FACTORS INFLUENCING THE LEAN PRACTICES IMPLEMENTATION IN LOGISTIC COMPANY

URSELLA A/P MITCHELL DASS

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URSELLA A/P MITCHELL DASS

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Universiti Utara Malaysia

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Nama Pelajar
(Name of Student) : **Ursella A/P Mitchell Dass**

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Nama Penyelia/Penyelia-penyelia
(Name of Supervisor/Supervisors) : **Dr. Siti Norhasmaedayu Mohd Zamani**

Tandatangan

Nama Penyelia/Penyelia-penyelia
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Abstract

Lean management has emerged as a vital strategy in enhancing operational efficiency and waste reduction, particularly within the logistics sector. This study explores the factors influencing lean management practices in a logistics company in Penang, Malaysia. Guided by the Theory the of Planned Behavior (TPB), the research focuses on three key constructs attitude, subjective norm, and perceived behavioral control as independent variables affecting behavioral intention. A quantitative research approach was employed, using a standardized questionnaire distributed to 99 logistics employees. Reliability was ensured through a pilot test, with all constructs recording acceptable Cronbach's alpha values. Descriptive analysis, Pearson correlation, and multiple regression techniques were used to analyze the data. The findings reveal that all three TPB constructs significantly influence the intention to adopt lean practices, with perceived behavioral control showing the strongest predictive power. These results suggest that employees are more inclined to engage in lean practices when they feel empowered and supported in their roles. This study contributes to the growing body of knowledge on lean implementation by emphasizing the importance of psychological and social readiness. It offers valuable insights for logistics organizations aiming to foster a lean culture and improve operational outcomes through employee engagement and behavioral alignment.

Keywords: Lean Management, Theory of Planned Behavior, Logistics, Employee Influence, Behavioral Intention

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List of Abbreviation

SPSS Statistical Package for Social Science

UUM Universiti Utara Malaysia

TPB Theory of Planned Behaviour

IV Independent Variable

DV Dependent Variable

CHAPTER 1

INTRODUCTION

In today's fast-evolving business environment, logistics companies are continuously seeking methods to improve operational efficiency and remain competitive. As supply chain activities become more complex and customer expectations continue to rise, organizations are increasingly turning to structured improvement approaches such as lean practices to streamline operations and reduce waste. Lean practices are designed to eliminate non-value-added activities and optimize resources, enabling companies to deliver better services with fewer inputs (Womack & Jones, 1996).

Within the logistics industry, lean practices such as 5S, Kaizen, Just-In-Time (JIT), and standardized work procedures have become essential tools to increase productivity, minimize delays, and ensure consistent service quality. These practices support the organization in enhancing value for customers while maintaining cost efficiency. However, the success of lean implementation greatly depends on the employees who carry out these practices on the ground. Without employee understanding, acceptance, and commitment, even the best lean strategies may fail to yield long-term results.

In companies such as DSV Solutions, where logistics operations play a central role, the influence and involvement of employees in lean practices are critical. Employee influence can influence the degree to which lean tools are effectively used and sustained over time. Factors such as how employees view the usefulness of lean, the ease of applying lean methods, and their overall attitude toward change play a significant role in shaping the outcome of lean initiatives.

This research aims to explore the influence of employees toward lean practices in a logistics company, using DSV Solutions as the case study. The study will also identify key factors that

influence employee engagement and intention to support lean initiatives. This chapter outlines the background of the study, defines relevant terms, and introduces the research objectives and questions.

1.1 Background of the Study

In the modern era of global business, logistics has become the backbone of supply chain management, playing a vital role in ensuring that goods and services reach customers in a timely, cost-effective, and quality-assured manner. As customer demands increase and markets become more competitive, logistics service providers are required to continuously improve operational efficiency, reduce waste, and optimize performance. One of the widely adopted strategies to achieve this is lean management, which aims to eliminate non-value-adding activities and enhance productivity across various business functions (Womack & Jones, 1996).

Lean practices such as 5S, Kaizen, and Just-In-Time (JIT) have been widely introduced in manufacturing and logistics environments to streamline processes, minimize delays, and improve resource utilization. These practices have shown great potential in reducing cycle times, lowering operating costs, and improving service quality across the logistics value chain (Shah & Ward, 2007). In logistics companies such as DSV Solutions, the implementation of lean strategies is seen as a key driver to staying competitive in a rapidly changing environment.

However, one of the main challenges in implementing lean practices lies in employee engagement and influence. Employees are the frontliners of any operational process, and their acceptance, understanding, and commitment to lean practices are critical to its success. Without proper alignment of employee mindset and lean principles, organizations may struggle to

sustain lean implementation in the long term. According to Bhasin (2012), lean initiatives often fail or underperform not because of technical issues, but due to cultural resistance and lack of employee buy-in.

Moreover, employees may perceive lean practices differently based on their roles, experience, workload, and the clarity of training provided. If employees view lean as an added burden or fail to understand its long-term value, they are less likely to implement it effectively in their daily tasks. This variation in influence may lead to inconsistent adoption across departments, ultimately affecting the overall performance of the lean initiative (Liker, 2004). Understanding these influences is crucial for companies like DSV Solutions to tailor their lean strategies and training efforts to suit the workforce and ensure successful adoption.

In addition, the dynamic nature of logistics operations influenced by real-time decisions, customer-specific needs, and high operational pressures adds complexity to lean implementation. For lean practices to be effective in this environment, they must be seen by employees as useful, practical, and applicable to their specific workflows. Research in this area will help logistics companies understand what influences employee influence and how to better engage the workforce in continuous improvement efforts.

DSV Solutions Sdn Bhd is a global leader in transport and logistics services, operating in over 80 countries with a strong presence in Malaysia. The company specializes in providing end-to-end supply chain solutions, including warehousing, inventory management, and distribution services, tailored to meet diverse industry needs. In Malaysia, DSV Solutions manages extensive warehouse facilities and leverages advanced technologies to optimize operations, reduce lead times, and enhance service reliability. The company's commitment to operational excellence and continuous improvement aligns closely with lean principles, making it a fitting case for examining employee influences toward lean practices.

Hence, this study aims to explore the influences of employees toward lean practices within a logistics company, using DSV Solutions as a case example. It seeks to identify the key factors influencing employee acceptance and determine how these influences may impact the success of lean implementation at the ground level. The findings will provide valuable insights for logistics organizations in improving lean training programs, communication strategies, and overall adoption effectiveness.

1.2 Problem Statement

In today's fast-paced logistics environment, companies are under growing pressure to enhance efficiency, reduce waste, and deliver greater value to customers. Lean management has emerged as a widely adopted approach to address these challenges by minimizing non-value-adding activities, improving productivity, and promoting continuous improvement (Sahoo & Yadav, 2020). Although lean practices such as 5S, Kaizen, and Just-In-Time (JIT) are well-established in the manufacturing sector, their implementation in logistics companies presents a unique set of challenges, particularly at the employee level.

The success of lean implementation largely depends on how employees perceive, understand, and engage with these practices. Employees are the key executors of lean initiatives, and their influence of the usefulness, relevance, and ease of applying lean practices significantly influences the outcome of such initiatives (Sundar et al., 2021). However, in many logistics' environments, employees may view lean practices as additional workload, irrelevant to their roles, or too complex to apply without adequate support or training. Such influences can hinder employee engagement and result in poor adoption, inconsistent practices, and resistance to change (Ahmed & Hassan, 2022).

Next, DSV Solution is a global transport and logistics company headquartered in Hedehusene, Denmark. Founded in 1976, DSV provides a wide range of services including road, air, sea, and rail freight, as well as warehousing and supply chain solutions. Over the years, DSV has expanded significantly through strategic acquisitions, becoming one of the largest logistics providers in the world. Operating in over 80 countries, DSV is known for its efficient, technology-driven logistics services that support global trade and supply chain management across various industries.

In the case of DSV Solutions in Penang, a global logistics provider operating in a high-demand industrial zone, the adoption of lean practices is critical to maintaining competitiveness and operational excellence. However, several operational challenges hinder this effort, including carton swaps during order picking, extra cartons being sent to customers, and incorrect pallet IDs being dispatched. These issues not only increase operational costs and rework but also risk damaging customer satisfaction and the company's reputation. Such errors often stem from process gaps, inconsistent adherence to standard operating procedures, and varying levels of employee attention to detail factors that lean practices aim to address.

The Theory of Planned Behavior (TPB) provides a useful framework to understand and address these challenges, as it links employee behavior to their attitudes, perceived social pressures (subjective norms), and perceived control over tasks (Ajzen, 1991). In the context of DSV Solutions, employee attitudes toward lean practices can influence whether they view process adherence (e.g., accurate carton checks and pallet ID verification) as valuable. Subjective norms, such as peer expectations or managerial emphasis on accuracy, can shape employee motivation to follow procedures. Perceived behavioral control relates to employees' confidence in their ability to execute lean practices effectively, such as having the skills, resources, and time to prevent operational errors. By applying TPB, DSV can identify and

address the cognitive and social factors that affect employees' intention to consistently implement lean practices, thereby reducing recurring operational issues and enhancing process efficiency.

Therefore, this study aims to investigate the influence of employees toward lean management practices in a logistics company, with a specific focus on DSV Solutions in Penang. By exploring the employee viewpoint, this research will provide valuable insights for logistics firms to tailor their lean strategies, training programs, and employee engagement efforts for more effective implementation and long-term success.

1.3 Research Questions

After a review of relevant literature, this study addressed the following three primary research topics:

- What is the relationship between employee's attitude and Lean Management Practices?
- What is the relationship between employees' subjective norm and Lean Management Practices?
- What is the relationship between employees' perceived control behaviour Lean Management Practices?

1.4 Research Objectives

Considering this and aiming to answer the research questions from the previous section, this study seeks to achieve the following objectives:

- To examine the relationship between employees' attitude and Lean Management Practices.
- To examine the relationship between employees' subjective norm and Lean Management Practices.
- To examine the relationship between employees' perceive control behaviour and Lean Management Practices.

1.5 Significant of Study

This study on the influence of employees toward lean practices in a logistics company holds both theoretical and practical significance. It contributes to the growing body of knowledge on lean implementation by examining how employee attitudes and understanding influence the success of lean initiatives, particularly within the logistics sector in Malaysia. While lean management has been widely applied in manufacturing, its adoption in logistics is still evolving and less studied, especially from the perspective of frontline employees who play a critical role in daily execution.

From a theoretical perspective, the study enriches academic understanding of how lean principles such as 5S, Kaizen, and Just-In-Time are received and interpreted by logistics workers. By exploring the human and behavioral dimensions of lean adoption, this research addresses a gap in existing literature, which often emphasizes technical and managerial aspects over employee-level engagement (Ahmed & Hassan, 2022). Furthermore, this study adds to recent research that links employee influence with organizational change outcomes, helping to expand theories related to change management, organizational behavior, and operational efficiency in logistics environments.

Academically, the findings will be valuable to students, scholars, and educators in the fields of supply chain management, logistics, organizational behavior, and human resource development. It can serve as a reference for future research on lean transformation, employee engagement, and operational excellence in warehouse settings. Researchers can use the insights to develop new frameworks that integrate employee behavior into lean implementation models, particularly in logistics-focused industries like DSV Solutions.

From a practical standpoint, this study provides actionable insights for logistics companies seeking to improve lean adoption. For DSV Solutions and other firms operating in industrial zones such as Bayan Lepas, Penang, the research can inform the design of more effective lean training programs, communication strategies, and support systems to boost employee understanding and participation. Understanding employee influences allows management to address resistance, foster a lean culture, and ensure consistency in the application of lean tools across all operational levels.

Logistics managers, supervisors, and continuous improvement teams can leverage the findings to strengthen employee involvement, reduce implementation failures, and align operational goals with lean objectives. Additionally, HR and training departments can utilize the results to tailor onboarding and refresher programs that address gaps in awareness, perceived usefulness, and ease of use of lean practices. The study also offers insights to policy developers and consultants working with logistics firms to promote workforce-driven improvement programs that lead to sustainable performance and long-term competitiveness.

1.6 Scope of Study

This research aims to examine employee influences of lean management practices within a logistics environment, focusing specifically on DSV Solutions' warehouse operations in Penang. The study investigates how employees understand, accept, and engage with lean tools such as 5S, Kaizen, Standard Operating Procedures (SOPs), and Continuous Improvement initiatives. As lean practices are often introduced as part of efficiency and cost-reduction strategies, the success of these initiatives depends significantly on the awareness, attitude, and behavioral intention of the workforce implementing them.

