lean implementation: TISM approach. *International Journal of Lean Six Sigma*, 12 (1), pp.98-119.

Change, S., Witteloostuijn, A.V. and Eden, L., 2010. From the editors: Common method variance in international research. *Journal of International Business Studies*, 41 (2), pp.178-184.

Chiarini, A., Conti, E. and Zhou, P., 2023. Lean and corporate social responsibility: a systematic literature review. *Total Quality Management & Business Excellence*, 34 (5-6), pp.637-671.

Cochran, D.S., Eversheim, W., Kubin, G. and Sesterhenn, M.L., 2000. The application of axiomatic design and lean management principles in the scope of production system segmentation. *International Journal of Production Research*, 38 (6), pp.1377-1396.

Collins, J., 2001. Level 5 Leadership-The Triumph of Humility and Fierce Resolve, *Harvard Business Review*, 79 (1), pp. 67-76.

O. Connor, D. and Cormican, K., 2022. Leading from the middle: How team leaders implement lean success factors. *International Journal of Lean Six Sigma*, 13 (2), pp.253-275.

Creswell, J.W., 2014. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. 4th ed. CA: Sage Publications.

Cusumano, M.A., Holweg, M., Howell, J., Netland, T., Shah, R., Shook, J., Ward, P. and Womack, J., 2021. Commentaries on “The lenses of lean”. *Journal of Operations Management*, 67 (5), pp.627-639.

Danese, P., Manfe, V. and Romano, P., 2018. A systematic literature review on recent lean research: state-of-the-art and future directions. *International Journal of Management Reviews*, 20 (2), pp.579-605.

Das, B., Venkatadri, U. and Pandey, P., 2014. Applying lean manufacturing system to improving productivity of airconditioning coil manufacturing. *The International Journal of Advanced Manufacturing Technology*, 71, pp.307-323.

Dave, Y. and Sohani, N., 2019. Improving productivity through Lean practices in central India-based manufacturing industries. *International Journal of Lean Six Sigma*, 10 (2), pp.601-621.

Davidov, E., Schmidt, P. and Schwartz, S.H., 2008. Bringing values back in: The adequacy of the European Social Survey to measure values in 20 countries. *Public opinion quarterly*, 72 (3), pp.420-445.

Deichmann, D. and Stam, D., 2015. Leveraging transformational and transactional leadership to cultivate the generation of organization-focused ideas. *The leadership quarterly*, 26 (2), pp.204-219.

Denzin, N. K., and Lincoln, Y. S., 2005. *Handbook of Qualitative Research.* 3rd ed. Thousand Oaks, CA: Sage.

Detty, R.B. and Yingling, J.C., 2000. Quantifying benefits of conversion to lean manufacturing with discrete event simulation: a case study. *International journal of production research*, 38 (2), pp.429-445.

Dey, P.K., Malesios, C., De, D., Chowdhury, S. and Abdelaziz, F.B., 2020. The impact of lean management practices and sustainably-oriented innovation on sustainability performance of small and medium-sized enterprises: empirical evidence from the UK. *British Journal of Management*, 31(1), pp.141-161.

Dhiravidamani, P., Ramkumar, A.S., Ponnambalam, S.G. and Subramanian, N., 2018. Implementation of lean manufacturing and lean audit system in an auto parts manufacturing industry–an industrial case study. *International journal of computer integrated manufacturing*, 31 (6), pp.579-594.

Dogan, B. and Yıldız, B., 2023. The Correlation between Leadership Styles and Organizational Cynicism: Which Leadership Style is Best for Schools*?*. *International Journal of Education and Literacy Studies*, 11 (4), pp.343-352.

Dombrowski, U. and Mielke, T., 2014. Lean leadership–15 rules for a sustainable lean implementation. *Procedia CIRP*, 17, pp.565-570.

Doolen, T.L. and Hacker, M.E., 2005. A review of lean assessment in organizations: an exploratory study of lean practices by electronics manufacturers. *Journal of Manufacturing systems*, 24 (1), pp.55-67.

Dora, M., Kumar, M. and Gellynck, X., 2016. Determinants and barriers to lean implementation in food-processing SMEs–a multiple case analysis. *Production Planning & Control*, 27 (1), pp.1-23.

Du, J., Ma, E., Lin, X. and Wang, Y.C., 2022. Authentic leadership and engaging employees: A moderated mediation model of leader–member exchange and power distance. *Cornell Hospitality Quarterly*, 63(4), pp.479-489.

Dunn, Kevin. and Iver B. Neumann., 2016. *Undertaking Discourse Analysis for Social Research*. Ann Arbor, MI: University of Michigan Press.

Eisenhardt, K.M. and Graebner, M.E., 2007. Theory building from cases: Opportunities and challenges. *Academy of management journal*, 50 (1), pp.25-32.

Erthal, A. and Marques, L., 2018. National culture and organisational culture in lean organisations: a systematic review. *Production Planning & Control*, 29 (8), pp.668-687.

Farooq, R. and Tripathi, N., 2021. Moderating role of power distance in the relationship between leader-leader exchange (LLX) and knowledge sharing: is feedback-seeking behavior a missing link?. *VINE Journal of Information and Knowledge Management Systems*. (AHEAD OF PRINT)

Gardiner, J.J., 2006. Transactional, transformational, and transcendent leadership: Metaphors mapping the evolution of the theory and practice of governance. *Leadership Review*, 6 (2), pp.62-76.

Gellis, C. and Elshennawy, A., 2021. Leadership styles and Lean Six Sigma effectiveness within the aerospace and defense manufacturing industry. *Journal of Management & Engineering Integration*, 14(1), pp.55-66.

Goldkuhl, G., 2012. Pragmatism vs interpretivism in qualitative information systems research. *European journal of information systems*, 21 (2), pp.135–146.

Government of India., 2021. *MSME Annual Report : 2019-2020* [Online]. Available at: https://msme.gov.in/sites/default/files/INAL_MSME_ENGLISH_AR_2019-20.pdf [Accessed 10 Dec 2021].

Grigg, N.P., Goodyer, J.E. and Frater, T.G., 2020. Sustaining lean in SMEs: key findings from a 10-year study involving New Zealand manufacturers. *Total Quality Management & Business Excellence*, 31(5-6), pp.609-622.

Gupta, V., Acharya, P. and Patwardhan, M., 2013. A strategic and operational approach to assess the lean performance in radial tyre manufacturing in India: A case based study. *International Journal of Productivity and Performance Management*, 62 (6), pp.634-651.

Habidin, N.F., Mohd Yusof, S.R. and Mohd Fuzi, N., 2016. Lean six sigma, strategic control systems, and organizational performance for automotive suppliers. *International Journal of Lean Six Sigma*, 7 (2), pp.110-135.

Hair Jr, J.F., Black, W.C., Barry, B.J. and Anderson, R.E., 2014. *Multivariate Data Analysis*. 7th ed. Essex: Pearson education.

Hayes, A.F., 2012. *A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]* [Online]. Available at: http://www.afhayes.com/public/process2012.pdf [Accessed 10 Dec 2018].

Helmold, M., 2020. Sustainability and lean management. In: Helmold, M., ed., 2020. *Lean management and kaizen,* Springer. pp. 8–15.

Hernandez-Matias, J.C., Ocampo, J.R., Hidalgo, A. and Vizan, A., 2020. Lean manufacturing and operational performance: Interrelationships between human-related lean practices. *Journal of Manufacturing Technology Management*, 31(2), pp.217-235.

