

LB/TH/22/2025
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**IMPACT OF ENTERPRISE RESOURCE PLANNING ON THE
IMPROVEMENT OF EMPLOYEE PRODUCTIVITY: A CASE
STUDY OF ABC APPAREL COMPANY**

**MASTER OF BUSINESS ADMINISTRATION
IN
MANAGEMENT OF TECHNOLOGY**

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Department of Management of Technology
University of Moratuwa
Sri Lanka
January 2024

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The Dissertation was submitted to the Department of Management of Technology of the University of Moratuwa in partial fulfilment of the requirement for the Degree of Master of Business Administration in Management of Technology.

Department of Management of Technology
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January 2024

DECLARATION

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ACKNOWLEDGEMENT

This study would not have been possible without the valuable guidance and support of several individuals who assisted me in completing my research.

Formerly, I would delight in making a special acknowledgement to my research supervisor Prof. C. N. Wickramasinghe. Thank you for your encouragement, commitment, enthusiasm, and understandability of every situation, showing the right track and guidance to research from beginning to end. I extend my heartfelt thanks to sir. Your expertise knowledge and the great guidance drove me to my success of this research study. Moreover, I really appreciate and thankful for your valuable time that taken to explain every theory in detail even during all your busy schedules.

I would like to extend my gratitude to Prof. Sarath Dasanayake for the guidance and support given to me as my co-supervisor by checking me time to time on my progress and correcting and reviewing every piece of writing in the dissertation. Your comments and feedback were very useful to carry out my research study from beginning to end. Then I would like to thank all my lecturers of the business faculty of the University of Moratuwa, for the outstanding guidance and support given to us from lectures and advice received when we needed guidance.

I would like to express my sincere gratitude to my colleagues and friends who provided me with invaluable support and assistance in collecting data for this research. Additionally, I would like to thank the staff members of the MBA in Management Technology at the University of Moratuwa for their unwavering support throughout the study. I am also grateful to my family members who have made significant contributions, sacrifices and provided encouragement during the research period, enabling me to complete this work. Finally, I extend my heartfelt appreciation and well wishes to all those who have supported me in any way during the completion of this study.

ABSTRACT

As businesses increasingly adopt Enterprise Resource Planning (ERP) solutions to streamline and incorporate operations, understanding the specific impacts on employee productivity becomes crucial for organizational success. The study conducted a comprehensive case study methodology using correlational research, which employed a deductive, quantitative approach to analyze the transformative influence of ERP solutions on employee productivity within the setting of the ABC Apparel Company. A total of 132 respondents were randomly selected using a finite random sampling method to provide a representative sample. The study revealed that ERP adoption has a significant positive correlation with improved employee productivity, particularly in terms of factors such as ERP systems compatibility, ERP systems complexity, ERP systems efficiency, ERP best practices, training ERP systems, and empowerment on the ERP. These factors contribute to a more efficient workflow, fostering a proactive and informed workforce. The study found that as businesses continue to adopt ERP solutions, it is crucial to understand the specific impacts on employee productivity. However, the study also highlighted the potential drawbacks associated with ERP adoption, such as the IT productivity paradox, which suggests that investing in technology may not necessarily lead to increased productivity. Therefore, organizations must carefully consider the potential pitfalls and take appropriate measures to mitigate them before implementing ERP systems. To enhance the study's credibility, future research may consider exploring the potential drawbacks of ERP adoption in more detail and investigating the long-term effects of ERP adoption on employee productivity. Additionally, including qualitative data could provide a more nuanced understanding of employees' experiences and perspectives in the ABC Apparel Company. The research adds to the current pool of knowledge by offering a detailed examination of direct and indirect effects of ERP on employee productivity, grounded in a real-world organizational setting. As businesses continue to navigate the dynamic landscape of digital transformation, the findings from this case study provide practical implications for optimizing ERP systems to maximize the positive impact on employee productivity.

Key Words – ERP Systems, Employee Productivity, Business Performance, Apparel Industry, Technology Management

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LIST OF ABBREVIATIONS

Abbreviation	Description
ERP	Enterprise Resource Planning
BM	Business Meeting
IT	Information Technology
JV	Joint Venture
HR	Human Resources
SAP	System Applications and Products in Data Processing
SBU	Strategic Business Unit
NFPI	Non-Financial Performance Incentives

CHAPTER 1

INTRODUCTION

1.1 Background of Study

The apparel sector in Sri Lanka plays a crucial role in the nation's economy, constituting a significant share of its exports and serving as a major source of employment for numerous individuals, which has grown significantly over the past four decades. The industry's value reached \$5.6 billion in 2022 following an increase in exports of 10.26% year-on-year (Central Bank of Sri Lanka, 2022). The country's apparel industry is targeting exports worth \$8 billion by 2025, as the economic crisis limits investment in the local supply chain sector. The clothing industry is currently the country's primary export sector, accounting for about 45% of total exports and providing about 33% of the country's manufacturing workforce (Sri Lanka Export Development Board, 2023).

Within the apparel industry, gaining a competitive edge relies on value addition as opposed to merely minimizing production costs. This underscores the importance of prioritizing product quality and the capability to manufacture specialized niche products. Not only supplying garments to customers but also the present Sri Lankan industry provides innovative fashion solutions to foreign countries, which have considerably impacted the growth of the industry then and now.