The study will focus on warehouse-level employees and operational staff at DSV Solutions who are directly involved in daily logistics and fulfillment processes. These employees are crucial stakeholders in lean implementation, yet their perspectives are often underrepresented in organizational assessments. The research will explore key dimensions such as perceived usefulness, ease of applying lean tools, employee motivation, and level of participation in lean-related initiatives. It will also examine the influence of internal communication, training programs, and management support in shaping these influences.

Geographically, the scope is limited to DSV Solutions' facilities located in the Bayan Lepas industrial zone of Penang, one of Malaysia's major logistics and manufacturing hubs. The region is known for high-volume warehousing, just-in-time delivery systems, and export-oriented industries of which benefit from successful lean implementation. The findings are expected to reflect the realities of employee engagement in a high-demand logistics setting and may be applicable to similar companies operating in industrial areas throughout Southeast Asia.

The study will employ a quantitative research methodology, utilizing structured questionnaires distributed to employees across various departments within DSV's warehouse.

Data collected will focus on measurable variables such as employee awareness of lean practices, perceived effectiveness of those practices, and intention to adopt or sustain them in daily tasks. Descriptive and inferential statistical analyses will be conducted using tools such as SPSS to identify key trends, relationships, and gaps in lean adoption from the employee's perspective.

Participants in this study will include operational staff, customer services, warehouse supervisors, team leader. Their responses will help assess how effectively lean principles are being implemented and where improvements may be needed. The study excludes top-level management and decision-makers, as its focus is centered on employees directly engaged in day-to-day logistics processes.

In conclusion, this research is designed to provide practical and data-driven insights into the human factors influencing the lean management adoption within a real-world logistics setting. By focusing on DSV Solutions in Penang, the study will help uncover challenges and opportunities for improving employee engagement in lean practices. These findings can support future organizational strategies and training programs aimed at enhancing lean implementation across the logistics industry.

1.7 Definition of Key Terms

1.7.1 Attitude

Attitude toward the behavior refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. (Swati, A., & Kabra, A. 2018)

1.7.2 Subjective Norm

Subjective Norms (SN), defined as one's beliefs about whether significant others think that one should engage in the activity. (Swati, A., & Kabra, A. 2018)

1.7.3 Perceive Behavior Control

Perceived behavioural control or the perceived ability to execute leads to higher intention of lean practices among employees. (Simonchik, A. 2013)

1.7.4 Lean Management Practices

According to Ghosh (2012), lean management practices are exceedingly effective to eliminate wastes, to streamline the processes and to improve demand management.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of relevant literature and theoretical foundations for the study. It covers the definitions and key concepts of lean management, employee influence, and the Theory of Planned Behavior (TPB). The chapter also examines previous studies related to lean implementation, particularly in logistics and warehouse environments, and identifies factors influencing employee attitudes, subjective norms, and perceived behavioral control in relation to lean adoption. The chapter concludes by introducing the theoretical framework, developing the study's hypotheses, and highlighting research gaps.

Lean management, originally established in the manufacturing sector, has been increasingly adapted in logistics environments to enhance operational efficiency, reduce waste, and improve service delivery. In the context of warehouse operations such as those found in companies like DSV Solutions in Penang lean tools like 5S, Kaizen, Kanban, and standardized work processes have been introduced to improve flow and reduce non-value-added activities. However, the success of these practices largely depends on the influences and behavioral intentions of the employees who implement them.

This study focuses on understanding how logistics employees perceive and respond to lean practices. Drawing on the Theory of Planned Behavior (Ajzen, 1991), this research investigates how three key psychological factors such as attitude toward the behavior, subjective norms, and perceived behavioral control that influence employees' intentions to adopt lean practices. TPB is a well-established behavioral theory that explains how intentions are shaped by an individual's beliefs about the outcomes of the behavior, social pressures, and perceived ease or

difficulty of performing the behavior. These components provide a structured lens through which employee acceptance and implementation of lean practices can be analyzed.

The literature review highlights how employee-related factors such as perceived advantages (e.g., efficiency, workload reduction), peer and managerial expectations, training access, and personal confidence play critical roles in lean implementation. Prior studies suggest that employee resistance, lack of awareness, and insufficient support are common barriers to successful lean adoption, particularly in non-manufacturing environments. While lean has gained traction in logistics globally, there is limited research on how front-line employees in Southeast Asian logistics settings perceive and engage with these practices.

2.2 Attitude

2.2.1 Concept and Definition of Attitude

Attitude is conceptualized as the overall evaluation, either perceived advantage or perceived disadvantage of performing the behaviour of interest. Thus, both perceived advantage and disadvantages of lean practices indicates overall attitude of employees towards the lean practices (Swati, A., & Kabra, A. 2018)

2.2.2 Previous Research Findings on Attitude

In the Theory of Planned Behavior (TPB), attitude is described as an individual's overall positive or negative evaluation of performing a specific behavior (Ajzen, 1991). In the context of lean management, attitude refers to how employees perceive the implementation of lean tools and practices in their organization, whether they see them as beneficial, efficient, or as a threat to their job security or workload. Previous research highlights that attitude plays a

vital role in predicting an employee's intention to engage in lean practices, making it a crucial construct in studies exploring behavioral responses to organizational change.

Swati and Alok (2018) conducted an empirical study examining the predictors of behavioral intention to adopt lean practices among manufacturing employees using TPB. Their findings conceptualize attitude as a combination of perceived advantages and disadvantages associated with lean implementation. Specifically, their study identified four underlying dimensions of attitude: perceived direct advantages, perceived indirect, perceived disadvantages, and perceived usefulness. This breakdown enabled a more nuanced understanding of what shapes an employee's overall attitude toward lean initiatives. Their regression results demonstrated that attitude especially when driven by perceived advantages that has a significant positive influence on the intention to adopt lean practices. This reinforces the idea that employees with favorable attitudes are more likely to support and participate in lean transformations.

In another study, Sahu, Padhy, and Dhir (2021) also found that attitude strongly predicts intention to implement lean manufacturing practices in Indian MSMEs. Using Behavioral Reasoning Theory (BRT) in conjunction with TPB, the authors showed that attitude is positively shaped by underlying values and perceived reasons for adopting lean. Their findings align with TPB's assumptions and emphasize that positive beliefs about lean's impact on sustainability, efficiency, and job satisfaction lead to stronger behavioral intentions. The study further noted that employees are more likely to engage with lean when they perceive it as contributing to environmental and economic goals, demonstrating how contextual benefits shape attitude.

Several other studies emphasize the importance of attitude in facilitating or obstructing lean implementation. Delbridge (1995) and Bessant et al. (2003) argued that employee attitudes

reflect not only rational evaluations of lean's benefits but also emotional responses to change. These include anxiety about changing work routines, concerns about increased surveillance, or skepticism about management's commitment. When lean initiatives are introduced without clear communication or participation from employees, attitudes can become resistant, regardless of the technical soundness of the lean tools. As such, fostering a positive attitude requires more than just training it demands trust-building, participatory decision-making, and continuous feedback mechanisms.

In process industries, Panwar et al. (2015) noted that employee engagement with lean practices is uneven, often influenced by how beneficial employees perceive the changes to be in their day-to-day responsibilities. When employees see lean as adding unnecessary complexity or workload without clear rewards, negative attitudes develop, ultimately weakening lean's adoption. On the other hand, when employees are included in lean planning and see visible improvements in efficiency, quality, or workload balance, their attitudes become more positive. The study concluded that employee attitude is not static it evolves with communication, experience, and support systems.

A broader review by Dhir et al. (2021) further confirmed that the perceived advantages of lean, such as improved working conditions, reduced waste, and increased operational transparency are among the most influential factors in shaping employee attitudes. Their findings suggest that when lean is positioned not just as a management tool but as a strategy to empower workers and improve the workplace, employees are more willing to internalize lean values. This is particularly relevant in logistics and service sectors, where lean implementation may not involve machinery but instead focus on workflows, inventory systems, and communication structures.

In summary, attitude has consistently emerged as a strong and reliable predictor of employees' willingness to adopt lean practices. Positive attitudes, grounded in perceived usefulness, operational benefits, and aligned values, enhance lean adoption intentions. However, if lean is associated with fear, stress, or lack of support, negative attitudes can form, acting as a barrier to implementation. To improve lean outcomes, organizations must prioritize developing favorable attitudes through clear communication, inclusive practices, and demonstrable short-term wins. Understanding the psychological and emotional underpinnings of employee attitudes provides a strategic advantage in managing successful lean transformations in logistics settings and beyond.

2.3 Subjective Norm

2.3.1 Concept and Definition of Subjective Norm

In the context of lean practices, action of peers and supervisor influences employee's behaviour. Thus, influence of what would be the actions of peers/supervisors in acceptance of lean practices would determine the subjective norms. (Swati & Kabra, 2018)

2.3.2 Previous Research Finding on Subjective Norm

In the Theory of Planned Behavior (TPB), subjective norm refers to the perceived social pressure an individual feels to perform or not perform a specific behavior. It reflects how much an individual believes that important referents such as peers, supervisors, or organizational leaders want them to engage in the behavior. In the context of lean management, subjective norms play a crucial role in shaping employees' intention to adopt lean practices. Employees are more likely to embrace lean methods when they perceive that their colleagues and

supervisors expect them to do so and when such behaviors are perceived as socially or professionally endorsed within the organization.

Swati and Alok (2018) defined subjective norm as "one's beliefs about whether significant others think that one should engage in the activity." In their study of lean practice adoption in an Indian cement company, they explored how the expectations of peers and supervisors influenced employee intentions. While their analysis showed that subjective norms had a less significant direct effect on behavioral intention compared to attitude and perceived behavioral control, it was still recognized as a key component in shaping organizational culture around lean. The study found that when supervisors openly supported lean initiatives and modeled lean behavior, it created a normative influence that encouraged others to follow, even if they had personal reservations. However, in cases where managerial support was absent or inconsistent, employees were less likely to feel social pressure to engage in lean practices, which weakened the effectiveness of lean interventions.

Similarly, Sahu, Padhy, and Dhir (2021) emphasized the importance of workplace culture and leadership support in reinforcing positive subjective norms. Although their primary model was based on Behavioral Reasoning Theory, their integration of TPB constructs highlighted that employees were more inclined to adopt lean when they believed their organization valued and prioritized lean thinking. Subjective norms were positively associated with behavioral intention when employees received cues from management, such as involvement in lean training programs, lean-focused performance evaluations, or team-based continuous improvement initiatives. These social influences helped reinforce a collective sense of accountability and alignment with organizational goals.

Other scholars have also noted the influence of social dynamics and peer behavior in the success or failure of lean implementation. In the study by Delbridge (1995), it was observed

that employees often look to their colleagues for cues on how to respond to new systems like lean. If early adopters of lean practices in the organization reported success and received recognition, their behavior served as a model for others, effectively strengthening subjective norms. Conversely, when early adopters were ignored or overwhelmed by additional responsibilities, the social signal discouraged others from participating actively in lean transformation.

A study published in *Sustainability* (MDPI, 2021) investigating lean adoption in logistics and supply chains also emphasized the power of shared expectations and managerial pressure in reinforcing behavioral change. The research noted that top-down commitment, open communication, and visible leadership involvement were significant sources of normative pressure that encouraged employees to participate in lean activities such as 5S audits, kaizen events, or daily performance huddles. When managers set clear expectations and celebrated team success, employees were more likely to internalize lean principles as part of their role. This effect was particularly noticeable in organizations where team-based work culture was strong, and collaborative goals were emphasized.

From a broader behavioral perspective, subjective norms are particularly effective when combined with other TPB components such as attitude and perceived behavioral control. For example, even if an employee holds a neutral or moderately negative attitude toward lean tools, the social expectation from peers and management can still lead to participation, especially if the behavior is normalized and encouraged through organizational routines. This indicates that normative influence can sometimes compensate for weak personal motivation, at least in the early stages of adoption.

However, the effectiveness of subjective norms is contingent upon the perceived credibility and consistency of the referents. Studies have shown that when employees perceive

their supervisors as disengaged or lacking practical knowledge about lean, the normative influence diminishes significantly. This suggests that it is not enough for managers to simply advocate for lean; they must be seen actively supporting and participating in lean initiatives themselves. In turn, peer influence also plays a subtle but important role, particularly in tightly knit teams where employees rely on each other's approval and cooperation.