Hines, P., 2022. Human centred lean–introducing the people value stream. *International Journal of Lean Six Sigma*, 13 (5), pp.961-988.

Hines, P., Holweg, M. and Rich, N., 2004. Learning to evolve: a review of contemporary lean thinking. *International journal of operations & production management*, 24 (10), pp.994-1011.

Hofstede, G., 1980. *Culture's Consequences*. Thousand Oaks, CA: Sage.

Hofstede, G., Hofstede, G.J. and Minkov.M., 1991. *Cultures and Organizations: Software of the Mind*. London: McGraw Hill.

Holmemo, M.D.Q. and Ingvaldsen, J.A., 2016. Bypassing the dinosaurs?–How middle managers become the missing link in lean implementation. *Total Quality Management & Business Excellence*, 27(11-12), pp.1332-1345.

Holmemo, M.D.Q., Ingvaldsen, J.A. and Powell, D., 2023. Beyond the lean manager: Insights on how to develop corporate lean leadership. *Total Quality Management & Business Excellence*, 34 (1-2), pp.19-31.

House, R. J., Hanges,P.J., Javidan,M., Dorfman,P.W. and Gupta, V., 2004. *Culture, Leadership, and Organizations: The GLOBE Study of 62 Societies*. Thousand Oaks, CA: Sage Publications.

TQMI., 2023. What Can Organisations Gain by Challenging the Prestigious Deming Prize [online]. Available at: https://www.tqmi.com/blogs/what-can-organisations-gain-by-challenging-the-prestigious-deming-prize/ [Accessed 5 May 2023].

Jadhav, J.R., Mantha, S.S. and Rane, S.B., 2015. Roadmap for Lean implementation in Indian automotive component manufacturing industry: comparative study of UNIDO Model and ISM Model. *Journal of Industrial Engineering International*, 11 (2), pp.179-198.

Jain, A.K., 2015. An interpersonal perspective to study silence in Indian organizations: Investigation of dimensionality and development of measures. *Personnel Review*, 44 (6), pp.1010-1036.

Jain, R.K. and Trivedi, H.M., 2016. *Lean Imperatives-Lessons from Indian Organizations*. New Delhi: ASQ India.

Jakobsen, M. and Jensen, R., 2015. Common method bias in public management studies. *International public management journal*, 18 (1), pp.3-30.

James, R. and Jones, R., 2014. Transferring the Toyota lean cultural paradigm into India: implications for human resource management. *The International Journal of Human Resource Management*, 25 (15), pp.2174-2191.

Jasti, N.V.K. and Kodali, R., 2015. Lean production: literature review and trends. *International Journal of Production Research*, 53 (3), pp.867-885.

Jimenez, A., Boehe, D.M., Taras, V. and Caprar, D.V., 2017. Working across boundaries: Current and future perspectives on global virtual teams. *Journal of International Management*, 23 (4), pp.341-349.

Josselson, R. and Hammack, P. L., 2021. *Essentials of narrative analysis.* American Psychological Association.

Kakar, S., Kakar, S., KetsdeVries, M.F. and Vrignaud, P., 2002. Leadership in Indian organizations from a comparative perspective. *International Journal of Cross Cultural Management*, 2 (2), pp.239-250.

Kamble, S., Gunasekaran, A. and Dhone, N.C., 2020. Industry 4.0 and lean manufacturing practices for sustainable organisational performance in Indian manufacturing companies. *International journal of production research*, 58 (5), pp.1319-1337.

Kathy, C. and Robert, T., 2021. The pursuit of quality in grounded theory. *Qualitative research in psychology*, 18 (3), pp.305-327.

Knapic, V., Rusjan, B. and Bozic, K., 2022. Importance of first-line employees in lean implementation in SMEs: a systematic literature review. *International Journal of Lean Six Sigma*. 14 (2), pp. 277-308.

Knapp, S., 2015. Lean Six Sigma implementation and organizational culture. *International journal of health care quality assurance*, 28 (8), pp.855-863.

Koch, A., 1998. When "more" is not synonymous with "better": exploitation rates and sample distortions in general population surveys. *Zuma News*, 22 (42), pp.66-90.

Koch, A. and Blohm. M., 2016. *Nonresponse Bias. Mannheim* [online]. Available at: https://www.gesis.org/en/gesis-survey-guidelines/statistics/nonresponse-bias [Accessed 30 May 2023].

Konecki, K.T., 2018. Classic Grounded Theory - The Latest Version: Interpretation of Classic Grounded Theory as a Meta-Theory for Research. *Symbolic Interaction*, 41(4), pp.547-564.

Krauss, S.E., 2005. Research paradigms and meaning making: A primer. *The qualitative report*, 10 (4), pp.758-770.

Kudtarkar, S.G., 2014. Deming award, a journey towards business excellence. *Journal of Business and Management*, 2, pp.1-9.

Kull, T.J., Yan, T., Liu, Z. and Wacker, J.G., 2014. The moderation of lean manufacturing effectiveness by dimensions of national culture: testing practice-culture congruence hypotheses. *International Journal of Production Economics*, 153, pp.1-12.

Kumar Singh, R. and Modgil, S., 2023. Assessment of lean supply chain practices in Indian automotive industry. *Global Business Review*, 24 (1), pp.68-105.

Kumar, M. and Rodrigues, V.S., 2020. Synergetic effect of lean and green on innovation: A resource-based perspective. *International Journal of Production Economics*, 219, pp.469-479.

Kumar, R., Singh, K. and Jain, S.K., 2020. An evaluation of agile manufacturing initiatives in the Indian manufacturing industry. *International Journal of Quality & Reliability Management*, 37 (1), pp.156-187.

Kurtmollaiev, S., Pedersen, P.E., Fjuk, A. and Kvale, K., 2018. Developing managerial dynamic capabilities: A quasi-experimental field study of the effects of design thinking training. *Academy of Management Learning & Education*, 17 (2), pp.184-202.

Lacerenza, C.N., Reyes, D.L., Marlow, S.L., Joseph, D.L. and Salas, E., 2017. Leadership training design, delivery, and implementation: A meta-analysis. *Journal of applied psychology*, 102 (12), pp.1686-1718.

Lameijer, B.A., Antony, J., Chakraborty, A., Does, R.J.M.M. and Garza-Reyes, J.A., 2021. The role of organisational motivation and coordination in continuous improvement implementations: an empirical research of process improvement project success. *Total Quality Management & Business Excellence*, 32 (13-14), pp.1633-1649.

Langton, I. and Mafini, C., 2023. Small and medium business transformational leadership and supply chain management. *Journal for Transdisciplinary Research in Southern Africa*, 19 (1), pp.1-11.

Larsson, J. and Vinberg, S., 2010. Leadership behaviour in successful organisations: Universal or situation-dependent?. *Total quality management*, 21 (3), pp.317-334.

Larteb, Y., Haddout, A., Benhadou, M., Manufacturing, L., Yang, C., Yeh, T. and Valero, M., 2015. Successful lean implementation: the systematic and simultaneous consideration of soft and hard lean practices. *International Journal of Engineering Research and General Science*, 3 (2), pp.1258-1270.

Latif, M.A. and Vang, J., 2021. Top management commitment and lean team members' prosocial voice behaviour. *International Journal of Lean Six Sigma*, 12 (6), pp.1289-1309.

Laureani, A. and Antony, J., 2019. Leadership and Lean Six Sigma: a systematic literature review. *Total Quality Management & Business Excellence*, 30 (1-2), pp.53-81.