Like their counterparts in other nations, Sri Lankan apparel companies have a number of challenges, including managing the supply chain, controlling inventory, and satisfying consumer needs. Numerous clothing companies in Sri Lanka have implemented ERP systems in order to address these issues and improve productivity and efficiency. Production planning, finance, procurement, human resources, and other corporate operations are all integrated and automated by ERP systems. Businesses may boost staff productivity by streamlining processes, doing away with manual labor, and gaining access to real-time data through the use of ERP systems.

The present study is expected to offer valuable insights to apparel companies in Sri Lanka that are contemplating the adoption of an Enterprise Resource Planning (ERP) system. By providing a comprehensive understanding of the potential benefits and challenges associated with ERP implementation, the study aims to equip companies with the necessary knowledge to make well-informed decisions in this regard. Furthermore, the study is likely to make a significant contribution to the existing literature on the impact of ERP implementation on employee productivity, particularly within the Sri Lankan apparel sector.

ABC Apparel Company, chosen as a central strategic business unit for this case study, has a rich history dating back to 1992 when it began its operations as a manufacturing unit of a joint venture under a specific holdings company in Sri Lanka. Over time, the company has transformed into a top-tier apparel manufacturing unit in the South Asian region, catering to renowned lingerie brands. With five production locations in Sri Lanka and a plant in India, ABC Apparel Company is a significant player in the industry, and its experiences with ERP implementation will provide valuable insights to the research community.

While ERP systems offer substantial benefits, their implementation often proves intricate and costly, posing challenges for many companies. Numerous studies have identified common hurdles during ERP implementation, including issues with data quality, employee resistance to change, inadequate training, and communication gaps.

Therefore, it is crucial to thoroughly investigate how the introduction of ERP systems impacts employee productivity in the apparel industry. This research seeks to examine the relationship between ERP implementation and employee productivity within a specific apparel company, focusing on identifying obstacles encountered during the implementation phase. The study's findings have the potential to provide valuable insights for apparel companies considering ERP adoption, helping them understand the potential advantages and challenges associated with such initiatives.

ABC Apparel Company, equipped with a 14-year history of utilizing ERP solutions, is currently assessing the effectiveness of its ERP system following a recent upgrade. The company has implemented a new unified solution across all Strategic Business Units (SBUs) within its organizational matrix. Notably, ABC Apparel Company has integrated SAP R/3 and Hana-based solutions in the key modules of Materials Management, Planning and Production, Sales and Distribution, as well as Control and Finance. Complementing these, additional ERP solutions based on the .NET framework operate seamlessly alongside the SAP solution in the company's operations. Moreover, in the Planning and Production module, the company utilizes the Fast React solution, which is intricately connected with both the SAP and .NET solutions. It is crucial to highlight that this investigation will specifically concentrate on the SAP R/3 ERP solution, with approximately 650 direct SAP users at ABC Apparel Company's Sri Lankan plants.

Throughout its 25-year history, the company has achieved important milestones in its ERP journey. From the start until 2006, the company used a legacy system derived from its joint venture with Triumph. Triumph, ABC Apparel Company's marketing partner, decided to migrate from a legacy system to an SAP ERP system, prompting ABC Apparel Company to collaborate with them. As a result, in 2006, the company implemented its first SAP ERP system in conjunction with Attune Consulting Sri Lanka, a worldwide recognized ERP solution provider.

Ten years after the initial SAP shift, the company undertook another major SAP system update in 2016. This upgrade was motivated by holding company changes that affected all Strategic Business Units (SBUs). This project, which covered nine countries and had 5,000 users, was acknowledged as the largest SAP implementation in the region. This massive project's main goal was to combine the ERP system for all five SBUs, and it was completed successfully almost five years after it was first announced.

Despite the substantial investment of time and resources in SAP implementation and maintenance over the years, aimed at enhancing business performance, there arises a question regarding whether ERP has achieved its intended purposes, such as improving employee productivity and generating financial and non-financial gains. This study seeks to scrutinize the factors influencing employee productivity through ERP systems and analyze their impact to determine whether they contribute to productivity improvement within ABC Apparel Company.

1.2 Identification of Research Problem

“ERP systems are known to be the predominant information systems platform that many companies adopted around the world recently” (Manthou, Stefanou, & Tigka, 2018) and (Zhang, Huang, & Xu, 2012). Moreover, it serves as a tool for companies to enhance their business performance (Elragal & Al-Serafi, 2011).

The Sri Lankan apparel industry grapples with various hurdles, encompassing the management of intricate supply chains, inventory control, and swift responsiveness to evolving customer demands. These challenges pose a threat to employee productivity, subsequently impacting overall company efficiency and financial performance. Additionally, the industry contends with fierce competition from low-cost nations and escalating pressure to uphold sustainable and ethical manufacturing practices. While ERP systems hold promise in addressing some of these challenges and enhancing employee productivity, their implementation is an intricate and costly process, and not all companies achieve success in this endeavor. Obstacles encountered may include issues related to data quality, employee resistance to change, insufficient training, and inadequate communication. Given these circumstances, it becomes imperative to scrutinize the repercussions of ERP implementation on employee productivity within the context of Sri Lanka's apparel industry. This study endeavors to uncover challenges faced during the implementation process and investigate the correlation between ERP adoption and employee productivity in Sri Lankan apparel company. The insights derived from this research can furnish valuable information for apparel companies contemplating ERP implementation, aiding them in comprehending both the potential advantages and challenges associated with such initiatives.