In summary, previous research strongly supports the role of subjective norm as an important driver of lean adoption, particularly in organizational contexts where leadership engagement and team culture are well developed. While it may not always have the strongest statistical influence compared to attitude or perceived behavioral control, it acts as a reinforcing mechanism that shapes organizational behavior through social pressure and expectations. Promoting a workplace culture where lean practices are the norm and visibly supported by management can enhance employee willingness to participate and sustain continuous improvement efforts. For organizations implementing lean in logistics or warehouse settings, cultivating strong subjective norms through communication, leadership modeling, and team-based recognition is essential for long-term success.

2.4 Perceive Behaviour Control

2.4.1 Concept and Definition of Perceive Behaviour Control

Attitude is conceptualized as the overall evaluation, either perceived advantage or perceived disadvantage of performing the behaviour of interest. Thus, both perceived advantage and disadvantages of lean practices indicate overall attitude of employees towards the lean practices. (Simonchik, A. 2013)

2.4.2 Previous Research Finding on Perceive Behaviour Control

Perceived Behavioral Control (PBC) is one of the core constructs of the Theory of Planned Behavior (TPB), representing an individual's influence of the ease or difficulty of performing a behavior. It reflects both the internal factors such as skills, confidence, knowledge and external factors such as resources, support, opportunities that may facilitate or hinder the performance of the behavior. In the context of lean practices, PBC captures how confident employees feel in their ability to implement lean tools and techniques, as well as how much control they perceive over the process within their organizational setting.

Swati and Alok (2018) define PBC as "the influence of how easy or difficult it is to perform the behavior," noting that it reflects the extent to which a behavior is under volitional control. Their research applied Ajzen's (2002) decomposition of PBC into two main components that are self-efficacy (internal control belief) and facilitating conditions (external control belief). Self-efficacy refers to the individual's belief in their own ability to execute lean tasks effectively, while facilitating conditions involve the availability of organizational support such as training, tools, time, and management backing. Their study found that both self-efficacy and facilitating conditions significantly predicted employees' intention to adopt lean practices. For example, employees who had access to proper training and clear standard operating procedures felt more empowered and willing to engage with lean initiatives.

The same study observed that PBC had a stronger influence on behavioral intention than subjective norm, highlighting that employees are more likely to engage in lean practices when they feel capable and supported. This finding suggests that even if employees have a positive attitude toward lean or experience social pressure from peers or supervisors, they may still refrain from adopting lean practices if they perceive the implementation as difficult or

unsupported. This underscores the importance of creating an enabling environment where employees feel they have the resources and authority to contribute meaningfully to lean efforts.

Sahu, Padhy, and Dhir (2021), in their study using Behavioral Reasoning Theory alongside TPB, echoed these findings. Although their model primarily focused on values and reasons for or against lean adoption, their inclusion of perceived behavioral control as a determinant confirmed that perceived constraints can significantly influence employee intention. They highlighted that employees who perceive lean as complex, time-consuming, or risky are less likely to support or practice it—even when they acknowledge its potential benefits. Their study further emphasized that improving employees' perceived behavioral control can be achieved through targeted interventions such as hands-on workshops, role clarity, and continuous support mechanisms.

In another example, a study from Sustainability (2021) examining lean adoption in service and logistics settings emphasized that one of the main barriers to successful implementation is employees perceived lack of control. Many frontline workers expressed uncertainty about how lean applies to their roles, especially in environments where processes are less standardized compared to manufacturing. When employees lacked clarity on their roles or did not receive proper training, their perceived behavioral control diminished, leading to poor adoption outcomes. Conversely, in organizations that offered structured onboarding, lean mentorship programs, and decentralized decision-making, employees reported higher levels of confidence and willingness to participate in lean improvements.

According to Delbridge (1995) and Bessant et al. (2003) emphasized the role of empowerment in enhancing perceived behavioral control. They also mentioned that lean practices are most effective when employees are not only trained but also trusted to identify and resolve problems within their scope of work. Empowering employees to take ownership

of lean initiatives such as identifying waste, suggesting process improvements, and leading team-based activities increases their belief that they can influence outcomes, thereby raising their perceived behavioral control.

Panwar et al. (2015) also acknowledged that the effectiveness of lean implementation in process industries depends largely on how employees perceive their capacity to apply lean tools in practice. Their survey findings suggested that where employees lacked operational autonomy or were limited by rigid hierarchical structures, lean efforts were less likely to succeed. This suggests that reducing bureaucratic bottlenecks and creating space for employee initiative are critical to enhancing perceived control.

Overall, prior research demonstrates that Perceived Behavioral Control is a vital enabler of lean adoption. It determines whether employees feel sufficiently confident and resourced to participate in lean transformation. Organizations aiming to implement lean practices especially in complex logistics and service environments must invest not only in technical training but also in structural and cultural changes that empower employees. This includes creating open communication channels, recognizing employee contributions, simplifying processes, and removing barriers that inhibit action. Enhancing PBC ensures that employees not only intend to support lean but are also capable of doing so effectively and sustainably.

2.5 Lean Management Practices

2.5.1 Concept and Definition on Lean Management Practices

Lean production is a systematic method for the elimination of waste in a manufacturing system. Taiichi Ohno at the Toyota Motor Company developed the lean strategy in 1950s. The term 'Lean' has been derived from the Toyota Production System (TPS), a Japanese model to eliminate wastes (muda) and optimise profits. (Simonchik, A. 2013)

2.5.2 Previous Research Finding on Lean Management Practices

Lean Management Practices (LMPs), derived from the Toyota Production System, are widely recognized for improving operational efficiency by eliminating waste, streamlining processes, and enhancing overall performance. Over the past decades, lean practices have expanded beyond manufacturing into service sectors, including logistics, healthcare, and finance. However, research has consistently shown that successful lean implementation is dependent not only on technical factors but also on employee influence, organizational culture, and sector-specific challenges.

Swati and Alok (2018) framed lean manufacturing as a strategic approach that minimizes waste and enhances efficiency. They emphasized the human dimension of lean, highlighting the importance of employee motivation, influence, and training. Their study found that lean practices such as 5S, TPM, and Kaizen were commonly implemented in Indian manufacturing sectors, but employee resistance, inadequate training, and lack of management proficiency posed significant barriers. The most cited motivators for adopting lean were its potential to "help employees work smarter" and "improve efficiency," whereas the main barriers were concerns about practicality, additional workload, and the influence that lean might increase demands without adequate rewards.

Panwar et al. (2015), in a comprehensive survey of Indian process industries, confirmed the prevalence of specific lean tools such as Total Productive Maintenance (TPM), 5S, Quality Management Programs, and Continuous Improvement Programs. However, they also found that lean tools typically associated with discrete manufacturing such as Kanban, Just-in-Time (JIT), and Pull Production were less applicable in process industries due to continuous flow operations and large equipment capacities. The study revealed that batch process industries tended to adopt lean more formally than continuous process industries. Furthermore, adoption

levels varied by industry type, with higher lean engagement observed in chemical and textile industries and lower levels in pharmaceutical and food sectors.

The same study provided detailed comparisons with earlier international studies, confirming that lean practices such as value stream mapping, setup reduction, and cellular manufacturing remain underutilized in Indian process industries. In contrast, practices focused on standardization, quality control, and maintenance planning were better integrated. One key insight was that process characteristics, such as sensitivity to temperature and batch consistency, often made it difficult to apply certain lean methods, explaining their uneven adoption across sectors.

Sahu, Padhy, and Dhir (2020) offered another perspective by applying Behavioral Reasoning Theory (BRT) to examine the adoption of LMPs in Indian MSMEs. They found that employee-level factors such as values, perceived reasons for or against lean adoption, and education significantly influenced behavioral intentions. Their findings suggested that while employees recognized the benefits of lean such as cost reduction, waste elimination, and improved delivery barriers like resistance to change, lack of understanding, and perceived irrelevance in certain contexts hampered adoption. The study emphasized that lean implementation cannot succeed solely on structural or managerial initiatives; it requires alignment with employee motivation and belief systems.

From a theoretical standpoint, the use of TPB and other frameworks like Innovation Diffusion Theory, Socio-Technical Systems Theory, and Institutional Theory has enriched the understanding of lean adoption. Scholars such as Alok, Kabra, and Mudam (2018) integrated TPB to empirically study the influence of attitudes, subjective norms, and perceived behavioral control on employee intention to adopt lean. Their research showed that perceived advantages and facilitating conditions were critical in shaping intention, while lack of managerial support

and employee training reduced lean engagement. This suggests that lean adoption is not purely operational but behavioral, requiring psychological readiness and organizational alignment.

Additionally, researchers have consistently pointed out the contextual limitations of lean practices. For example, while 5S and TPM are widely embraced due to their compatibility with process industries, tools such as Kanban and JIT are often incompatible with high-volume, continuous-flow production environments. Cultural and institutional factors also influence implementation. In many Indian firms, hierarchical decision-making and rigid bureaucratic structures restrict the flexibility and responsiveness needed for lean to thrive. These factors underscore the importance of customizing lean strategies based on sectoral and cultural realities.

Despite the barriers, the benefits of lean implementation remain clear across sectors. The studies highlighted gains in employee morale, process stability, productivity, customer satisfaction, and safety. In one case study, a refinery that implemented TPM reported improved maintenance systems, employee engagement, and on-time deliveries, showcasing the potential of lean practices when fully integrated and supported. Nevertheless, the research collectively stresses that lean transformation is a gradual, resource-intensive process that demands ongoing training, leadership commitment, and organizational learning.

In conclusion, prior research on lean management practices reveals a consistent pattern: while the technical tools of lean are well-known, their effective implementation depends heavily on employee influences, contextual fit, and organizational support. Lean is not merely a toolkit but a culture of continuous improvement that requires sustained behavioral and institutional change. As lean expands beyond its manufacturing roots into logistics and service sectors, understanding these human and contextual factors becomes even more critical. Future

studies should continue to explore the psychological, structural, and operational dimensions of lean to bridge the gap between theoretical potential and practical outcomes.

2.6 Lean Tools in Operations and Logistics

Lean tools are structured methods and techniques used to identify and eliminate waste, improve process efficiency, and enhance value delivery to customers. These tools are essential components of lean management, enabling organizations to streamline operations, reduce costs, and foster a culture of continuous improvement.

One widely used lean tool is 5S that stands Sort, Set in order, Shine, Standardize, and Sustain which focuses on workplace organization and visual management to improve productivity and safety (Hirano, 1995). Another core tool is Kaizen, a philosophy of continuous, incremental improvements involving all employees, which helps drive cultural change and operational efficiency (Imai, 2012).

Value Stream Mapping (VSM) is another critical lean tool that provides a visual representation of material and information flows through a process. It helps organizations identify bottlenecks, redundancies, and non-value-adding steps, thereby enabling targeted process improvements (Rother & Shook, 2003). Similarly, the Just-In-Time (JIT) principle aims to produce and deliver products exactly when they are needed, reducing inventory levels and increasing responsiveness to customer demand (Ohno, 1988).

In logistics and warehousing, Kanban systems are frequently applied to signal demand in real time, ensuring smooth material flow and avoiding overproduction (Sugimori et al., 1977). Additionally, Poka-Yoke (error-proofing) mechanisms are employed to prevent defects by designing processes and equipment that minimize human error (Shingo, 1986). For problem-solving, organizations often use the A3 Report methodology, which guides teams

through root cause analysis, countermeasure planning, and result tracking in a concise, visual format (Sobek & Smalley, 2008).

By applying these lean tools, companies in logistics and manufacturing can systematically eliminate waste, improve quality, and build resilient processes that adapt to changing market conditions. When used collectively, these tools not only enhance operational performance but also engage employees in sustaining long-term improvements.

2.7 Lean Practices Implement in DSV Solution

DSV Solutions has incorporated a variety of lean management practices across its global operations to enhance efficiency, reduce waste, and improve service delivery. One key approach is the adoption of lean thinking and value-stream mapping to identify and eliminate non-value adding activities within processes. For example, in its Colombian operations, DSV undertook a lean transformation to standardize processes, define value clearly from the customer perspective, and implement waste elimination strategies. This initiative also focused on cultural change, ensuring that employees understood and embraced continuous improvement as part of their daily work.