Lean Enterprise Institute., 2020. *The lean transformation framework* [online]. Available at: https://www.lean.org/explore-lean/the-lean-transformation-framework/ [Accessed 30 May 2023].

Levin, S., Roccas, S., Sidanius, J. and Pratto, F., 2015. Personal values and intergroup outcomes of concern for group honor. *Personality and Individual differences*, 86, pp.374-384.

Liang, P.C., 2014. *A review of lean six sigma and Malcolm Baldrige national quality award and a proposal for the future*. M.E. thesis, National University of Singapore.

Liang, H., Saraf, N., Hu, Q. and Xue, Y., 2007. Assimilation of enterprise systems: the effect of institutional pressures and the mediating role of top management. *MIS quarterly*, pp.59-87.

Liker, J.K. and Convis, G.L., 2012. *The Toyota Way to Lean Leadership: Achieving and Sustaining Excellence through Leadership Development*. New York: McGraw-Hill.

Liker, Jeffrey., 2004. *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer*. New York: McGraw-Hill.

Liu, W., Lepak, D.P., Takeuchi, R. and Sims Jr, H.P., 2003. Matching leadership styles with employment modes: Strategic human resource management perspective. *Human resource management review*, 13 (1), pp.127-152.

MacCallum, R.C., Widaman, K.F., Zhang, S. and Hong, S., 1999. Sample size in factor analysis. *Psychological methods*, 4 (1), pp.84-99.

Mackenzie, E., McGovern, T., Small, A., Hicks, C. and Scurry, T., 2021. 'Are they out to get us?'Power and the 'recognition'of the subject through a 'lean'work regime. *Organization Studies*, 42 (11), pp.1721-1740.

Magnani, F., Carbone, V. and Moatti, V., 2019. The human dimension of lean: a literature review. *Supply Chain Forum: An International Journal.* 20 (2), pp. 132-144.

Manikas, A.S., Kroes, J.R. and Foster, B.P., 2021. Does the importance of environmental issues within an industry affect the relationship between lean operations and corporate financial performance?. *Sustainable Production and Consumption*, 27, pp.2112-2120.

Mann, D., 2009. The Missing Link: Lean Leadership. *Frontiers of Health Services Management*, 26 (1), pp.15-26.

Mann, D., 2014. *Creating a Lean Culture: tools to Sustain Lean Conversions.* FL: CRC Press.

Mantere, S. and Ketokivi, M., 2013. Reasoning in organization science. *Academy of management review*, 38 (1), pp.70-89.

Martyn, M. and Crowell, B., 2012. *Own the Gap: Building a Team-Based Daily Kaizen Culture*. Portland, OR;SISU Press.

Marodin, G. and Saurin, T.A., 2015. Managing barriers to lean production implementation: context matters. *International Journal of Production Research*, 53 (13), pp.3947-3962.

Martens, R., 2020. Leadership to lean. *IEEE Transactions on Engineering Management*, 69 (4), pp.976-986.

Martensson, A., Snyder, K. and Ingelsson, P., 2019. Interlinking Lean and sustainability: how ready are leaders?. *The TQM Journal*, 31 (2), pp.136-149.

Mathew, S. and Taylor, G., 2019. Power distance in India: Paternalism, religion and caste: some issues surrounding the implementation of lean production techniques. *Cross Cultural & Strategic Management*, 26 (1), pp.2-23.

Mathew, S.K. and Jones, R., 2013. Toyotism and Brahminism: Employee relations difficulties in establishing lean manufacturing in India. *Employee Relations*, 35 (2), pp.200-221.

Maware, C. and Parsley, D.M., 2022. The challenges of lean transformation and implementation in the manufacturing sector. *Sustainability*, 14 (10), pp.1-24.

McClean, S.T., Barnes, C.M., Courtright, S.H. and Johnson, R.E., 2019. Resetting the clock on dynamic leader behaviors: A conceptual integration and agenda for future research. *Academy of Management Annals*, 13 (2), pp.479-508.

McMackin, J. and Flood, P., 2019. A theoretical framework for the social pillar of lean. *Journal of Organizational Effectiveness: People and Performance*, 6 (1), pp.39-55.

Morgan, G. and Smircich, L., 1980. The case for qualitative research. *Academy of management review*, 5 (4), pp.491-500.

Narayanamurthy, G. and Gurumurthy, A., 2016. Leanness assessment: a literature review. *International Journal of Operations & Production Management*, 36 (10), pp.1115–1160.

Negrao, L.L.L., Lopes de Sousa Jabbour, A.B., Latan, H., Godinho Filho, M., Chiappetta Jabbour, C.J. and Ganga, G.M.D., 2020. Lean manufacturing and business performance: testing the S-curve theory. *Production Planning & Control*, 31 (10), pp.771-785.

Netland, T.H., Powell, D.J. and Hines, P., 2020. Demystifying lean leadership. *International Journal of Lean Six Sigma*, 11 (3), pp.543-554.

Netland, T.H., Schloetzer, J.D. and Ferdows, K., 2021. Learning lean: rhythm of production and the pace of lean implementation. *International Journal of Operations & Production Management*, 41 (2), pp.131-156.

Nogueira, D.M.D.C., Sousa, P.S. and Moreira, M.R., 2018. The relationship between leadership style and the success of Lean management implementation. *Leadership & Organization Development Journal*, 39 (6), pp.807-824.

Nottingham Business School, 2018. *DBA Course Handbook: Cohort 20 - 2018-2022*. Nottingham: Nottingham Business School.

Ojha, R. and Venkatesh, U., 2022. Manufacturing excellence using lean systems–a case of an automotive aggregate manufacturing plant in India. *Journal of Advances in Management Research*, 19 (1), pp.1-11.

Onofrei, G., Fynes, B., Nguyen, H. and Azadnia, A.H., 2021. Quality and lean practices synergies: A swift even flow perspective. *International Journal of Quality & Reliability Management*, 38 (1), pp.98-115.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. and 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), pp.879.

Podsakoff, P.M., MacKenzie, S.B. and Podsakoff, N.P., 2012. Sources of method bias in social science research and recommendations on how to control it. *Annual review of psychology*, 63, pp.539-569.

Poksinska, B., Swartling, D. and Drotz, E., 2013. The daily work of Lean leaders–lessons from manufacturing and healthcare. *Total Quality Management & Business Excellence*, 24 (7-8), pp.886-898.

Powell, E.T. and Renner, M., 2003. *Analysing Qualitative Data. Programme Development and Evaluation* [Online]. Available at: https://learningstore.uwex.edu/assets/pdfs/g3658-12.pdf [Accessed 2 Nov 2018].

Peytchev, A., 2013. Consequences of survey nonresponse. *The ANNALS of the American Academy of Political and Social Science*, 645 (1), pp.88-111.

Rafferty, A.E. and Griffin, M.A., 2004. Dimensions of transformational leadership: Conceptual and empirical extensions. *The leadership quarterly*, 15 (3), pp.329-354.

Rajashekharaiah, J., 2014. Quality leaders-Learning from the Deming prize winners in India. *International Journal for Quality Research*, *8* (3), pp.431-446.

Reio Jr, T.G., 2010. The threat of common method variance bias to theory building. *Human Resource Development Review*, 9 (4), pp.405-411.

Reiner, M., 2018, June. Leadership to lean. In: 2018. *IEEE Technology and Engineering Management Conference (TEMSCON), June 28-29 2018*. IEEE, pp. 1-5.