Alternatively, employee productivity is a comprehensive concept with diverse definitions depending on the context. In essence, it is an evaluation of the effectiveness of an individual employee or a group of employees, gauged by their output within a specific timeframe (Hanaysha, 2016). Despite these fundamental metrics, numerous input and output variables influence workforce productivity, and the perspective may differ based on the specific goals of measuring productivity (Public Health England, 2015).

Globally, companies are allocating increased resources to the adoption of ERP solutions, and instances of unsuccessful ERP project implementations have been observed. The critical question arises: even when the implementation is deemed successful, do companies realize the anticipated benefits from ERP solutions that justify the costs incurred in ERP projects? (Manthou, Stefanou, & Tigka, 2018) The expected benefits vary across industries, with established advantages including cost reduction, cycle time reduction, productivity improvement, quality enhancement, and enhanced customer service. These benefits are categorized into five groups and are directly linked to operational profits (Shari Shang and Peter B. Seddon, 2000).

Numerous prior studies have aimed to discern the influence of ERP on business performance, underscoring the importance for prospective ERP investors and existing adopters to comprehend the extent of its implications. It is imperative that organizations, whether considering or already implementing ERP solutions, possess a comprehensive understanding of how to effectively leverage their ERP systems for enhancing business performance. While there exists a plethora of international studies focusing on the financial impacts of ERP, a noticeable gap exists in research investigating the achievement of specifically targeted outcomes in terms of employee productivity. This aspect is particularly crucial as it may exhibit variations across organizations, both globally and within the specific local context of garment manufacturing.

The study is an attempt to assess how ERP solutions have affected employee productivity, directly and indirectly, and to check whether they have met expectations about employee productivity. Specifically, this study will focus on the context of ABC Apparel Company with the intention of helping the company to effectively plan the "*Initiatives of Change*," which is part of the strategic planning carried out for 2025, to be equipped with a good analysis of ERP-related employee productivity fluctuations, identifying gaps in the current ERP solution and identifying factors that need to be considered prior to the project phase.

Although ERP was implemented years ago, no proper evaluation was done to measure the expected results in any way. Results can be measured in financial and non-financial or operating profit. The company needs to see if it has obtained what was expected from the ERP implementation compared to its investment. ERP was implemented to achieve a high rate of employee productivity.

As an apparel company, labor productivity and manufacturing efficiency are crucial factors that determine the success. Any decline in these parameters requires immediate corrective action to maintain the targeted values and prevent the problem from worsening. Failure to do so will result in delayed product delivery, which can negatively impact customer relationships. To avoid this, thorough focus needs to meet agreed delivery dates, even if it means incurring additional costs for air freight or overtime hours are being put in by the factory and sewing machine operators to try and compensate for this problem. Late delivery can also lead to a damaged reputation, which can prompt customers to switch to more reliable vendors. Therefore, taking corrective actions promptly is essential to ensure seamless operations and optimal processes.

Success in the apparel industry relies heavily on streamlining the production process down to the essential needle point. This integral component serves as the backbone of the entire operation and must be given due attention. Based on a comprehensive

analysis, five crucial elements had been identified that contribute to the noise in the needle point. These elements are commonly referred to as the 4M & I pillar: Man, Machine, Method, Material, and Information. By addressing these key areas, we can enhance the overall efficiency and effectiveness of operations. Among those five pillars within the study the information pillar has been addressed to narrow down the context. Unlike the other pillars the noise produced through the information pillar has an indirect impact on the needle point. This, in turn, is causing a significant impact in production efficiency and directly affecting the productivity of ERP users. Addressing this issue is crucial to optimizing our processes and ensuring seamless operations.

Considering the impact of information noise on ERP users' productivity is of utmost importance when discussing ERP systems in the apparel industry. For apparel businesses, maintaining efficient and streamlined production processes is essential for profitability. Any disruptions or delays in production can significantly impact their bottom line.

Have you ever found it challenging to locate necessary information in your ERP system? It can be quite frustrating and have an adverse effect on productivity. Another reason for this information noise is the existence of irrelevant data fields or user interfaces that are poorly designed. These factors can make it difficult for users to obtain the information they require to finish their work effectively, resulting in frustration and reduced productivity. Furthermore, if the ERP system is not adequately designed or implemented, it can result in production process delays or errors, which can significantly impact the apparel company's overall productivity and profitability. When it comes to ERP systems, information noise can really affect productivity. This can lead to inefficiencies in production processes and even profit losses for apparel companies. That's why it's crucial for companies to think carefully about their ERP system design and implementation. By minimizing the impact of information noise on user productivity and overall production efficiency, businesses can simplify user interfaces, reduce the number of system alerts, and provide training and support to users. These strategies can help users manage information noise and improve their productivity.

1.3 Research Questions

In order to address the issue of employee productivity at ABC Apparel Company, we need to conduct research to determine the impact of ERP systems on this metric. This research problem can be broken down into four key questions:

1. What is the present situation of employee productivity with ERP systems using in the ABC Apparel Company?
2. What specific characteristics of ERP systems are related to improvements in employee productivity?
3. How the distinguishing determinants of ERP Systems improve Employee Productivity?