In addition, DSV actively deploys continuous improvement (CI) tools such as 5S, Theory of Constraints (TOC), and structured problem-solving methodologies. These are implemented through roles like Logistics Engineers and Process Specialists (Lean), who are responsible for driving process optimization projects, developing standard work, and monitoring performance through key performance indicators (KPIs). Employees are trained in Lean and Six Sigma methodologies to ensure that improvements are data-driven and sustainable.

DSV also applies lean-inspired inventory and vendor management practices, aligning with the lean principle of reducing excess stock while maintaining reliable flow. This includes monitoring inventory through KPIs such as stock turnover, overstock, and stockouts, as well as implementing Vendor-Managed Inventory (VMI) systems and optimizing Economic Order Quantity (EOQ) levels. Safety stock is carefully calculated to balance customer service requirements with cost efficiency. These strategies aim to minimize inventory waste, shorten lead times, and enhance overall operational flexibility.

By integrating these lean management practices value-stream mapping, continuous improvement tools, and lean inventory control DSV strengthens its operational capabilities and remains competitive in the fast-paced logistics sector. Lean management and the Theory of Planned Behavior (TPB) can be closely related through the understanding of employee attitudes, intentions, and behaviors toward adopting lean practices. Lean implementation relies heavily on employee engagement to reduce waste, improve processes, and sustain continuous improvement, but success often depends on individual willingness to change work habits. TPB posits that an individual's intention to perform a behavior is influenced by three factors: attitude toward the behavior (beliefs about the benefits and value of lean practices, such as improved efficiency and reduced errors), subjective norms (perceived social pressure from supervisors, peers, and organizational culture to adopt lean practices), and perceived behavioral control (confidence in one's ability to effectively use lean tools like 5S, Kaizen, or Kanban). In a logistics context such as DSV Solutions, TPB can help explain why some employees may resist lean initiatives despite organizational push negative attitudes, unsupportive norms, or low perceived control can hinder adoption. Understanding these psychological factors allows managers to design targeted training, communication, and support strategies to improve lean acceptance and long-term sustainability (Ajzen, 1991; Sundar et al., 2021).

2.8 Underpinning Theory

This study is grounded in the Theory of Planned Behavior (TPB), a well-established psychological framework developed by Ajzen (1991) that explains how individual behavior is driven by behavioral intentions. TPB is widely used in organizational and behavioral studies to understand the factors that influence an individual's decision to engage in a specific action. In the context of lean management practices, TPB offers a comprehensive structure for analyzing how employee attitudes, perceived social pressures, and perceived control over lean implementation influence their intention to adopt and sustain such practices.

TPB identifies three core components that influence behavioral intention: attitude toward the behavior, subjective norm, and perceived behavioral control. Attitude refers to the degree to which an employee has a favorable or unfavorable evaluation of engaging in lean practices such as 5S, Kaizen, or Standard Operating Procedures (SOPs). Subjective norm relates to the perceived social pressure from supervisors, peers, or organizational culture that may encourage or discourage lean behavior. Perceived behavioral control captures employees' influence of their ability to perform lean-related tasks, which is influenced by access to resources, training, time, and confidence.

In the context of lean management within logistics operations—such as those in warehouse settings like DSV Solutions in Penang TPB provides an effective framework to explore employee behavior toward lean adoption. Employees' willingness to use lean tools is not only shaped by their personal evaluation of its benefits (attitude), but also by organizational expectations (subjective norm) and their perceived capability to apply lean methods effectively (perceived behavioral control). For example, even if employees recognize the value of lean in improving efficiency and reducing waste, they may not engage with lean practices unless they feel supported by peers and confident in their own ability to carry out those practices.

TPB has been applied successfully in lean-related studies to predict behavioral outcomes in both manufacturing and service industries. Prior research has shown that employees with positive attitudes toward lean, who perceive strong managerial support and feel capable of implementing lean practices, are more likely to develop strong behavioral intentions and take active roles in lean initiatives (Swati & Alok, 2018; Sahu, Padhy & Dhir, 2021). By focusing on these psychological drivers, TPB allows this study to move beyond technical or process-based explanations of lean success and instead explore the human and behavioral dimensions that often determine implementation outcomes.

In this study, TPB is particularly useful in evaluating how logistics employees perceive, accept, and engage with lean tools in their daily routines. The theory allows the research to investigate not only whether employees adopt lean practices, but why they choose to do so—or not. By analyzing the interplay between individual beliefs, social influences, and perceived capabilities, this study identifies behavioral patterns that influence lean adoption at the operational level. This theoretical approach supports a deeper understanding of lean implementation in logistics and provides insights into how organizations can design targeted strategies such as improved communication, supportive leadership, and skill development programs to foster stronger lean engagement among employees.

2.9 Chapter Summary

This chapter provided a comprehensive review of literature on lean management practices and employee influences within the logistics sector. It began by defining key concepts such as lean management, employee attitude, subjective norms, and perceived behavioral control. Core lean practices like 5S, Kaizen, and Standard Operating Procedures (SOPs) were introduced as essential tools for improving warehouse efficiency and reducing waste.

The chapter reviewed previous studies highlighting how employee attitudes, social influences, and perceived control affect lean adoption. It identified common barriers such as resistance to change, lack of training, and insufficient support, which often hinder lean implementation in logistics settings.

The Theory of Planned Behavior (TPB) was introduced as the underpinning theory guiding this study. TPB explains how behavioral intention is shaped by individual attitudes, perceived social expectations, and confidence in performing a behavior. In this context, TPB offers a valuable framework for analyzing the factors that influence employees' willingness to adopt lean practices in daily operations.

Overall, the chapter laid the theoretical and empirical foundation for examining how logistics employees respond to lean initiatives, emphasizing the role of individual influence and organizational support in achieving successful lean transformation.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter draws the research methodology implemented to investigate employee influences of lean management practices in a logistics company. It begins with the theoretical framework that were used as the base and includes all the research processes that includes hypothesis development, research design, population of the study, sample size, sampling technique. Finally, the study will summarize the methodology towards the conclusion of the chapter.

3.2 Research Framework and Summary of Research Hypothesis

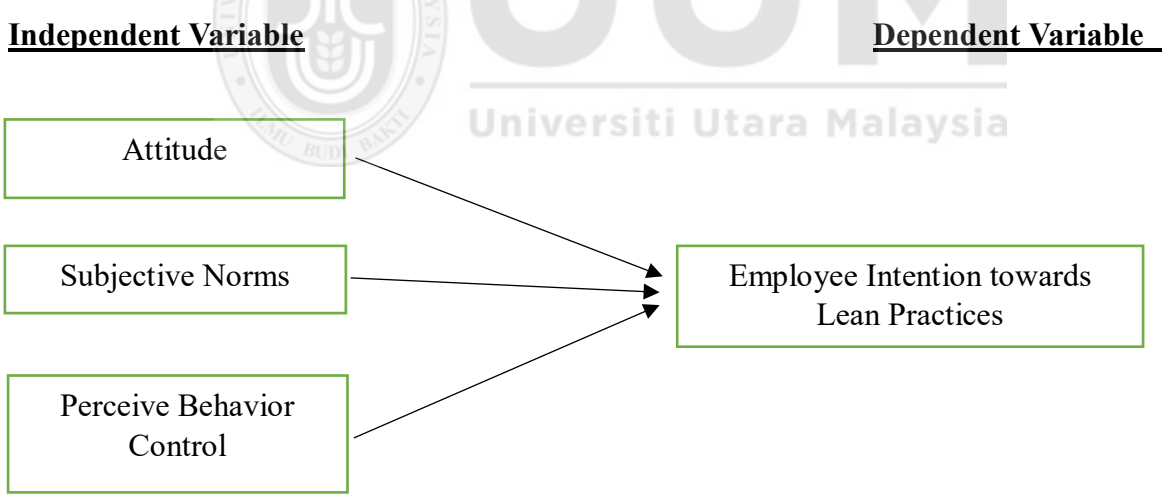

Figure 3.1: Conceptual Framework

The conceptual framework used for this study shown in the above Figure 3.1 using the Theory of Planned Behaviour (TPB). This study found three factors that influence the influence of employees towards the lean management practices. This research aims to examine the

connections between lean management practices and attitude, subjective norm and perceive behaviour control. Table 3.1 below shows the research hypothesis of this research.

Table 3.1: Research Hypothesis Development

Hypothesis	Statement
Hypothesis 1 (H1)	*Attitude has a significant relationship with the Employee Intention towards Lean Management Practices*
Hypothesis 2 (H2)	*Subjective Norm has a significant relationship with the Employee Intention towards Lean Management Practices*
Hypothesis (H3)	*Perceive Behaviour Control has a significant relationship with the Employee Intention towards Lean Management Practices*

3.3 Research Design

Research design is the plan on addressing the methods and procedures that will be used to collect and analyze information. In simple words, research design is how information is gathered to analyze. According to Creswell and Creswell (2018), research design provides a structured framework that guides the entire research process, ensuring that the problem is addressed systematically and logically. This study uses primary data to collect information and quantitative data using a survey to evaluate and analyze the data gained. The data is subsequently analyzed using descriptive statistics to summarize the findings (Sekaran & Bougie, 2020). The explanatory component uncovers and clarifies the relationships between variables, particularly those impacting lean management practices. This is a correlational study that involves identifying the relationship between independent variables and a dependent

variable. This research also uses hypothesis testing to examine the relationships between each variable in a structured, statistically valid manner (Saunders, Lewis, & Thornhill, 2019).

This is study uses structed questionnaires to collect data that were developed based on the theoretical framework. Then the collected data was analysed using Statistical Package for the Social Science (SPSS) software with descriptive statistics, correlation analysis, and regression analysis performed to test hypotheses and identify significant relationships

3.4 Population of Study

This study focuses on employee influences of lean management practices in the logistics industry, with specific reference to warehouse operations at DSV Solutions in Penang. The targeted population for this study includes employees who are directly involved in the implementation and day-to-day practice of lean tools and systems such as 5S, Kaizen, and Standard Operating Procedures (SOPs). These include warehouse operators and customer services as they possess direct experience with lean initiatives and can offer meaningful insights into their effectiveness and acceptance.

Targeting these operational-level employees is crucial, as they are the ones who interact with lean practices regularly and are most affected by changes in process efficiency, standardization, and workload. Unlike administrative or upper management staff, this group is best positioned to assess whether lean strategies are practical, easy to apply, and truly beneficial in improving operational performance.

The study will be conducted within DSV Solutions' warehouse facilities in the Bayan Lepas Industrial Zone, Penang, a region known for its high concentration of logistics and supply chain service providers. Focusing on this specific location allows the research to capture rich data from a logistics hub that actively applies lean principles in its warehouse operations.

By concentrating on this segment of employees in a logistics-focused environment, the study aims to provide practical insights into how lean management is perceived and adopted at the ground level.

3.5 Sample and Sample Size

The sample and sample size of this study will consist of representatives from various operational and supervisory departments at DSV Solutions in Penang, particularly those involved in the implementation and daily execution of lean management practices. These include warehouse operators, customer service and team leads. The selection of this sample ensures that the respondents have direct experience with lean initiatives such as 5S, Kaizen, and Standard Operating Procedures (SOPs), and therefore, are well-positioned to provide meaningful insights regarding their influence and acceptance of lean practices. According to the sample size determination table by Krejcie and Morgan (1970), the population size about 130, so, 93 employees from all the departments from various warehouses were considered to take part in this questionnaire.

Table 3.2: Krejice & Morgan Table, (1970)

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

3.6 Sampling Technique

Sampling is the process of selecting individuals or groups from a population for the purpose of research (Makwana et al., 2023). There are two main types of sampling methods: probability sampling and non-probability sampling. For this research, a non-probability sampling method was applied, specifically the convenience sampling technique. This method involves selecting respondents who are easily accessible to the researcher and willing to participate in the study.

In this research, the target population consists of employees from DSV Solutions in Penang. The sample includes team leads, customer service staff, and operations staff who have experience and involvement with lean tools such as 5S, Kaizen, and Standard Operating Procedures (SOPs). These participants were chosen based on their availability and proximity to the researcher during the data collection period.

By focusing on personnel who are actively engaged with lean processes and readily accessible, the study aims to gather practical insights into how lean practices are perceived, the extent of their acceptance, and the factors influencing their successful adoption within warehouse operations. The table below presents the sampling distribution for DSV Solutions warehouses in Penang used in this research.