Reynders, P., Kumar, M. and Found, P., 2022. 'Lean on me': an integrative literature review on the middle management role in lean. *Total Quality Management & Business Excellence*, 33 (3-4), pp.318-354.

Richardson, H.A., Simmering, M.J. and Sturman, M.C., 2009. A tale of three perspectives: Examining post hoc statistical techniques for detection and correction of common method variance. *Organizational Research Methods*, 12 (4), pp.762-800.

Sadun, R., Bloom, N. and Reenen, J.V., 2017. "Why do we undervalue competent management?", *Harvard Business Review*, 95 (5), pp. 120-127.

Sahoo, S. and Yadav, S., 2018. Lean implementation in small-and medium-sized enterprises: An empirical study of Indian manufacturing firms. *Benchmarking: An International Journal*, 25 (4), pp.1121-1147.

Sahoo, S., 2020. Assessing lean implementation and benefits within Indian automotive component manufacturing SMEs. *Benchmarking: An International Journal*, 27 (3), pp.1042-1084.

Sahoo, S., 2022. Lean practices and operational performance: the role of organizational culture. *International Journal of Quality & Reliability Management*, 39 (2), pp.428-467.

Sahyaja, C.H., Rajeshkumar, G. and Sekhararao, K.S., 2018. Role of lean manufacturing leadership on technology transfer in India: A facet of manufacturing industries with reference to Guntur District, Andhra Pradesh. *International Journal of Mechanical and Production Engineering Research and Development*, 8 (3), pp.257-566.

Salem, R., Musharavati, F., Hamouda, A.M. and Al-Khalifa, K.N., 2016. An empirical study on lean awareness and potential for lean implementations in Qatar industries. *The International Journal of Advanced Manufacturing Technology*, 82, pp.1607-1625.

Samal, A., Patra, S. and Chatterjee, D., 2019. Impact of culture on organizational readiness to change: context of bank M&A. *Benchmarking: An international journal*, 28 (5), pp.1503-1523.

Saunders, M., Philip, L. and Adrian, T., 2015. *Research Methods for Business Students*. 7th ed. UK: Pearson.

Schein, E.H., 1984. Coming to a new awareness of organizational culture. *Sloan management review*, 25 (2), pp.3-16.

Schilke, O., Hu, S. and Helfat, C.E., 2018. Quo vadis, dynamic capabilities? A content-analytic review of the current state of knowledge and recommendations for future research. *Academy of management annals*, 12 (1), pp.390-439.

Schriesheim, C.A., Wu, J.B. and Scandura, T.A., 2009. A meso measure? Examination of the levels of analysis of the Multifactor Leadership Questionnaire (MLQ). *The Leadership Quarterly*, 20 (4), pp.604-616.

Schwartz, S.H., 1992. Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in experimental social psychology*. 25, pp. 1-65.

Schwartz, S.H., 1999. A theory of cultural values and some implications for work. *Applied psychology*, 48 (1), pp.23-47.

Schwartz, S.H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., Ramos, A., Verkasalo, M., Lönnqvist, J.E., Demirutku, K. and Dirilen-Gumus, O., 2012. Refining the theory of basic individual values. *Journal of personality and social psychology*, 103 (4), pp.663-688.

Schwartz, S.H., Cieciuch, J., Vecchione, M., Torres, C., Dirilen-Gumus, O. and Butenko, T., 2017. Value tradeoffs propel and inhibit behavior: Validating the 19 refined values in four countries. *European Journal of Social Psychology*, 47 (3), pp.241-258.

Secchi, R. and Camuffo, A., 2016. Rolling out lean production systems: a knowledge-based perspective. *International Journal of Operations & Production Management*, 36 (1), pp.61-85.

Secchi, R. and Camuffo, A., 2019. Lean implementation failures: the role of organizational ambidexterity. *International journal of production economics*, 210, pp.145-154.

Seidel, A., Saurin, T.A., Marodin, G.A. and Ribeiro, J.L.D., 2017. Lean leadership competencies: a multi-method study. *Management Decision*, 55 (10), pp.2163-2180.

Seidel, A., Saurin, T.A., Tortorella, G.L. and Marodin, G.A., 2019. How can general leadership theories help to expand the knowledge of lean leadership?. *Production Planning & Control*, 30 (16), pp.1322-1336.

Sim K, Rodgers J., 2009. Implementing Lean production systems: barriers to change. *Management Research News*; 32, pp.37–49.

Shaaban, S., 2017. The Impact of Leadership Style on Middle Managers' Motivation: A Study of the Ministry of Civil Aviation in Egypt. *Journal of Business and Management Sciences*, 5 (3), pp.100-107.

Shah, R. and Ward, P.T., 2007. Defining and developing measures of lean production. *Journal of operations management*, 25 (4), pp.785-805.

Shah, R. and Ward, P.T., 2003. Lean manufacturing: context, practice bundles, and performance. *Journal of operations management*, 21 (2), pp.129-149.

Shin, D. and Alam, M.S., 2022. Lean management strategy and innovation: moderation effects of collective voluntary turnover and layoffs. *Total Quality Management & Business Excellence*, 33 (1-2), pp.202-217.

Shim, W.S. and Steers, R.M., 2012. Symmetric and asymmetric leadership cultures: A comparative study of leadership and organizational culture at Hyundai and Toyota. *Journal of World Business*, 47 (4), pp.581-591.

Shrestha, N., 2021. Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics*, 9 (1), pp.4-11.

Siddique, C.M., Siddique, H.F. and Siddique, S.U., 2020. Linking authoritarian leadership to employee organizational embeddedness, LMX and performance in a high-power distance culture: a mediation-moderated analysis. *Journal of Strategy and Management*, 13 (3), pp.393-411.

Sisson, J.A., 2019. Maturing the lean capability of front-line operations supervisors. *International Journal of Lean Six Sigma*, 10 (1), pp.2-22.

Soave, D. and Sun, L., 2017. A generalized Levene's scale test for variance heterogeneity in the presence of sample correlation and group uncertainty. *Biometrics*, 73 (3), pp.960-971.

Solaimani, S., Veen, J.V.D., Sobek II, D.K., Gulyaz, E. and Venugopal, V., 2019. On the application of Lean principles and practices to innovation management: A systematic review. *The TQM Journal*, 31 (6), pp.1064-1092.

Sowards, D., 2009. *Inch by inch : Measuring your success with lean programs* [online]. Available at: http://www.snipsmag.com/ [Accessed 28 May 2023].

Spear, S,. 2004. Learning to lead at Toyota. *Harvard Business Review*, 82 (5), pp. 78-86.

Squire, C., Andrews, M., Davis, M., Esin, C., Harrison, B., Hyden, L.C. and Hyden, M., 2014. *What is narrative research?*. London: Bloomsbury Academic.

Srimathi, K. and Narashiman, K., 2021. Leadership styles and their impact on lean six sigma practices in Indian industries. *South African Journal of Industrial Engineering*, 32 (1), pp.1-13.

Swarnakar, V. and Vinodh, S., 2016. Deploying Lean Six Sigma framework in an automotive component manufacturing organization. *International journal of lean six sigma*, 7 (3), pp.267-293.

Szabo, E., Reber, G., Weibler, J., Brodbeck, F.C. and Wunderer, R., 2001. Values and behavior orientation in leadership studies: Reflections based on findings in three German-speaking countries. *The Leadership Quarterly*, 12 (2), pp.219-244.

Rokeach, M., 1973. *The nature of human values*. New York, NY: Free Press.