We can gain a better insight into how the productivity of employees at ABC Apparel Company can be enhanced by answering these questions about leveraging ERP systems.

1.4 Objectives of the Study

The objective of this research is to reveal valuable insights that can assist organization in optimizing the workforce and ultimately boosting productivity by using ERP.

In this study, the following objectives have been identified:

1. To discuss the present situation of employee productivity with ERP systems using in the ABC Apparel Company.
2. Determine the characteristics of ERP systems that are related to improved employee productivity at ABC Apparel Company.
3. Explain the correlation of distinguishing determinants of ERP Systems improve Employee Productivity at ABC Apparel Company.

1.5 Scope of the Study

The study will focus specifically on ABC Apparel Company, the Sri Lanka-based company operating in the apparel industry. The company's operations, workforce, and existing systems will be analyzed in relation to ERP implementation and primarily investigate the implementation and utilization of an ERP system within ABC Apparel Company. The scope includes evaluating the selection, deployment, and integration of the ERP system, as well as its impact on various functional areas (e.g., finance, inventory management, production, human resources). Other than that, the study offers a chance to discover the relationship between employee productivity and ERP system use within the industry of apparel in Sri Lankan Context.

1.6 Significance of the Study

The company is in the recovery stage of after adopting new SAP features, there is an actual need to see the impact the system has caused on different business aspects such as employee productivity. Based on the results company will be able to make effective decisions on ERP investment. And at the same time this will evaluate the gaps in the system and to align with the processes.

1.7 Methodology

This study on the impact of ERP systems on employee productivity at ABC Apparel Company employs a mixed-methods research approach. Commencing with an introduction to establish the research problem and objectives, the study justifies the significance of investigating ERP's influence on employee productivity. A comprehensive literature review informs the research, identifying gaps and building a conceptual framework for understanding the ERP-employee productivity relationship.

Utilizing a case study design, the research focuses specifically on ABC Apparel Company, ensuring a detailed exploration of ERP's impact in a real-world context. Sampling procedures are defined to target employees using ERP, and a combination of questionnaires, interviews, and observations is employed for data collection. Ethical considerations are paramount, ensuring participant confidentiality and informed consent.

Data analysis involves quantitative techniques, using tools like SPSS for quantitative data. The study concludes with a discussion of findings, recommendations, and implications for ABC Apparel Company, providing valuable insights for organizations implementing or considering ERP systems. Explicit acknowledgment of limitations and a well-defined scope enhance the study's credibility and applicability.

1.8 Thesis Outline

CHAPTER 01

The opening section of this chapter is crucial as it provides a clear introduction to the study. It offers valuable insights into the study's background, articulates the problem statement, outlines the study's objectives, and highlights the significance of the study. This serves to facilitate a comprehensive understanding of the study's objectives and is essential for its successful completion.

CHAPTER 02

Chapter two presents the literature related to ERP systems, business performance and employee productivity. It describes the different types of studies which describe different angles of ERP systems and performance.

CHAPTER 03

Chapter three discusses about the research methodology. Conceptualization of variables, sample population, research design and distribution together with statistical techniques used in analyzing data.

CHAPTER 04

Chapter four will discuss about the result of the study. It summarizes the results of data analysis together with the discussion of results.

CHAPTER 05

Chapter five is dedicated to presenting the discussion and conclusion of the study. Additionally, it will address any limitations encountered during the research process and put forth suggestions for potential areas of further research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

ERP systems embody a transformative approach to organizational management, offering integrated solutions for overseeing business processes and resources. At the core of this commitment is the prospect of heightened employee productivity stemming from streamlined operations, improved information access, and effective decision-making. Numerous studies have explored the effects of ERP systems on business performance across diverse contexts. This section delves into several literature reviews conducted in the realm of ERP systems' influence on various business performance indicators, with a specific focus on employee productivity. The chapter also encompasses a range of sources that thoroughly examine the relationship between ERP systems and employee productivity.

2.2 Apparel Industry in Sri Lanka

In recent years, the Sri Lankan apparel industry has gained a global reputation for its production of high-quality garments, endorsed by renowned fashion brands that prioritize ethical manufacturing processes. Sri Lanka exports these garments to well-known brands like Nike, Lululemon, Pink, Victoria's Secret, Gap, Next, Speedo, Triumph, Ann Taylor, Marks & Spencer, Boss, Calvin Klein, Colombia, H&M, and others, encompassing a wide range of categories such as Lingerie, Loungewear, Bridalwear, Workwear, Sportswear, Children's wear, and Swimwear. Over the past four decades, the industry has experienced significant growth and currently stands as Sri Lanka's leading foreign exchange earner (srilankabusiness.com, 2020). The contribution of the apparel sector to the overall merchandise exports is illustrated below.