Table 3.3 Sampling Structure

Warehouses	Number of Employees
Warehouse P1 (Bayan Lepas)	36
Warehouse P2 (Bayan Lepas)	34
Warehouse LF	Only for storing purposes
Warehouse Valdor (Batu Kawan)	60
Total	130

3.7 Unit of Analysis

The aim of this research is to investigate the influence of employees on lean management practices in a logistics company. To gain accurate insights into how lean practices are understood, accepted, and applied, it is essential to analyze each employee's individual response. Therefore, the unit of analysis for this study is the individual employee. The selected respondents were asked to complete the questionnaire based on their personal experiences and influences regarding lean practices within their workplace.

3.8 Instrumentation and Measurement of Variables

A structure questionnaire was developed to evaluate the factors on employee's intention towards lean management. The questionnaire begins with the demographic profile of the respondents and include multiple items for each variable to ensure comprehensive coverage and reliability. The measurement items for the questionnaire were adapted from existing validated scales in prior research lean management and theory of planned behaviour. Each variable is measured with 2-6 items, ensuring detailed and reliable data collection. The demographic information items capture the characteristics of the respondent.

For the demographic information section, the researcher used nominal scale with no innate hierarchy or order. This is to identify this group segmentation only which does not indicate any quantitative or significant correlation value.

For the variables section, the researched used interval scale that is Likert Scale which implies respondents to respond by rating from 1 to 5 as their answers. By doing this, the research can find the significant numeric value for those measurements. Table below shows the list of measurement used in the questionnaire to analyse the significant value.

Table 3.4: Summary Table of Instrumentation

Variable	Instrument	Author
Lean Management (DV)	1. I would likely implement LMPs in my company. 2. I would consider implementing LMPs in my enterprise.	(Beck and Ajzen 1991; Claudy, Garcia, and O'Driscoll 2015)
Attitude (IV1)	1. I look forward to lean implementation at work. 2. I wouldn't like lean implementation. 3. Lean implementation frustrates me. 4. Lean implementation tends to stimulate me. 5. Most lean implementation at work would be irritating. 6. I find most lean implementation would be pleasing.	(Göthberg, N., & Simonchik, A. 2013)
Subjective Norms (IV2)	1. My peers will approve Lean ways of working 2. My supervisor will give consent of adopting lean behaviour. 3. My supervisor would intend to act the same way as I intend to 4. My peers may act the same way I would.	(Alok, S., Kabra, A., & Mudam, A. 2018)
Perceived Behavioural Control (IV3)	1. I would resist new lean ideas 2. I am inclined to try new lean ideas 3. I support new lean ideas 4. I often suggest new approaches to things 5. I intend to do whatever possible to support lean implementation 6. I would hesitate to try new lean ideas	(Göthberg, N., & Simonchik, A. 2013)

3.9 Data Collection Strategy

This research utilized a quantitative method, and data were collected using a survey questionnaire. Since the researcher has a clear understanding of the type of information needed and how it will be analyzed, the questionnaire was deemed the most appropriate tool for gathering primary data from employees. The questionnaire will focus on the key variables of the study: Attitude, Subjective Norm and Perceive Behaviour Control on Employee intention towards Lean Practices.

According to Sekaran and Bougie (2020), there are three common methods for survey data collection: conventional questionnaires, mail questionnaires, and electronic questionnaires. For this study, electronic questionnaires (e.g., Google Forms) used due to their accessibility, speed, and cost-effectiveness, especially when targeting respondents working in an operational environment like DSV Solutions in Penang.

The data collection process took four weeks, providing ample time for participants to respond. During this period, follow-up reminders has been sent weekly to participants who have not yet completed the questionnaire. These reminders was delivered through internal communication channels (such as email or WhatsApp) to maintain engagement without causing disruption or pressure.

Finally, all the data collected throughout the time given will be confidential and stored securely. This is to respect the privacy and ensure compliance with ethical standards of the respondents.

3.10 Data Analysis Strategy

The data analysis involves multiple steps including identifying and measuring variations in variables, making it tough to select the accurate statistical techniques early in the research process. This study employs both descriptive and inferential data analysis methods to evaluate the information gathered from survey questionnaires. Descriptive analysis provides a summary of the data, while inferential analysis tests research hypotheses and draws conclusions.

The data analysis process in this study consists of several key stages. Initially, reliability and validity assessments conducted to confirm the dependability and accuracy of the collected data that to maintain the consistency. Following this, the analysis was utilize descriptive

statistics, correlation analysis, and regression analysis. The questionnaire data was processed using version 23 of the Statistical Package for Social Sciences (SPSS), ensuring robust and thorough examination of the findings. This structured approach helped to provide a comprehensive understanding of the data and its implications for the research objectives.

3.11 Content Validity

Content validity refers to the extent to which the items in a questionnaire adequately represent the construct being measured (Polit & Beck, 2006). To ensure that the research instrument accurately captures employees' perceptions of lean practices, the researcher conducted a content validity check prior to data collection. One employee from the operations department was randomly selected to review the questionnaire items. This individual was asked to go through each question and indicate whether the meaning was clear, the language was understandable, and the items were relevant to their work experience.

Feedback from this process was used to make minor adjustments to wording to enhance clarity and prevent misinterpretation. This step helped ensure that the instrument was comprehensible to respondents with different roles and backgrounds, thereby increasing the likelihood of obtaining accurate and meaningful responses.

3.12 Pilot Test

A pilot test was carried out to ensure the instruments used in the questionnaires meets the standard reliability test that is 0.7. Through pilot test, researcher was able to identify or modify any unclear questions so the respondents may able to get clearer view on the situations in questionnaires. The pilot test was carried out 30 respondents in prior to proceed the data

collection for this study. Table below shows the result of reliability of the pilot test carried out to analyze if the instruments are valid or not.

Table 3.5: Cronbach's Alpha

Variables	Cronbach's Alpha
Attitude	0.894
Subjective Norm	0.799
Perceive Behavior Control	0.920
Lean Management	0.786

Table 3.5 shows the purpose using Cronbach's Alpha is to evaluate the pilot test instruments' internal consistency in a scale. Cronbach's Alpha value below 0.6 is considered poor, 0.6 to 0.69 considered acceptable, 0.7 to 0.89 considered good and 0.9 to above considered excellent. The results show that the Cronbach Alpha value for attitude (α=0.894), subjective norm (α=0.799), perceive behaviour control (α=0.920) and lean management practices (α=0.786). All of the results are good. Based on the results, the results are valid and positive.

3.13 Chapter Summary

This chapter discuss the research methodology used to run this research providing the process of how data collected and analyzed. The study outlines its theoretical framework, including operational definitions of the variables, measurements for each variable, survey instruments, sampling strategies, data collection methods, and analytical techniques to address

the research questions. Additionally, it describes the process for evaluating the reliability and validity of the measurement instruments.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter analyses the data collected through out data collection period for the study of employee's influence towards the lean management practices. A well-structured questionnaire was share to the employees of DSV Solutions. Based on the responses, the researcher will rate the survey from demographic information, normality test, reliability analysis and hypothesis test.

4.2 Demographic Analysis

According to Klimczuk (2021), demographic analysis involves the study of human populations and their characteristics, including variations in size, structure, and distribution. The term "demography" originates from the Greek language, meaning "description of people." In research, demographic analysis helps describe and interpret the composition of a target population by examining variables such as age, gender, race, marital status, education level, and employment-related factors. Robert et al. (2021) further distinguish between "formal demography," which focuses on statistical parameters, and "population studies," which link demographic trends to broader social and organizational dynamics.

In this research, demographic data was collected to better understand the employee background and context in which lean management practices are perceived and adopted. The questionnaire includes seven demographic items, which are gender, age, education level, position in the company, years of working and lastly whether employees are involved in lean management practices.

These demographic variables assist the researcher in categorizing and analyzing the responses based on different population segments. This enables a deeper understanding of how individual and organizational backgrounds influence the behavioral intention to adopt lean practices. Moreover, demographic insights support the identification of patterns, disparities, or consistencies across various groups, thus contributing to more informed conclusions and practical recommendations for lean implementation in logistics environments.

Based on the Krejcie and Morgan's table, the researcher needed to collect 118 respondents but manage to get 120 and proceeded to analyze all the data collected.

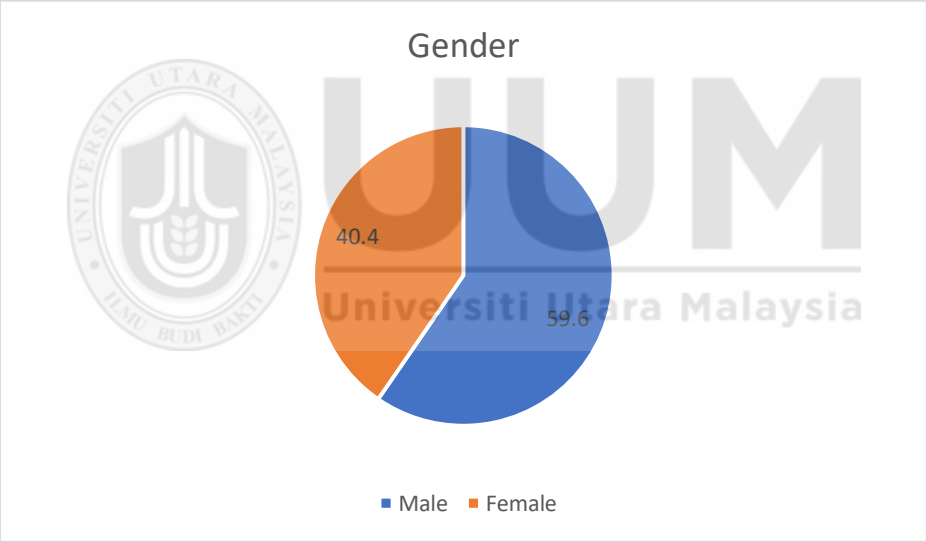

Figure 4.1 Gender

Figure 4.1 shows respondents' gender that were collected for this research. Based on the figure, male respondents greater than female. The total percentage of male responded were about 59.6%, where else female respondents were about 40.4%. the possible outcome for this may cause by the dominance of male gender in this working environment of DSV Solutions.

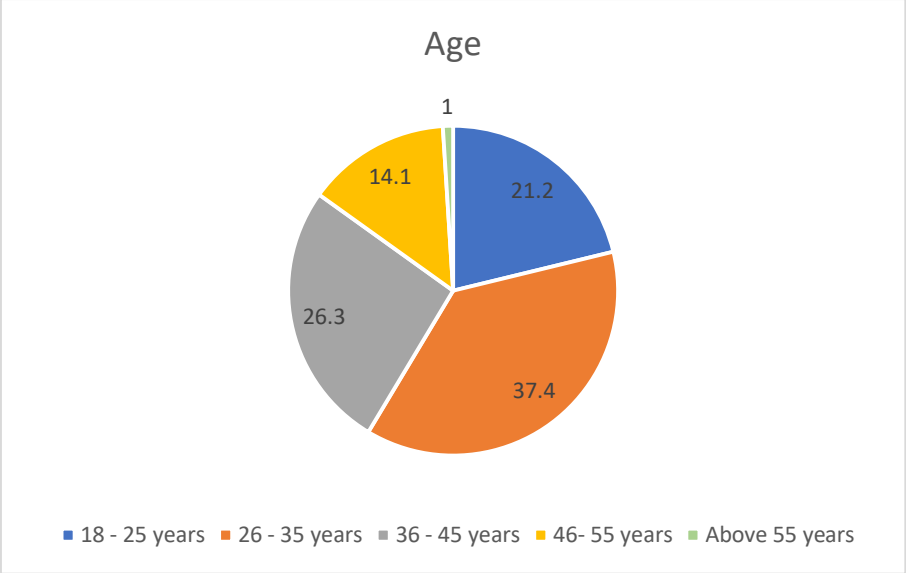

Figure 4.2: Age

Based on the table above, in terms of age distribution, most participants were between 26 to 35 years old (37.4%), followed by those aged 36 to 45 years (26.3%). Respondents aged 18 to 25 years accounted for 21.2%, and 14.1% were aged 46 to 55 years, with only 1.0% above 55 years. This indicates that the workforce is largely composed of early- and mid-career professionals.