Tan, A.B., Van dun, D.H. and Wilderom, C.P., 2023. Lean innovation training and transformational leadership for employee creative role identity and innovative work behavior in a public service organization. *International Journal of Lean Six Sigma*. (AHEAD OF PRINT)

Tasdemir, C. and Gazo, R., 2018. A systematic literature review for better understanding of lean driven sustainability. *Sustainability*, 10 (7), pp.1-54.

Taherimashhadi, M. and Ribas, I., 2018. A Model to Align Organizational Culture to Lean Culture. *Journal of Industrial Engineering and Management*, 11 (2), pp.207-221.

Tehseen, S., Ramayah, T. and Sajilan, S., 2017. Testing and controlling for common method variance: A review of available methods. *Journal of management sciences*, 4 (2), pp.142-168.

Tiwari, R.K. and Tiwari, J.K., 2018. Prioritization of barriers to lean implementation in Indian automotive small & medium sized enterprises. *Management and Production Engineering Review*, 9, pp.69-79.

Toledo, J.C., Gonzalez, R.V.D., Lizarelli, F.L. and Pelegrino, R.A., 2019. Lean production system development through leadership practices. *Management Decision*, 57 (5), pp.1184-1203.

Tortorella, G., van Dun, D.H. and de Almeida, A.G., 2020. Leadership behaviors during lean healthcare implementation: a review and longitudinal study. *Journal of manufacturing technology management*, 31 (1), pp.193-215.

Tortorella, G.L., Fettermann, D., Fogliatto, F.S., Kumar, M. and Jurburg, D., 2021. Analysing the influence of organisational culture and leadership styles on the implementation of lean manufacturing. *Production planning & control*, 32 (15), pp.1282-1294.

Van Assen, M.F., 2018. Exploring the impact of higher management's leadership styles on lean management. *Total Quality Management & Business Excellence*, 29 (11-12), pp.1312-1341.

Van Assen, M.F., 2021. Lean, process improvement and customer-focused performance. The moderating effect of perceived organisational context. *Total Quality Management & Business Excellence*, 32 (1-2), pp.57-75.

Van de Ven, A.H., 2007. *Engaged scholarship: A guide for organizational and social research*. Oxford: Oxford university press.

Van Dun, D. H. and Wilderom, C.P., 2016. Lean-team effectiveness through leader values and members' informing. *International Journal of Operations & Production Management*, 36 (11), pp.1530-1550.

Van Dun, D.H. and Wilderom, C.P., 2021. Improving high lean team performance through aligned behaviour-value patterns and coactive vicarious learning-by-doing. *International Journal of Operations & Production Management*, 41 (13), pp.65-99.

Van Dun, D.H., Hicks, J.N. and Wilderom, C.P., 2017. Values and behaviors of effective lean managers: Mixed-methods exploratory research. *European management journal*, 35 (2), pp.174-186.

Van Elp, B., Roemeling, O. and Aij, K.H., 2022. Lean leadership: Towards continuous improvement capability in healthcare. *Health Services Management Research*, *3*5(1), pp.7-15.

Wahyuni, D., 2012. The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of applied management accounting research*, 10 (1), pp.69-80.

Waldman, D.A., Lituchy, T., Gopalakrishnan, M., Laframboise, K., Galperin, B. and Kaltsounakis, Z., 1998. A qualitative analysis of leadership and quality improvement. *The Leadership Quarterly*, 9 (2), pp.177-201.

Wang, X., Zhou, K. and Liu, W., 2018. Value congruence: a study of green transformational leadership and employee green behavior. *Frontiers in psychology*, *9*, pp.1-8.

Womack, J. P., and Jones, D. T., 2003. *Lean thinking: banish waste and create wealth in your corporation*. New York : Free Press.

Womack, J., Roos, D. and Jones, D., 1990. *The Machine That Changed the World*. New York: Rawson and Associates.

Womack, J.P., 2017. *Jim Womack on where lean has failed and why not to give up* [online], available at http://planet-lean.com/jim-womack-on-where-lean-has-failed-and-why-not-to-give-up [accessed 2 September 2017].

Yukl, G., 1998. *Leadership in organizations*. 4th ed. Upper Saddle River, NJ: Prentice-Hall.

Yukl, G., 1999. An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. *The leadership quarterly*, 10(2), pp.285-305.

Yukl, G., 2012. Effective leadership behavior: What we know and what questions need more attention. *Academy of Management perspectives*, 26(4), pp.66-85.

Yukl, G., Gordon, A. and Taber, T., 2002. A hierarchical taxonomy of leadership behavior: Integrating a half century of behavior research. *Journal of leadership & organizational studies*, 9(1), pp.15-32.

Zeng, J., Phan, C.A. and Matsui, Y., 2015. The impact of hard and soft quality management on quality and innovation performance: An empirical study. *International journal of production economics*, 162, pp.216-226.

Appendices

Appendix A: Quantitative survey instrument

Doctor of Business Administration (D.B.A) Research Study

(Candidate: Alagiri Govindasamy - Student ID: N0827647)

Quantitative Survey

Demographic Data:

Age	:
Gender	: Male ☐ Female ☐
Organization	:
Industry	:
Designation	:
Hierarchical Position	: Senior ☐ Middle ☐ Lower ☐ Emp ☐
Location and Country	:
Years' experience from the current organization	:
Total years of experience	:
Education Qualification	:
Nationality	:

Leadership Styles:

Rating scales:
0 – Not at all, 1 – Once in a while, 2 – Sometimes, 3 – Fairly often, 4 – Frequently, if not always

Sl No	Leadership Style	Sub Sections	Question	Rating Scale
1	**Transactional Leadership Style**	*Contingent reward*	My leader will appreciate me if I finish my job or punish me if I not meeting the expected work output. Example: I will get salary increment/promotion for meeting or exceeding the job outcome OR I will get a reprimand in case of not meeting job outcome	0☐ 1☐ 2☐ 3☐ 4☐

2		*Active Management by Exception*	My leader will adhere to proactive actions to predict any deviation against the established norms, thus I am under the fear of punishment	0☐ 1☐ 2☐ 3☐ 4☐
3		*Passive Management by Exception*	My leader will wait for a chance once the deviation occurs to punish me	0☐ 1☐ 2☐ 3☐ 4☐
4	**Transformational Leadership Style**	*Individualized consideration*	The leader always focus on followers' potential to bring the best out of them	0☐ 1☐ 2☐ 3☐ 4☐
5			The leader shows genuine concern in addressing followers needs by offering suitable development opportunities	0☐ 1☐ 2☐ 3☐ 4☐
6			The leader believes that each subordinate has unique strength and motivates them to align with organizational objectives	0☐ 1☐ 2☐ 3☐ 4☐
7			The leader acts as a mentor and trustable advisor for followers	0☐ 1☐ 2☐ 3☐ 4☐
8		*Idealized influence*	I admire and trust my leader's belief system and attitude to promote the organizational objectives	0☐ 1☐ 2☐ 3☐ 4☐
9		*Attributed idealized influence*	My leader demonstrates a higher degree of self-confidence in tough times	0☐ 1☐ 2☐ 3☐ 4☐
10			I perceive my leader's ability to demonstrate power vested with him/her and confidence to navigate tough times to meet corporate objectives	0☐ 1☐ 2☐ 3☐ 4☐
11		*Behavioral Idealized Influence*	My leader's values and belief system always align with ethical dimensions to achieve the organizational goals	0☐ 1☐ 2☐ 3☐ 4☐
12			My leaders sense of mission and purpose are always in line with moral aspects	0☐ 1☐ 2☐ 3☐ 4☐
13		*Inspirational motivation*	My leader propel my faith in the future by challenging my current work and kindle my faith for the optimistic world	0☐ 1☐ 2☐ 3☐ 4☐
14			My leader is an ideal role model for me	0☐ 1☐ 2☐ 3☐ 4☐
15			I firmly believe that I can achieve ambitious goals that may have previously seemed unreachable by virtue of my leader's inspirational activities	0☐ 1☐ 2☐ 3☐ 4☐
16		*Intellectual stimulation*	My leader will challenge my status quo to explore out of the box solutions to achieve the results	0☐ 1☐ 2☐ 3☐ 4☐
17			My leader stimulates my own thinking mechanism by challenging my belief system	0☐ 1☐ 2☐ 3☐ 4☐
18			I got a different mind-set to approach my regular work on the journey to organizational transformation	0☐ 1☐ 2☐ 3☐ 4☐