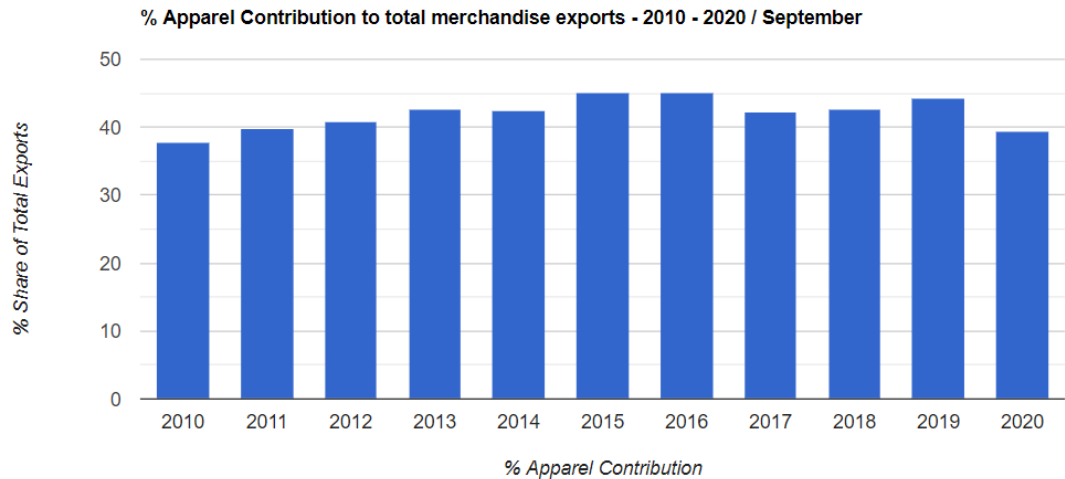


Table 1 : Apparel contribution to the total merchandise exports Apparel contribution to the total merchandise exports

Source - (srilankabusiness.com, 2020)

2.3 The Evolvement of the Company and Current Status

ABC Apparel Company stands as a collaborative venture among three major industry leaders, each leveraging competitive advantages in production, technology, and market presence. These companies are strategically located in Sri Lanka, the USA, and Germany. The primary manufacturing facility is situated in Gurugoda Horana. Owing to an increased demand from customers and the need for expanded storage capacity, the main plant faced constraints in accommodating new orders. Consequently, the management resolved to establish four new factory installations gradually, starting in 1999 in Pimbura, followed by locations in Agalawaththa in 2002, India in 2004, and Balangoda in 2014. This study specifically focuses on the original mother plant located in Horana.

The company has a broad customer portfolio ranging from Nike, ODLO, New Balance, Triumph, Victoria's Secret, Levis, Lululemon, Lindex to E-Commerce customers. Addressing dynamic market needs the company has broadened the scope for innovations by implementing an in-house resource and development department. Together with the company's digital excellence team, the management seeks novel solutions to cater to highly customized orders in a shorter lead time. Most recently the company has won the Supplier Ownership Program Achievement Award by L Brands – Victoria's Secret in 2020. Following the excellence in compliance with internal controls and management systems, L Brands - Victoria's Secret have rated ABC Apparel Company and identifying as one of their best suppliers. The company's success in the industry is evident through consistent product innovation and the

unwavering commitment to maintaining rigorous quality standards, resulting in notable growth over the past few years.

2.4 Enterprise Resource Planning (ERP) Systems

The available literature on Enterprise Resource Planning (ERP) systems provides an in-depth analysis of the advantages and challenges associated with ERP implementation. The literature highlights the potential benefits of introducing an ERP system, such as streamlining operations, reducing manual tasks, and providing real-time data that can lead to increased employee productivity. However, implementing ERP systems is a complex and costly process, which can be accompanied by challenges such as data quality issues, employee resistance to change, inadequate training, and poor communication. Overall, the literature provides valuable insights into the potential benefits and challenges of ERP implementation. This information can help organizations make informed decisions on whether to adopt an ERP system. Both academic and business communities can utilize this knowledge to better understand the impact of ERP implementation on employee productivity.

2.4.1 Overview of ERP Systems

An ERP system is a comprehensive information system crafted to integrate diverse functions into a cohesive computer system. It caters to the unique demands of each function while upholding a centralized database that meets a wide range of data requirements. These encompass areas such as manufacturing, finance, human resources, supply chain, customer relationship management, logistics, and more (Nawaz & Channakeshavalu, 2013). In accordance with the insights provided by (Vemuri & Palvia, 2006), ERP systems are software solutions designed to streamline and automate business processes, ensuring the timely delivery of precise enterprise-wide information to facilitate informed decision-making.

According to (Ptak, 2000) provide the necessary agility in timely decision making to compete in the market ERPs empower employees by providing valuable information on demand is vital in present days where dynamic capabilities are believed as source of competitive advantage, not the unique resources. It is not only dynamic capabilities; ERPs provide unique resources as well in the form of information to acquire competitive advantages.

The leading ERP solutions provider Oracle has stated that a complete ERP suite refers day to day business operations while helps planning, budgeting, reporting and predicting organizational results by linking multiple data sources of different business transactions (Oracle, 2020).