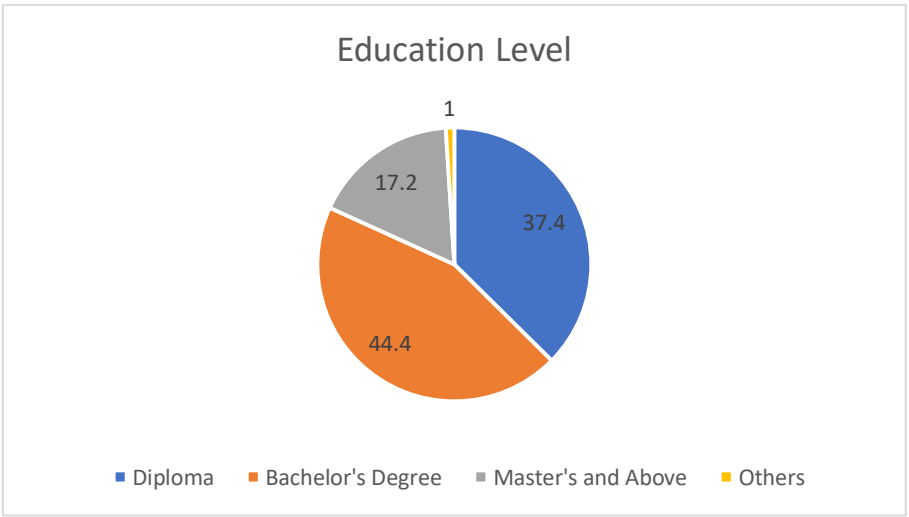

Figure 4.3: Education Level

Based on the table above, the educational background of the respondents reveals a well-qualified workforce, with the largest group holding a Bachelor's degree (44.4%), followed by those with Diplomas (37.4%). Additionally, 17.2% of respondents had completed a Master's degree or higher, while a small minority (1.0%) reported other forms of education. This distribution suggests a strong foundation of formal education among logistics employees, which may contribute to their openness to structured improvement systems like lean practices.

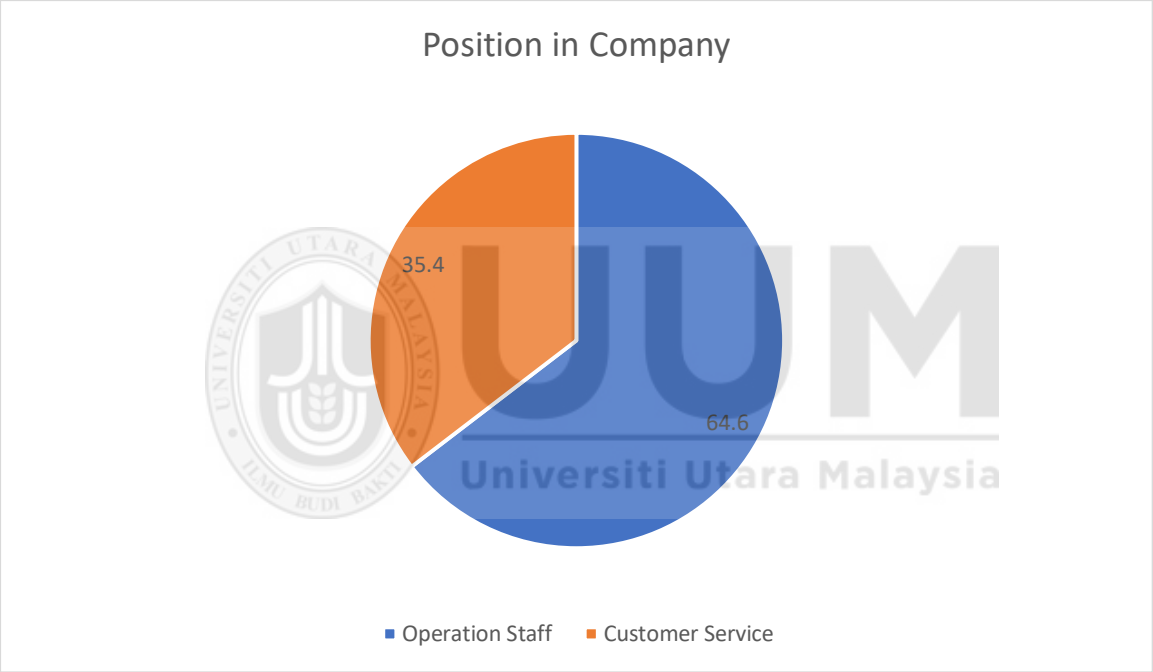

Figure 4.4: Position in Company

Based on the table above, in terms of job roles, the largest group of respondents were Operational Staff (64.6%), followed by those in Customer Service roles (35.4%). This distribution indicates that the study predominantly reflects the perspectives of front-line employees who are directly involved in day-to-day logistics operations.

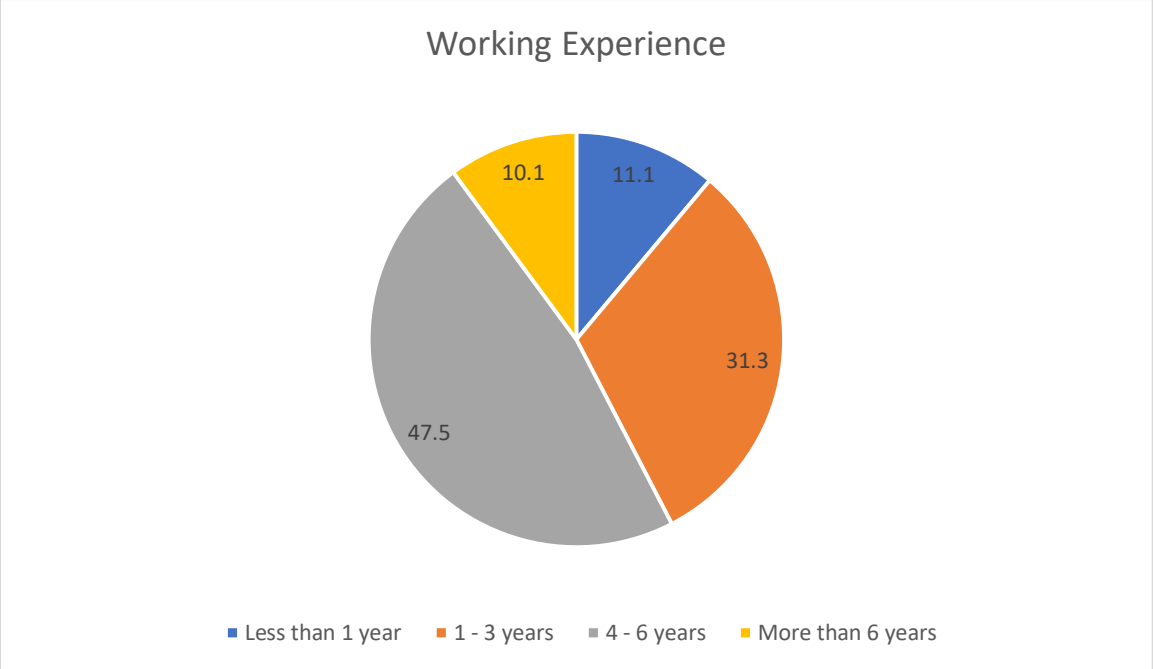

Figure 4.5: Working Experience

Based on the table above, when examining work experience, the largest group of respondents had 4 to 6 years of experience (47.5%), suggesting a strong familiarity with operational processes. This was followed by 1 to 3 years of experience (31.3%), while 11.1% had worked for less than a year, reflecting the inclusion of relatively new employees. Only 10.1% had more than six years of experience, indicating a smaller proportion of highly experienced personnel in the sample.

Figure 4.6: Involved in Lean Practices

Notably, 100% of respondents indicated they were involved in lean practices within their organization, reinforcing the relevance of lean management in their work environment. This full participation underscores the importance of understanding employee perspectives on lean implementation, particularly in logistics settings where process improvement is critical to performance.

4.3 Demographic Summary

Table 4.1: Demographic Summary

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	59	59.6
	Female	40	40.4
Age	18 – 25 years	21	21.2
	26 – 35 years	37	37.4
	36 – 45 years	26	26.3
	46 – 55 years	14	14.1
	Above 55 years	1	1.0
Education Level	Diploma	37	37.4
	Bachelor's Degree	44	44.4
	Master's and Above	17	17.2
	Others	1	1.0
Position in Company	Operational Staff	64	64.6
	Customer Service	35	35.4
Working Experience	Less than 1 year	11	11.1
	1 – 3 years	31	31.3
	4 – 6 years	47	47.5
	More than 6 years	10	10.1
Involved in Lean Practices	Yes	120	100
	No	0	0

The demographic profile of the 99 respondents in this study offers valuable insight into the workforce characteristics within the logistics sector, particularly regarding their backgrounds, education levels, roles, and experience with lean management practices.

Overall, the demographic distribution presents a predominantly young, educated, and operationally engaged workforce. These characteristics are crucial for interpreting the behavioral factors that influence lean adoption, especially as organizations increasingly rely on employee participation to drive continuous improvement initiatives.

4.4 Normality Test

Table 4.2: Skewness and Kurtosis Value

Variable	Attitude	Subjective Norm	Perceive Behaviour Control	Lean Management
Skewness	-0.202	-0.273	-0.217	-0.465
Kurtosis	-1.041	-0.931	-0.966	-0.663

Based on the skewness and kurtosis values, Table 4.2 presents the distribution characteristics for the study variables. The independent variables attitude (Skewness = -0.202), subjective norm (Skewness = -0.273), and perceived behaviour control (Skewness = -0.217) are slightly negatively skewed, indicating a mild left-skewed distribution. The dependent variable lean management has a skewness value of -0.465, which also suggests a slight left-skew but remains close to symmetrical.

In terms of kurtosis, attitude (Kurtosis = -1.041), subjective norm (Kurtosis = -0.931), perceived behaviour control (Kurtosis = -0.966), and lean management (Kurtosis = -0.663) all have negative kurtosis values, indicating platykurtic distributions that are flatter than the normal curve with lighter tails.

Overall, the skewness values show that all variables are relatively close to symmetrical, while the kurtosis values indicate that the data distributions are generally flatter and less peaked than a normal distribution. These results suggest that the variables exhibit fairly similar distributional patterns, with no extreme deviations from normality.

4.5 Reliability Analysis

Table 4.3: Cronbach Alpha's Value

Variable	Cronbach's Alpha	Number of Items
Attitude	0.973	6
Subjective Norm	0.957	4
Perceive Behaviour Control	0.972	6
Lean Management	0.891	2

Table 4.3 presents the Cronbach's Alpha values, which assess the internal consistency and reliability of the measurement instruments. According to commonly accepted thresholds, a Cronbach's Alpha value below 0.6 is considered poor, between 0.6 and 0.69 is acceptable, 0.7 to 0.89 is good, and 0.9 and above is excellent. The results show that attitude ($\alpha = 0.973$, 6 items), subjective norm ($\alpha = 0.957$, 4 items), and perceived behaviour control ($\alpha = 0.972$, 6 items) demonstrate excellent internal consistency, with values well above 0.9. Similarly, lean management ($\alpha = 0.891$, 2 items) shows good reliability, nearing the excellent threshold. These results indicate that all constructs in this study are highly reliable and suitable for further statistical analysis.

4.6 Descriptive Analysis

Table 4.4: Descriptive Statistics

Variable	Mean	Standard Deviation
Attitude	3.9209	0.78764
Subjective Norm	3.9167	0.79860
Perceive Behaviour Control	3.9411	0.75979
Lean Management	3.8586	0.87494

The descriptive statistics in Table 4.4 show the mean and standard deviation values for each variable. The mean score for attitude is 3.9209 with a standard deviation of 0.78764, indicating that respondents generally had a positive attitude with moderate variation in their responses. For subjective norm, the mean is 3.9167 and the standard deviation is 0.79860, suggesting a similar level of agreement among participants with slightly wider variability. The mean for perceived behavioural control is 3.9411 with a standard deviation of 0.75979, reflecting a generally positive perception with moderate consistency. Lastly, lean management has a mean score of 3.8586 and a standard deviation of 0.87494, indicating a moderately positive influence but with comparatively higher variability than the other variables.