Leadership Values:

Rating scales:
0 – Not at all, 1 – Once in a while, 2 – Sometimes, 3 – Fairly often, 4 – Frequently, if not always

Sl No	Leadership value cluster	Question	Rating Scale
1	*Openness to change*	My leader wants to be creative in exploring new kinds of activities	0☐ 1☐ 2☐ 3☐ 4☐
2		My leader is independent in nature and makes own ideas	0☐ 1☐ 2☐ 3☐ 4☐
3		Being innovative – An important criteria for my leader	0☐ 1☐ 2☐ 3☐ 4☐
4		My leader wants full liberty to implement own ideas	0☐ 1☐ 2☐ 3☐ 4☐
5	*Self-enhancement*	My leader is looking for an influential hierarchical position	0☐ 1☐ 2☐ 3☐ 4☐
6		My leader want to set high standards	0☐ 1☐ 2☐ 3☐ 4☐
7		My leader is looking for recognition for his/her hard work	0☐ 1☐ 2☐ 3☐ 4☐
8		My leader wants to influence people around him/her	0☐ 1☐ 2☐ 3☐ 4☐
9		My leader wants to preserve self-identity	0☐ 1☐ 2☐ 3☐ 4☐
10	*Self-transcendence*	My leader wants to help his/her confidants in need	0☐ 1☐ 2☐ 3☐ 4☐
11		My leader will maintain his/her timely support to close friends in need	0☐ 1☐ 2☐ 3☐ 4☐
12		My leader wants to establish myself as a trustable person	0☐ 1☐ 2☐ 3☐ 4☐
13		My leader wants all of the employees should have equal opportunities	0☐ 1☐ 2☐ 3☐ 4☐
14		My leader will treat all followers in an equal manner	0☐ 1☐ 2☐ 3☐ 4☐
15		My leader wants to ensure the wellbeing of followers	0☐ 1☐ 2☐ 3☐ 4☐
16		My leader appreciate his/her followers concerns who may not align with their expectations	0☐ 1☐ 2☐ 3☐ 4☐
17	*Conservation*	My leader safeguard himself/herself by virtue of working in a safe working environment	0☐ 1☐ 2☐ 3☐ 4☐
18		My leader wants to preserve traditional values and belief system in the workplace context	0☐ 1☐ 2☐ 3☐ 4☐
19		My leader wants to be humble and maintain harmony in the work environment by not offending others	0☐ 1☐ 2☐ 3☐ 4☐
20		Being perfect at all times – An important criteria for my leader	0☐ 1☐ 2☐ 3☐ 4☐

Leadership Behaviours:

Rating scales:
1 – Not at all, 2 – To a Limited extent, 3 – To a Moderate extent, 4 – To a Considerable extent, 5 – To a Very great extent

Sl No	Leadership Behavioural cluster	Question	Rating Scale
1	*Task-oriented*	My leader wants to achieve optimum output from limited resources like facilities and employees	1☐ 2☐ 3☐ 4☐ 5☐
2		My leader has clear objectives from each task	1☐ 2☐ 3☐ 4☐ 5☐
3		My leader believes in close supervision to ensure the performance from followers	1☐ 2☐ 3☐ 4☐ 5☐
4	*Relations oriented*	My leader entrust a higher level of trust in his/her followers	1☐ 2☐ 3☐ 4☐ 5☐

5		My leader promotes cohesiveness and cooperation among followers	1☐ 2☐ 3☐ 4☐ 5☐
6		My leader aims to maintain constant motivation and positive energy among followers	1☐ 2☐ 3☐ 4☐ 5☐
7		My leader empowers his/her followers to find a solution for issues	1☐ 2☐ 3☐ 4☐ 5☐
8	*Change oriented*	My leader fosters innovative changes to promote organizational goals	1☐ 2☐ 3☐ 4☐ 5☐
9		My leader encourage out of the box thinking approach among followers	1☐ 2☐ 3☐ 4☐ 5☐
10		My leader appreciated the necessity to adopt the required tools and techniques to ensure change management program success	1☐ 2☐ 3☐ 4☐ 5☐
11		My leader facilitates collective learning among followers to embrace new changes	1☐ 2☐ 3☐ 4☐ 5☐
12	*External oriented*	My leader constantly monitor the external world to find out applicable changes to promote our organization success	1☐ 2☐ 3☐ 4☐ 5☐
13		My leader maintain cordial interaction with people from the outside world	1☐ 2☐ 3☐ 4☐ 5☐
14		My leader is receptive to new ideas from outside people to promote organizational goals	1☐ 2☐ 3☐ 4☐ 5☐

Power Distance – An Important Natural Cultural Dimension:

Rating scales:
1 – Strongly disagree, 2 – disagree, 3 - Neither agree nor disagree, 4 – Agree, 5 – Strongly Agree

Sl No	Question	Rating Scale
1	I will not compliant if I am in disagreement with my leader	1☐ 2☐ 3☐ 4☐ 5☐
2	The managerial position in the hierarchy will carry a special privilege and power in our organization	1☐ 2☐ 3☐ 4☐ 5☐
3	The leaders want to increase their distance from their followers in our organization.	1☐ 2☐ 3☐ 4☐ 5☐
4	The leader is expecting their followers to obey their instructions without any question	1☐ 2☐ 3☐ 4☐ 5☐
5	In our company, the personal influence from the leader is based on their indispensable contribution to companies' success stories or because of their authority from their designation?	1☐ 2☐ 3☐ 4☐ 5☐

Lean system outcome measurement:

Rating scales:
1 – Strongly disagree, 2 – disagree, 3 - Neither agree nor disagree, 4 – Agree, 5 – Strongly Agree

Sl No	Question	Rating Scale
1	Our leadership team is determined to continue improvement activities as a regular norm, not as a pre-requisite for any audit event	1☐ 2☐ 3☐ 4☐ 5☐
2	Our organization is ensuring to eliminate waste from processes	1☐ 2☐ 3☐ 4☐ 5☐
3	Our organization makes continuous effort to reduce the lead times from processes	1☐ 2☐ 3☐ 4☐ 5☐
4	My knowledge of lean tools allows me to fulfil my next customer demand in need	1☐ 2☐ 3☐ 4☐ 5☐
5	Our organization works hard to adopt best practices across the divisions	1☐ 2☐ 3☐ 4☐ 5☐
6	I am getting necessary training from my company to add more value addition	1☐ 2☐ 3☐ 4☐ 5☐

Appendix B: Quantitative survey – Participant information sheet and consent form

Research Study: The Leadership Role towards Lean System Success - The Case of India

Quantitative Survey - Participant Information Sheet and Consent Form

Thank you for agreeing to consider taking part in this research project. Before you decide to take part in this survey, it is important that you understand the reason why this research is being carried out, and what your participation will involve.