2.4.2 Benefits of ERP Systems

ERP systems are integral to contemporary organizational management, presenting numerous advantages that significantly contribute to improved operational efficiency and strategic decision-making. A key merit of ERP systems is their capacity to streamline business processes, seamlessly integrating various functions across departments and reducing redundant efforts. This integration not only enhances efficiency but also guarantees data accuracy through the establishment of a centralized repository for information Boston Consulting Group (2000). Decision-makers benefit from real-time data access and robust reporting tools, empowering them with valuable insights for making well-informed and timely strategic decisions. Furthermore, ERP systems contribute to cost savings by automating processes and optimizing resource utilization. Standardizing processes encourages collaboration among departments, breaking down silos and fostering a unified working environment. In addition, ERP systems aid in compliance with regulatory standards, mitigating risks associated with legal requirements. The adaptability and scalability of ERP solutions ensure alignment with evolving business needs, and their implementation often confers a competitive advantage by enabling organizations to respond rapidly to market dynamics. As organizations pursue continuous improvement and competitiveness, the adoption of ERP systems stands out as a crucial element in achieving operational excellence and enduring success.

(Elragal & Al-Serafi, 2011) further emphasize the classification of anticipated benefits from ERP system implementation, including both tangible gains like cost reduction and streamlined operations, and intangible benefits such as improved information integration, enhanced data quality, and increased customer satisfaction. ERP systems currently have grown more dynamically to response the business transformations led by demand, timely service, globalization and variety of choices with customizations for lower prices in both large and small-medium organizations (Qutaishat, Khattab, Zaid, & Al-Manasra, 2012).

As per (Kuo, 2014), the advantages of ERP systems can be classified into three main categories. The first category aims to enhance internal efficiency, encompassing activities such as reducing inventory levels and integrating internal processes and information systems. The second category focuses on boosting external efficiency, involving aspects like reducing shipping time and promptly responding to customer demands. This, in turn, establishes a connection with external organizations, reinforcing global logistics or e-commerce capabilities. The third category underscores ERP's impact on the accuracy of real-time information, a critical factor in the decision-making process for managers.

2.4.3 ERP Systems Tailored for Apparel Industry

In a world, that is driven by information in any industry to be competitive in both local and global markets the need for accurate information is a must. The more you are informed with a better source of information the better you perform. The same applies to the apparel industry where ERP systems enable automating the core processes in the organization. The departments in an organization are no longer be isolated anymore. They all are subsystems of one main system and the information of all the departments is stored centrally and available to access in one single click. Increased transparency and reduced time consumption to access ensure all the departments collaboratively work toward a common goal rather than perusing their own goals. In the arena of apparel to maintain efficiency, productivity, and stringent quality of the garment it is very important to select a robust ERP system that helps all the processes top to bottom. It should provide solutions for planning, budgeting, scheduling, monitoring, and controlling of orders on board.

The benefits of ERP systems that are used in the apparel industry can be identified in many perspectives such as supplier, customer, employee, management, etc. Deduction in cycle time is a benefit that can be categorized under a customer perspective since meeting the customer's deadline is a crucial factor relating to having loyal customers. Cost savings incurred by implementing ERP systems is another benefit that the company management is paying more attention to where the results certainly had been acquired by eliminating the waste and non-value adding activities.

In the industry different ERP systems are used according to the requirements of the organization. There are many ERP solutions providers all over the world and it is the organization's responsibility to select the one most suitable and customize accordingly. For an instance, Brandix Apparel Group uses an ERP called Infor M3 while Hirdaramani Group of Companies use an ERP named AX which is developed by their own IT solutions provider H-ONE.

2.4.3.1 ERP Modules Tailored for Apparel Industry

The apparel industry is known for its constantly changing market trends, intricate supply chains, and the need for quick response to customer demands. ERP systems are crucial in making the operations efficient, streamlining the processes, and improving overall business performance in this industry.

However, implementing ERP systems in the apparel industry comes with its challenges. Experts such as (Kaplan, 2003) have pointed out problems related to data accuracy, integration with diverse supply chain partners, and the need for real-time visibility. Understanding these challenges is vital in creating tailored ERP modules.

ERP Systems in Apparel Manufacturing Industry are sophisticated software solution that is meticulously designed to model and automate various business processes within an organization from start to end. This software can be effectively utilized in several areas, including finance and shop floor. The primary objective of ERP software is to seamlessly integrate information across an entire organization, thereby avoiding the need for complex and overpriced links between disparate computer systems that were not originally designed to communicate with each other.

An organization is a collection of people who work together to achieve a common goal or objective, as defined by (Oxford University Press, 2011). To ensure efficient and effective operation, the organization is segmented into different functional units or departments according to the tasks and responsibilities they undertake. This division of labor enables specialization and expertise development in specific fields, resulting in increased productivity and improved performance. There can be several departments, such as:

- Production/Manufacturing & Operations
- Quality Management Department
- Raw Material Warehouse
- Finished Good Warehouse
- Finance Department
- Purchasing & Order Management
- Planning Department
- Sales, Marketing & Distribution Department
- Human Resources Department

Each and every department within the organization works towards its own goals and objectives, which they believe are aligned with the organization's objectives. These departments operate independently, with their own systems for data collection and analysis. As a result, the information generated by each department is usually only available to top management, and often only in the form of summary reports.

Other departments within the organization may not have access to this information. Organizational silos can result in departments working towards individual objectives instead of a shared goal. This scenario often occurs due to a lack of information sharing among departments. Consequently, conflicting objectives may arise, which further hinder the achievement of the organization's primary goal.