4.7 Pearson Correlation Analysis

Table 4.5: Pearson Correlation

Independent Variables	Pearson Correlation
Attitude	**0.889**
Subjective Norm	**0.877**
Perceive Behaviour Control	**0.865**

The Pearson correlation analysis was conducted to examine the relationship between the three independent variables Attitude, Subjective Norm, and Perceived Behavioural Control and the dependent variable, Lean Management practices. This analysis provides insights into both the strength and direction of the relationships, based on the computed correlation coefficients (r-values).

According to Pallant (2016), correlation coefficients are interpreted as follows: values between 0.10 and 0.29 represent a weak relationship, values from 0.30 to 0.49 indicate a moderate correlation, and values from 0.50 to 1.00 denote a strong correlation. Values close to zero suggest no relationship, while negative values indicate an inverse relationship between the variables.

In this study, Attitude exhibited a strong positive correlation with Lean Management (r = 0.889), suggesting that employees with more positive attitudes towards lean practices are more likely to engage in and implement these practices effectively. Similarly, Subjective Norm showed a strong positive correlation with Lean Management (r = 0.877), indicating that perceived social pressure or encouragement from colleagues and superiors plays a substantial role in influencing lean practice adoption. Perceived Behavioural Control also demonstrated a strong positive correlation (r = 0.865), implying that employees who feel confident in their

ability to apply lean practices having the necessary resources, time, and support are more likely to participate actively in lean management initiatives.

Overall, the correlation analysis reveals that all three constructs of the Theory of Planned Behavior (TPB) show strong positive relationships with Lean Management practices. This suggests that fostering positive attitudes, reinforcing supportive social norms, and enhancing employees' sense of control could significantly promote lean implementation within logistics operations.

4.8 Multiple Regression

Table 4.6: Multiple Regression (r)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.890	0.792	0.786	0.40489

Table 4.6 presents the model summary from the multiple regression analysis conducted to assess the combined influence of Attitude, Subjective Norm, and Perceived Behavioral Control on Lean Management Practices within the organization.

The results show a very strong positive relationship between the independent variables and the dependent variable, as indicated by the R value of 0.890. The R Square value of 0.792 suggests that 79.2% of the variance in Lean Management Practices can be explained by the three predictors in the model, reflecting substantial explanatory power.

The Adjusted R Square value of 0.786, which adjusts for the number of predictors in the model, remains high and close to the R Square value, indicating that the model retains its strong predictive capability even when accounting for potential overfitting.

The Standard Error of the Estimate is 0.40489, meaning that the average distance between the observed values and the predicted values from the model is relatively small. This low value suggests that the model's predictions are precise and closely aligned with the actual data points.

In summary, the regression model demonstrates an excellent fit, indicating that Attitude, Subjective Norm, and Perceived Behavioral Control collectively explain a large proportion of the variation in Lean Management Practices. These findings imply that the constructs of the

Theory of Planned Behavior are highly relevant in predicting lean management adoption within the studied logistics organization.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter presents the discussion and conclusion of the study. The primary objective of this research was to examine how attitude, subjective norm, and perceived behavioral control influence employees' behavioral intention toward lean management practices in a logistics company. This chapter summarizes from Chapter 1 until Chapter 4 of the research which analyses all the data collected throughout this research. This chapter will also go through the recommendation for the future upcoming researches for this topic.

5.2 Summary Research

The research aimed to examine the factors influencing the adoption of lean management practices in logistics companies in Penang. The study was grounded in the Theory of Planned Behavior (TPB), focusing on three core constructs: Attitude, Subjective Norm, and Perceived Behavioral Control. Data were collected from 99 employees through a structured questionnaire. The study employed descriptive statistics, Pearson correlation, and multiple regression analysis to evaluate the relationships among the variables. The findings indicate that lean management adoption is more significantly influenced by Attitude and Perceived Behavioral Control, while the impact of Subjective Norm is relatively minimal.

5.2 Discussion Analysis Result

The findings of this study demonstrate that the three TPB constructs—Attitude, Subjective Norm, and Perceived Behavioral Control exhibit a strong combined influence on lean management practices within the logistics industry. The multiple regression analysis yielded an R value of 0.890, indicating a very strong positive correlation between the predictors and the dependent variable. The R^2 value of 0.792 suggests that 79.2% of the variance in lean management practices can be explained by these three factors, highlighting the significant role of behavioral intentions and perceived capabilities in shaping lean adoption.

Attitude recorded a high positive association with lean management, suggesting that employees with favorable perceptions toward lean principles are more inclined to support and engage in such practices. This aligns with the fundamental assumptions of the Theory of Planned Behavior (Ajzen, 1991), where a positive attitude is expected to strengthen behavioral intention. Similar findings were reported by Dora et al. (2013), who observed that positive employee attitudes significantly influenced the successful implementation of lean practices in manufacturing SMEs.

Subjective Norm also showed a strong positive relationship with lean management adoption, indicating that social influence from peers, supervisors, and organizational leadership plays a substantial role in motivating employees to adopt lean principles. This result supports the findings of Latan et al. (2019), who demonstrated that normative pressure from top management and co-workers enhanced lean practice adoption in Indonesian manufacturing firms. In the context of this study, the strong normative influence may reflect the presence of a supportive organizational culture and leadership commitment to lean transformation.

Perceived Behavioral Control exhibited a similarly strong positive link with lean management, suggesting that employees' confidence in their ability to execute lean practices—

together with access to resources, time, and training—substantially contributes to implementation success. This is consistent with the findings of Wong and Wong (2011), who reported that adequate training, resource availability, and process ownership were critical enablers for lean implementation in logistics operations. The high predictive strength in this study implies that employees not only understand the value of lean but also feel empowered to put it into practice.

Overall, the regression results (Adjusted $R^2 = 0.786$) indicate that the TPB model is highly effective in explaining lean management adoption in the studied logistics organization, surpassing the explanatory power reported in several previous studies where R^2 values typically ranged between 0.40 and 0.60 (e.g., Latan et al., 2019; Dora et al., 2013). This may be attributed to strong leadership support, well-structured training programs, and clear communication of lean objectives within the organization.

5.3 Contribution of the study

This study contributes to the understanding of lean management adoption in the logistics industry by identifying the psychological and social factors that influence employee intentions and behaviors. A key contribution is the application of the Theory of Planned Behavior (TPB) to explore how attitude, subjective norm, and perceived behavioral control affect the implementation of lean practices in a real-world logistics context.

One of the major insights from this study is the weak correlation between the TPB constructs and lean practice adoption, particularly the negative relationship observed with employee attitude. These finding challenges conventional assumptions of TPB and suggests that employee influences of lean practices may be shaped by prior experiences, organizational readiness, or the manner of implementation. It highlights the need for organizations to not only

promote lean tools, but also address employee resistance, build trust, and communicate the tangible benefits of lean initiatives effectively.

Additionally, this study contributes to the existing body of knowledge by emphasizing that social pressures (subjective norms) and employees' perceived control over resources play a limited role in influencing lean adoption in this context. This suggests that organizational culture, leadership engagement, and structural support mechanisms may have a more significant influence than originally assumed by TPB, and should be further explored in future research.

From a practical standpoint, the study offers logistics firms data-driven insights to enhance lean implementation strategies. Specifically, it underscores the importance of revisiting how lean is introduced to the workforce, investing in training programs to boost confidence and capability, and fostering a supportive work environment where lean is seen as achievable and beneficial.

Moreover, the findings provide valuable implications for human resource planning and change management practices, particularly in shaping interventions that align employee influences with organizational goals. Future research can build upon these results by integrating organizational factors, past lean experiences, and leadership behaviors into the TPB model to yield a more comprehensive understanding of lean adoption in logistics and other industries.

5.4 Limitation of the Study

Despite the strong explanatory power of the model, this study is subject to certain limitations that should be acknowledged. First, the research was conducted within a single logistics company, which limits the generalizability of the findings to the broader logistics industry. The organizational culture, management style, and operational environment of this

company may differ significantly from other logistics firms, both within Malaysia and internationally. As a result, caution should be exercised when extrapolating these results to other contexts, as the influence of Attitude, Subjective Norm, and Perceived Behavioral Control on lean management practices may vary across organizations with different structures, market positions, or cultural backgrounds. Future research could address this limitation by including multiple companies across diverse segments of the logistics industry to enhance the external validity of the results.

Second, the study did not incorporate external factors such as market competition, economic conditions, technological infrastructure, or regulatory requirements, which may also play a critical role in shaping lean management adoption. The exclusion of these contextual elements means that the model focuses solely on behavioral constructs from the Theory of Planned Behavior, potentially overlooking other determinants of implementation success or failure. Furthermore, the study relied exclusively on quantitative methods, which while useful for measuring relationships between variables do not provide the in-depth insights necessary to fully understand why certain challenges or errors persist despite strong behavioral predictors. Employing qualitative approaches, such as interviews or focus group discussions with employees and management, could uncover nuanced operational, cultural, or systemic barriers that quantitative data alone cannot capture.

5.5 Future Recommendation

This study offers a foundational understanding of how behavioral factors attitude, subjective norm, and perceived behavioral control impact lean management adoption in the logistics sector. However, future research can broaden this scope by exploring additional factors such as organizational culture, leadership style, employee training effectiveness, and

resistance to change. These elements may play a critical role in influencing employees' readiness and willingness to adopt lean practices.

Moreover, adopting a longitudinal research design would allow future studies to examine how employee influences, behavioral intentions, and lean implementation outcomes evolve over time. This could offer valuable insights into the long-term effectiveness and sustainability of lean management strategies.

To enhance the generalizability of findings, future research should consider expanding the sample to include multiple logistics companies across different regions or countries. Comparative studies between various organizational sizes, sectors (e.g., warehousing vs. distribution), or cultural settings could help identify unique contextual factors influencing lean adoption.

Additionally, future researchers are encouraged to apply mixed-method approaches by combining quantitative surveys with qualitative methods such as interviews or focus groups. Direct engagement with managers and frontline employees involved in lean initiatives can uncover deeper insights into the practical challenges and enablers that may not be fully captured through quantitative data alone.

By incorporating these recommendations, future research can contribute to a more comprehensive and practical understanding of lean management implementation in logistics, ultimately supporting more effective decision-making and organizational change.

5.5 Conclusion

In conclusion, this study provides valuable insights into the behavioral factors influencing the adoption of lean management practices among employees in a logistics

company. By applying the Theory of Planned Behavior, the research reveals that attitude, subjective norm, and perceived behavioral control all play significant roles in shaping employees' intention to engage in lean practices. Notably, perceived behavioral control emerged as the most influential factor, emphasizing the importance of employee confidence, access to resources, and workplace support.

The findings underscore the need for organizations to consider psychological and social readiness not just technical tools when implementing lean strategies. This study contributes to the academic understanding of lean adoption from a behavioral perspective while offering practical recommendations for logistics firms aiming to foster a lean culture. By enhancing employee empowerment and aligning organizational norms, stakeholders can improve lean implementation outcomes and overall operational efficiency.

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APPENDIX A

UNIVERSITI UTARA MALAYSIA

Othman Yeop Abdullah Graduate School of Business (OYAGSB)

SURVEY QUESTIONAIRE

Dear Participants,

My name is ……. and I am a Master of …. student of Universiti Utara Malaysia under the supervision of Professor Dr..... I am currently undertaking a research on the determinants of Lean Management.

You have been randomly selected to participate in this study and I would appreciate it very much if you could kindly answer all the questionnaires as accurately as possible. It will take approximately 10-15 minutes to complete all these 24 survey questionnaires and the information given by you will influence the accuracy and the success of this study.