We would be grateful if you would take the time to read the following information carefully and discuss it with other people if you wish.

Please feel welcome to get back to us if anything is unclear, and take as much time as you need to decide whether or not to take part.

What is the purpose of the study?

The Lean system will transform an organization into a world-class one, but 90% lean implementations failed due to many reasons and the role of leadership is the top reason for this episode. To find an acceptable solution, the researcher will meet the leadership team from successful lean implementers to explore four leadership attributes – Leadership style, Leadership values, Leadership behaviours, and Power Distance, an important national cultural dimension. The objective of this research study is to help the industry and lean practitioners by emulating a workable and acceptable lean leadership framework, hence prospective organizations can benefit from this research study outcome to ensure the lean system implementation success. The focus area for this research study is the automobile industry from Tamilnadu, India. This research study is a first of kind study in India to exclusively focusing on leadership attributes and this research outcome will immensely benefit the industry. This research project started in Sep 2018 and the researcher is planning to complete this study within 3 years duration.

This questionnaire seeks to address the following research questions and you will be asked specific questions around your experiences during the survey:

- How the internal constructs from transactional and transformational leadership styles influence the lean leaders in India?
- How the lean leader's value system shapes lean system progress in India?
- What is the role of the lean leader's behavioural system towards lean system progress in India?
- How lean leaders manage the effects of the power distance cultural dimension in India?

The researcher will conduct 10 minutes orientation session to brief you on various concepts involved in this research study like leadership styles, values, behaviours and power distance cultural dimension. This will help you to make an informed decision while you answer the questionnaire from the survey.

Who is running this study?

This research project is being conducted by Alagiri Govindasamy, a postgraduate research student from Nottingham Business School, Nottingham Trent University and supervised by Dr. Nadia Kougiannou and Dr. Usha Ramanathan. Both Nadia and Usha work in Nottingham Business School, Nottingham Trent University and have rich experience in supervising such research studies.

Who is funding this study?

This study is managed by the researcher and there is no external funding available for this study.

Am I eligible to take part?

If you have experience in the lean system like active participation in implementation, supporting and maintaining the lean system, then you are invited to take a part in this research study.

What will I have to do if I agree to take part?

Participation will need to answer a list of questions with multiple answers available. The process can last for approximately 20 minutes and will be organized at a mutually convenient time, date and location.

Will my participation in the project remain confidential?

Only the research team (Alagiri Govindasamy. Dr. Nadia Kougiannou, Dr. Usha Ramanathan and University recognized transcription services) will have access to the questionnaire response in line with data protection principles and our approved research protocol. Hard copies of research notes are kept in locked filing cabinets, and data will be stored and managed using NTU Data Store in line with*NTU's Research Data Management Policy*. The filled questionnaire will be destroyed at the end of the project.

Your name, or any other personal identification, will not appear in any publications resulting from this study. No unpublished opinions or information will be attributed to you, either by name or position. The researcher will exercise all possible care to ensure that you and the organization you work for cannot be identified from any reports arising out of this research study.

The information you provide is confidential. With your permission (given through the consent form attached) anonymized quotes may be used. If you do not wish to give your permission for this to happen, the information you provide will be treated only as a source of background information. You should also be aware that researchers are duty-bound to pass on information that you provide if it reveals harm has, or could, come to you or a vulnerable individual.

Do I have to take part in this study?

No, participation in this study is entirely voluntary and is not related to your course or attainment in any way. Should you choose to take part you do not have to answer any questions you are not comfortable with.

What if I take part and then regret it?

You may also decide to withdraw from this study within two weeks after the event, without giving a reason, by emailing Alagiri Govindasamy (n0827647@my.ntu.ac.uk). If you notify us of your withdrawal, all identifiable data will be destroyed.

What are the advantages of taking part?

This research will give you an opportunity to share your vast experience in implementing, participating, supporting and maintaining the lean system. Your valuable inputs are instrumental in developing a workable lean leadership framework to help potential organizations to embrace the lean system.

What are the possible disadvantages and risks of taking part?

The main cost to you will be the time taken during the event. There are no known or anticipated risks to you as a participant in this study.

What will happen to the results?

A comprehensive dissertation will be the final outcome from this research project that may identify the workable lean leadership model tailored for Indian socio-economic conditions and the researcher is confident that this new model will help the organizations to great extent possible. Few journal articles may get produced from this study that can reach out wide audience from academic circle and lean practitioner community. We will also publish a short summary of our findings and recommendations and will circulate it amongst policymakers. You are welcome to receive a copy of this should you wish.

We anticipate that the results will also be used to inform:

- Develop a workable lean leadership model suited for socio-economic context from India
- Policy development to advise potential companies to embrace the lean system
- To enhance exiting theoretical knowledge about critical leadership parameters from India

Has anyone reviewed this study?

This research study has been reviewed by my academic supervisors from Nottingham Business School and approved by Professional Doctorates Research Ethics Committee (PDREC), Nottingham Trent University, UK.

I would like to be involved; what next?

We can arrange a convenient time, date and place for us to meet and conduct this session.

What will happen to any of my other personal information?

Your personal details will be securely stored as per *NTU's Research Data Management Policy*. The researcher Alagiri Govindasamy can contact your organization in the future to see if you would be willing to take part again to discuss your lean system perceptions after a year as part of a longitudinal study to explore how leader's perceptions get transforms over a period of time. Again, this is entirely voluntary and you should feel under no obligation to do this.

If you have any concerns or questions you can contact us in the following ways:

The researcher's contact details - e-mail: n0827647@my.ntu.ac.uk, Mobile: +91 9840920401. The supervisors can be reached at, Dr. N. K. Kougiannou (nadia.kougiannou@ntu.ac.uk) and Dr. Usha Ramanathan (usha.ramanathan@ntu.ac.uk), Nottingham Business School, Nottingham Trent University. Burton Street, Nottingham NG1 4BU, United Kingdom

Thank you.

Research Study: The Leadership Role towards Lean System Success - The Case of India

Quantitative Survey Consent Form

I confirm that (please tick boxes as appropriate):

1.	The purpose of the project has been explained to me. I have read and understood the information about this research project, as provided in the Quantitative Survey Participant Information Sheet.	☐

2.	I have been given the opportunity to ask questions about the project and received satisfactory responses to my questions.	☐
3.	I understand that the information collected during the survey will be looked at by the research team. I give my permission for these individuals to have access to my responses but recognize that the researcher may also be duty-bound to pass on information which reveals that harm has, or could, come to me or a vulnerable individual.	☐
4.	I am aware that excerpts from the survey may be included in publications and research dissemination. I understand that details and quotations will be kept anonymous.	☐
5.	I understand that my participation is voluntary and I can withdraw from this study within two weeks of my feedback to the questionnaire, with no penalty, and all data which can be attributed to me will be destroyed.	☐
6.	I voluntarily agree to take part in this study.	☐

Participant name:		Consent taken by:	
Participant signature:		Signature:	
Date:		Date:	

Appendix C: Qualitative interview questionnaire

Doctor of Business Administration (D.B.A) Research Study

(Candidate: Alagiri Govindasamy - Student ID: N0827647)

Interview Schedule

(Planned interview time: 60 minutes)

Demographic Data:

Age	:
Gender	: Male ☐ Female ☐
Organization	:
Industry	:
Designation	:
Hierarchical Position	: Senior ☐ Middle ☐ Lower ☐ Emp ☐
Location and Country	:
Years' experience from the current organization	:
Total years of experience	:
Education Qualification	:
Nationality	:

Interview Questions:

1. Please talk about yourself and your role from the current organization
2. Kindly share your lean system implementation experience from the current organization
3. Please share your perspectives on leadership qualities required for lean system success?
4. What is your preferred leadership styles to motivate your team members for lean system success?
5. What are your basic values within yourself to motivate your team for lean system success? Few sample values are participation and teamwork, continuous improvement, customer focus, ensure high product and process quality, honesty, and responsibility.
6. Can you please explain how do you deal with your followers and colleagues from the workplace environment? You may want to exhibit your preference from all or any of these behavioural categories: Task-related, change-related, relation oriented or external oriented. Few sample behavioural elements are designing and coaching teams, visiting the work floor, getting and giving information, engaging employees, and celebrating success.