In many organizations, the lack of information integration among departments often leads to a scenario where one department's objectives are at odds with another. This

can create confusion, tension, and derail the progress of the organization. However, an enterprise approach seeks to address this issue by treating the entire organization as a system in which all departments are subsystems working towards a shared goal. To achieve this, all information about the organization is stored centrally and made available to all departments in a matter of seconds. This ensures that everyone in the organization has access to the same information, regardless of their department or role. As a result, departments can collaborate more effectively, make informed decisions, and align their objectives towards the overall success of the organization. This approach can lead to improved employee productivity, higher levels of efficiency, and a more cohesive organizational culture (Ganesh G., 2006).

Organizations can make sure that their departments are no longer operating autonomously to achieve their own objectives by adopting transparency and granting access to information. Rather, every subsystem knows what the others are working on, why, and what has to be done to accomplish the shared goals of the organization. Organizations use ERP systems to integrate information systems in order to do this, allowing data to move easily and seamlessly across departmental boundaries. Increased success and efficiency result from the organization becoming a single unit through the automation of business processes and functions.

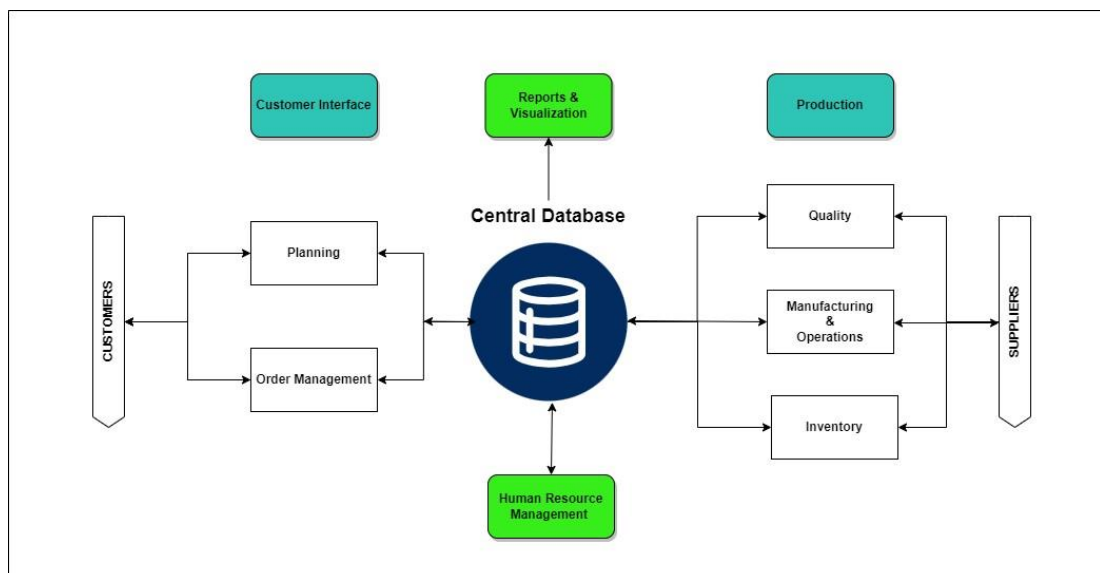


Figure 1 : ERP Architecture

Source – (Banez, 2016)

The apparel industry is highly competitive and requires efficient processes to ensure productivity and quality. One way to achieve this is by implementing an appropriate ERP solution that can optimize various operations, right from the purchase of raw materials to the sales of the final product. ERP solutions available in the market for the apparel industry offer a range of features such as planning of the orders, monitor the

progress of the orders, make the predictions with the available data and response quickly to any deviation. These features can help companies manage their resources better, cut down on manual work, and provide real-time insights for better decision-making. With the accurate data predictions and quick response to queries provided by ERP solutions, companies can significantly improve their efficiency and productivity. They can optimize production, manage inventory better, and respond faster to customer demands. ERP solutions can also help apparel companies to improve the quality of their products by providing insights into the manufacturing process and enabling them to take corrective action in real-time.

Furthermore, the integration of ERP solutions can provide significant cost reductions and increased profitability for organizations by enhancing supply chain management, reducing labor-intensive tasks, and mitigating the potential for errors (Ganesh G., 2006). By automating various processes, ERP systems save valuable time and resources that can be redirected to other high-value tasks. For apparel companies, the implementation of an ERP solution can be a game-changer. It can help optimize operations, improve productivity, reduce costs, and increase profitability. Therefore, it is imperative for apparel companies to conduct a thorough evaluation of the various ERP solutions available in the market and select the one that best aligns with their unique requirements.

2.5 ERP in ABC Apparel Company

Prior to 2006, ABC Apparel Company had been using an ERP system that was considered outdated. This system was received from their Joint Venture partner and was becoming increasingly inefficient, leading to a decline in productivity. In 2006, JV partner took the decision to upgrade to a more modern SAP ERP system and invited ABC Apparel Company to do the same. The company decided to partner with Attune Consulting in Sri Lanka to implement SAP. With the new SAP system in place, ABC Apparel Company was able to streamline their business processes, improve their supply chain management, and enhance their customer service.

However, due to the rapid growth of the company and technological advancements, by 2016, the SAP system had become outdated and needed an upgrade. The company then decided to upgrade to the SAP HANA platform. Currently, there are approximately 650 direct SAP users at ABC Apparel Company. These users are spread across different departments, such as finance, human resources, procurement, production, and sales. The SAP system has enabled the company to maintain accurate records, increase efficiency, and improve decision-making.