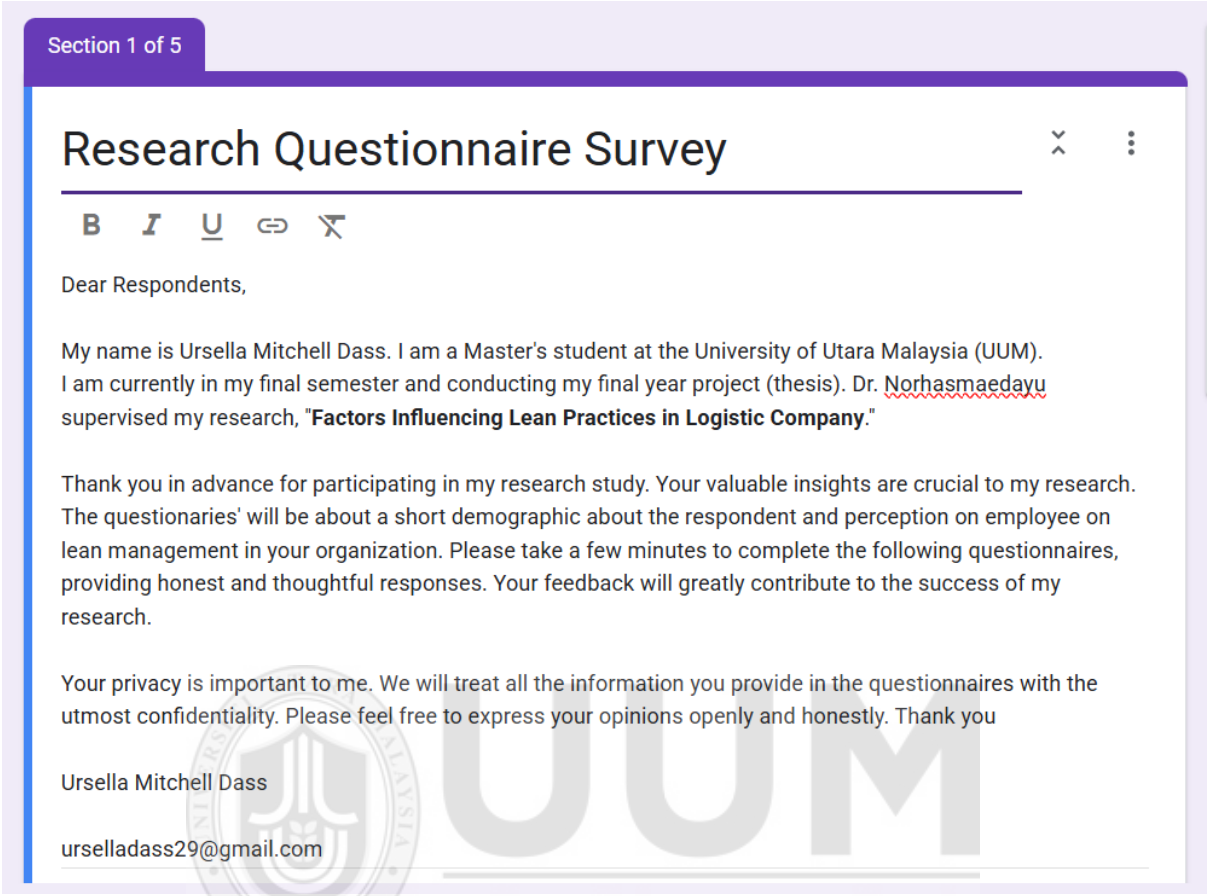
Your answers will be kept strictly confidential and will be used for academic purposes only. Should you have any query regarding this research, please do not hesitate to contact me. Your participation in this study is greatly appreciated.

Thank you for your time and cooperation in completing this questionnaire.

Yours sincerely,

xxxxxxxxxxxxx
Othman Yeop Abdullah Graduate School of Business (OYAGSB)
University Utara Malaysia
Sintok,
Kedah.
Tel:
E-mail:

ONLINE QUESTIONNAIRE (GOOGLE FORM)



Section 1 of 5

Research Questionnaire Survey

Dear Respondents,

My name is Ursella Mitchell Dass. I am a Master's student at the University of Utara Malaysia (UUM). I am currently in my final semester and conducting my final year project (thesis). Dr. Norhasmaedayu supervised my research, "**Factors Influencing Lean Practices in Logistic Company**."

Thank you in advance for participating in my research study. Your valuable insights are crucial to my research. The questionaries' will be about a short demographic about the respondent and perception on employee on lean management in your organization. Please take a few minutes to complete the following questionnaires, providing honest and thoughtful responses. Your feedback will greatly contribute to the success of my research.

Your privacy is important to me. We will treat all the information you provide in the questionnaires with the utmost confidentiality. Please feel free to express your opinions openly and honestly. Thank you

Ursella Mitchell Dass

urselladass29@gmail.com

Section A: Demographic *

1. What is your gender

- ◯ Male
- ◯ Female

2. What is your age group? *

- ◯ 18 – 25
- ◯ 26 – 35
- ◯ 36 – 45
- ◯ 46 – 55
- ◯ Above 55

3. What is your highest level of education achieved? *

- ◯ Diploma
- ◯ Bachelor Degree
- ◯ Master Degree and Above
- ◯ Others

4. What is your position in the organization? *

- ◯ Operational Staff
- ◯ Customer Service
- ◯ Supervisor
- ◯ Manager

5. How many years of experience working in this organization? *

- ○ Less than 1 year
- ○ 1 – 3 years
- ○ 4 – 6 years
- ○ More than 6 years

6. Have you been trained or involved in Lean Practices (e.g., 5S, JIT, Kaizen) *

- ○ Yes
- ○ No

Section 2 of 5

SECTION B (Dependent Variable)

Please indicate the extent to which your organizations strongly agree, agree, neutral, disagree and strongly disagree with the statement presented by choosing the linear scale.

Lean Management Practices (Intention) *

1. I would likely implement LMPs in my company.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

2. I would consider implementing LMPs in my enterprise. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Section 3 of 5

SECTION C (Independent Variable 1)

Please indicate the extent to which your organizations strongly agree, agree, neutral, disagree and strongly disagree with the statement presented by choosing the linear scale.

Attitude *

1. I look forward to lean implementation at work.

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

2. I wouldn't like lean implementation *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

3. Lean implementation frustrates me. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

4. Lean implementation tends to stimulate me. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

5. Most lean implementation at work would be irritating. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

6. I find most lean implementation would be pleasing. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Section 4 of 5

SECTION D (Independent Variable 2)

Please indicate the extent to which your organizations strongly agree, agree, neutral, disagree and strongly disagree with the statement presented by choosing the linear scale.

Subjective Norms *

1. My peers will approve Lean ways of working

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

2. My supervisor will give consent of adopting lean behaviour. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

3. My supervisor would intend to act the same way as I intend to adapt lean behaviour *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

4. My peers may act the same way I would in applying lean methods. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Section 5 of 5

SECTION E (Independent Variable 3)

Please indicate the extent to which your organizations strongly agree, agree, neutral, disagree and strongly disagree with the statement presented by choosing the linear scale.

Perceived Behavioural Control *

1. I would resist new lean ideas

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

2. I am inclined to try new lean ideas *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

3. I support new lean ideas *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

4. I often suggest new approaches to things *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

5. I intend to do whatever possible to support lean implementation *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

6. I would hesitate to try new lean ideas *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

APPENDIX B

All SPSS Result

Case Processing Summary

		N	%
Cases	Valid	99	100.0
	Excluded[a]	0	.0
	Total	99	100.0

a. Listwise deletion based on all variables in the procedure.

Cronbach's Alpha for Attitude (IV1)

Cronbach's Alpha	N of Items
.973	6

Cronbach's Alpha for Subjective Norm (IV2)

Cronbach's Alpha	N of Items
.957	4

Cronbach's Alpha for Perceive Behaviour Control (IV3)

Cronbach's Alpha	N of Items
.972	6

Cronbach's Alpha for Lean Management Practices (DV)

Cronbach's Alpha	N of Items
.891	2

Mean & Skewness and Kurtosis

Statistics

		mean_A	mean_S	mean_P	mean_LM
N	Valid	99	99	99	99
	Missing	0	0	0	0
Mean		3.9209	3.9167	3.9411	3.8586
Median		4.0000	4.0000	4.0000	4.0000
Std. Deviation		.78764	.79860	.75979	.87494
Skewness		-.202	-.273	-.217	-.465
Std. Error of Skewness		.243	.243	.243	.243
Kurtosis		-1.041	-.931	-.966	-.663
Std. Error of Kurtosis		.481	.481	.481	.481

Frequency for Attitude

mean_A

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.33	3	3.0	3.0	3.0
	2.50	1	1.0	1.0	4.0
	2.67	2	2.0	2.0	6.1
	2.83	6	6.1	6.1	12.1
	3.00	10	10.1	10.1	22.2
	3.17	3	3.0	3.0	25.3
	3.33	5	5.1	5.1	30.3
	3.50	4	4.0	4.0	34.3
	3.67	2	2.0	2.0	36.4
	3.83	1	1.0	1.0	37.4
	4.00	27	27.3	27.3	64.6
	4.17	4	4.0	4.0	68.7
	4.33	3	3.0	3.0	71.7
	4.83	16	16.2	16.2	87.9
	5.00	12	12.1	12.1	100.0
	Total	99	100.0	100.0	

Frequency for Subjective Norm

mean_S

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.25	3	3.0	3.0	3.0
	2.50	2	2.0	2.0	5.1
	2.75	7	7.1	7.1	12.1
	3.00	11	11.1	11.1	23.2
	3.25	5	5.1	5.1	28.3
	3.50	5	5.1	5.1	33.3
	3.75	3	3.0	3.0	36.4
	4.00	29	29.3	29.3	65.7
	4.25	5	5.1	5.1	70.7
	4.50	1	1.0	1.0	71.7
	4.75	12	12.1	12.1	83.8
	5.00	16	16.2	16.2	100.0
	Total	99	100.0	100.0	

Frequency for Perceive Behaviour Control

mean_P

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.33	1	1.0	1.0	1.0
	2.50	2	2.0	2.0	3.0
	2.67	2	2.0	2.0	5.1
	2.83	7	7.1	7.1	12.1
	3.00	11	11.1	11.1	23.2
	3.17	1	1.0	1.0	24.2
	3.33	2	2.0	2.0	26.3
	3.50	2	2.0	2.0	28.3
	3.67	6	6.1	6.1	34.3
	3.83	3	3.0	3.0	37.4
	4.00	28	28.3	28.3	65.7
	4.17	1	1.0	1.0	66.7
	4.33	4	4.0	4.0	70.7
	4.50	4	4.0	4.0	74.7
	4.67	4	4.0	4.0	78.8
	4.83	5	5.1	5.1	83.8
	5.00	16	16.2	16.2	100.0
	Total	99	100.0	100.0	

Frequency for Lean Management Practices

mean_LM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	5	5.1	5.1	5.1
	2.50	9	9.1	9.1	14.1
	3.00	11	11.1	11.1	25.3
	3.50	12	12.1	12.1	37.4
	4.00	28	28.3	28.3	65.7
	4.50	15	15.2	15.2	80.8
	5.00	19	19.2	19.2	100.0
	Total	99	100.0	100.0	

Pearson Correlations and Multiple Regression

Correlations

		mean_A	mean_S	mean_P	mean_LM
mean_A	Pearson Correlation	1	.979**	.966**	.889**
	Sig. (2-tailed)		.000	.000	.000
	N	99	99	99	99
mean_S	Pearson Correlation	.979**	1	.993**	.877**
	Sig. (2-tailed)	.000		.000	.000
	N	99	99	99	99
mean_P	Pearson Correlation	.966**	.993**	1	.865**
	Sig. (2-tailed)	.000	.000		.000
	N	99	99	99	99
mean_LM	Pearson Correlation	.889**	.877**	.865**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	99	99	99	99

**. Correlation is significant at the 0.01 level (2-tailed).

Variables Entered/Removed

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	mean_P, mean_A, mean_S[b]	.	Enter

a. Dependent Variable: mean_LM

b. All requested variables entered.

Model Summary Table

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.890[a]	.792	.786	.40489	.792	120.873	3	95	.000

a. Predictors: (Constant), mean_P, mean_A, mean_S

b. Dependent Variable: mean_LM

ANOVA Table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.446	3	19.815	120.873	.000[b]
	Residual	15.574	95	.164		
	Total	75.020	98			

a. Dependent Variable: mean_LM

b. Predictors: (Constant), mean_P, mean_A, mean_S

Coefficient Table

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.035	.242		.146	.885
	mean_A	.780	.263	.703	2.970	.004
	mean_S	.406	.570	.370	.712	.478
	mean_P	-.210	.475	-.182	-.441	.660

a. Dependent Variable: mean_LM

Residual Statistics

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.2453	4.9185	3.8586	.77884	99
Residual	-2.26815	1.70851	.00000	.39864	99
Std. Predicted Value	-2.071	1.361	.000	1.000	99
Std. Residual	-5.602	4.220	.000	.985	99

a. Dependent Variable: mean_LM