7. How do you deal with the Power Distance Cultural dimension to achieve lean system success?

8. Can you please explain a few critical incidents where you demonstrated extraordinary leadership qualities during lean system implementation?

9. Kindly identify a few areas where you could have done better than what happened on the ground?

10. Can you please share your perceptions on your leader's role in lean projects – Where he played exceedingly well and failed?

11. As per your perspective, how a leader can make a lean system successful?

12. As a lean leader, your general advice to embrace lean system success for a typical automobile/auto ancillary organization?

Appendix D: Qualitative interview – Participant information sheet and consent form

Research Study: The Leadership Role towards Lean System Success - The Case of India

Interview Participant Information Sheet and Consent Form

Thank you for agreeing to consider taking part in this research project. Before you decide whether to grant us an interview, it is important that you understand the reason why this research is being carried out, and what your participation will involve.

We would be grateful if you would take the time to read the following information carefully and discuss it with other people if you wish.

Please feel welcome to get back to us if anything is unclear, and take as much time as you need to decide whether or not to take part.

What is the purpose of the study?

The Lean system will transform an organization into a world-class one, but 90% lean implementations failed due to many reasons and the role of leadership is the top reason for this episode. To find an acceptable solution, the researcher will meet the leadership team from successful lean implementers to explore four leadership attributes – Leadership style, Leadership values, Leadership behaviours, and Power Distance, an important national cultural dimension. The objective of this research study is to help the industry and lean practitioners by emulating a workable and acceptable lean leadership framework, hence prospective organizations can benefit from this research study outcome to ensure the lean system implementation success. The focus area for this research study is the automobile industry from Tamilnadu, India. This research study is a first of kind study in India to exclusively focusing on leadership attributes and this research outcome will immensely benefit the industry. This research project started in Sep 2018 and the researcher is planning to complete this study within 3 years duration.

This interview seeks to address the following research questions and you will be asked specific questions around your experiences during the interview:

- How the internal constructs from transactional and transformational leadership styles influence the lean leaders in India?
- How the lean leader's value system shapes lean system progress in India?
- What is the role of the lean leader's behavioural system towards lean system progress in India?
- How lean leaders manage the effects of the power distance cultural dimension in India?

The researcher will conduct 10 minutes orientation session to brief you on various concepts involved in this research study like leadership styles, values, behaviours and power distance cultural dimension. This will help you to make an informed decision while you answer the questionnaire during the interview process.

Who is running this study?

This research project is being managed by Alagiri Govindasamy, a postgraduate research student from Nottingham Business School, Nottingham Trent University and supervised by Dr. Nadia Kougiannou and Dr. Usha Ramanathan. Both Dr.Nadia and Dr.Usha work in Nottingham Business School, Nottingham Trent University and have rich experience in supervising such research studies.

Who is funding this study?

This study is managed by the researcher and there is no external funding available for this study.

Am I eligible to take part?

If you have experience in the lean system like active participation in implementation, supporting and maintaining the lean system, then you are invited to take a part in this research study.

What will I have to do if I agree to take part?

Participation will have one to one interview session with Alagiri Govindasamy. The interview can last approximately one hour and will be organized at a mutually convenient time, date and location. With your consent, the interview will be recorded using an audio-recorder.

Will my participation in the project remain confidential?

Only the research team (Alagiri Govindasamy. Dr. Nadia Kougiannou, Dr. Usha Ramanathan and University recognized transcription services) will have access to the recorded interview data and transcript, in line with data protection principles and our approved research protocol. Hard copies of research notes are kept in locked filing cabinets, and data will be stored and managed using NTU Data Store in line with *NTU's Research Data Management Policy*. The recordings will be destroyed at the end of the project.

Anonymous transcription data will be retained and disposed of in line with data protection legislation. Your name, or any other personal identification, will not appear in any publications resulting from this study. No unpublished opinions or information will be attributed to you, either by name or position. The researcher will exercise all possible care to ensure that you and the organization you work for cannot be identified from any reports arising out of this research study.

The information you provide is confidential. With your permission (given through the consent form attached) anonymized quotes may be used. If you do not wish to give your permission for this to happen, the information you provide will be treated only as a source of background information. You should also be aware that researchers are duty-bound to pass on information that you provide if it reveals harm has, or could, come to you or a vulnerable individual.

Do I have to take part in this study?

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What if I take part and then regret it?

You may also decide to withdraw from this study within two weeks after the interview, without giving a reason, by emailing Alagiri Govindasamy (n0827647@my.ntu.ac.uk). If you notify us of your withdrawal, all identifiable data will be destroyed.

What are the advantages of taking part?

This research will give you an opportunity to share your vast experience in implementing, participating, supporting and maintaining the lean system. Your valuable inputs are instrumental in developing a workable lean leadership framework to help potential organizations to embrace the lean system.

What are the possible disadvantages and risks of taking part?

The main cost to you will be the time taken during the interview. There are no known or anticipated risks to you as a participant in this study, although you may find discussing your own personal situation in the lean system implementation context.

What will happen to the results?

A comprehensive dissertation will be the final outcome from this research project that may identify the workable lean leadership model tailored for Indian socio-economic conditions and the researcher is confident that this new model will help the organizations to great extent possible. Few journal articles may get produced from this study that can reach out wide audience from academic circle and lean practitioner community. We will also publish a short summary of our findings and recommendations and will circulate it amongst policymakers. You are welcome to receive a copy of this should you wish.

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If you have any concerns or questions you can contact us in the following ways:

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Thank you.

Research Study: The Leadership Role towards Lean System Success - The Case of India

Interview Consent Form

I confirm that (please tick boxes as appropriate):

1.	The purpose of the project has been explained to me. I have read and understood the information about this research project, as provided in the Interview Participant Information Sheet.	☐
2.	I have been given the opportunity to ask questions about the project and received satisfactory responses to my questions.	☐
3.	I give my permission for the interview audio to be recorded, on the understanding that the file will be destroyed at the end of the project.	☐
4.	I understand that the information collected during the interview will be looked at by the research team. I give my permission for these individuals to have access to my responses but recognize that the researcher may also be duty-bound to pass on information which reveals that harm has, or could, come to me or a vulnerable individual.	☐
5.	I am aware that excerpts from the interview may be included in publications and research dissemination. I understand that details and quotations will be kept anonymous.	☐
6.	I understand that my participation is voluntary and I can withdraw from this study within two weeks of my interview, with no penalty, and all data which can be attributed to me will be destroyed.	☐
7.	I voluntarily agree to take part in this study.	☐

Participant name:		Consent taken by:	
Participant signature:		Signature:	
Date:		Date:	