2.5.1 Objectives of ERP System Implementation in ABC Apparel Company

Organizations choose ERP systems to achieve their strategic goals, which may differ depending on their industry and specific business requirements (Lorin M. Hitt, 2014). For example, the ABC Apparel Company has established precise targets for their ERP implementation, including achieving operational excellence, maximizing profitability, and contributing to the economic growth and development of the country. With the help of ERP software, the ABC Apparel Company intends to simplify their operations, optimize their resources, and enhance their competitive advantage in the market. These objectives can be further explained as follows.

- **Process Efficiency**

ERP systems are highly advanced software applications that have been developed to help businesses streamline their operations. These systems integrate various aspects of a company's functions, such as finance, human resources, supply chain, and customer relationship management, into a single platform. By automating and optimizing these processes, ERP systems improve operational efficiency, minimize manual labor, and reduce the likelihood of errors. As a result, companies can achieve significant cost savings, improve productivity, and make informed decisions.

- **Integrated Information**

One of the primary objectives of implementing an ERP system is to unify and integrate various business processes and functions into a single, cohesive system. This integration helps to ensure that information flows seamlessly throughout the organization, eliminating data silos, and improving data accuracy. As a result, businesses can make more informed decisions, improve operational efficiency, and achieve significant cost savings.

- **Data Accuracy and Consistency**

The implementation of ERP systems can be a complex and challenging task that requires careful planning and execution. It involves integrating various business processes and functions into a unified system, which can be a daunting task. However, if done correctly, ERP systems can provide numerous benefits to an organization, including improved data accuracy, streamlined processes, and enhanced decision-making capabilities. One of the key benefits of ERP systems is the ability to provide a comprehensive view of an organization's operations. By integrating various business processes, ERP systems create a centralized repository of information that can be accessed by different departments within the organization. This enables better collaboration and

communication between departments, leading to improved productivity and efficiency.

ERP systems also automate many routine tasks that would otherwise be time-consuming and prone to errors. This not only reduces the workload of employees but also ensures that processes are completed accurately and consistently. Additionally, ERP systems provide real-time data that can be used to make informed decisions and identify opportunities for improvement. Overall, a successful ERP implementation can significantly improve an organization's performance, leading to increased profitability and customer satisfaction. However, it is essential to choose the right ERP system and implement it correctly to ensure the best results.

- Improved Customer Service

Implementing an effective ERP system has the potential to significantly improve customer service. By providing real-time access to customer information, order status, and inventory levels, organizations are able to respond in a timely manner to any customer inquiries or demands. With the ability to quickly access this important data, businesses can provide their customers with better service, leading to greater customer satisfaction and retention.

- Strategic Planning and Decision-Making

ERP systems are software applications that integrate and manage all aspects of a business. These systems provide management with comprehensive, accurate, and real-time information that helps in strategic planning and decision-making. With access to up-to-date data, executives can make informed decisions that align with the organization's goals, leading to improved efficiency, reduced costs, and increased profitability.

ERP systems have the capability to streamline processes and automate repetitive tasks, allowing employees to allocate their time more effectively towards essential responsibilities. While the implementation of an ERP system may entail a substantial investment, the resulting benefits, such as enhanced business performance and decision-making, justify the expenditure.

- Regulatory Compliance

In today's world, many industries must comply with various regulations and compliance requirements to ensure their smooth functioning. In such scenarios, ERP systems have become a necessity as they offer organizations the tools and

features to track and report on the relevant activities needed to adhere to the regulations. These ERP systems have embedded capabilities that enable organizations to manage and monitor their regulatory compliance processes efficiently.

- Cost Control

ERP implementations are designed to streamline business operations by optimizing processes, reducing manual efforts, and improving resource allocation. The goal is to achieve better control over all aspects of financial management, including inventory and procurement. ERP systems can help organizations control costs by providing real-time visibility into financial data, automating repetitive tasks, and eliminating data silos. This can ultimately lead to more accurate forecasting, improved cash flow management, and better decision-making.

Furthermore, ERP systems contribute to error reduction and enhanced compliance by serving as a centralized platform for overseeing financial data and processes within businesses. In essence, ERP implementations aid organizations in attaining heightened efficiency, increased profitability, and a competitive edge.

- Enhanced Collaboration

ERP systems have transformed the operational landscape of organizations, revolutionizing the way they conduct their activities. Through the integration of diverse departments and teams, ERP systems have markedly enhanced collaboration, communication, and coordination within the organization. The seamless sharing of information and resources facilitated by ERP systems results in a more comprehensive view of the organization. Consequently, this aids organizations in making well-informed decisions, optimizing processes, and ultimately elevating their overall performance.

- Scalability and Flexibility

ERP systems are software applications that integrate different business processes within an organization. These systems are designed to streamline operations, increase efficiency, and reduce costs. When organizations implement ERP systems, they usually have a long-term vision of growth and expansion. The goal is to have an ERP solution that can scale up or down, depending on changes in organizational size, structure, and business requirements.

An effectively designed ERP solution should possess flexibility and configurability, enabling organizations to tailor the system according to their unique requirements. This encompasses defining workflows, configuring business rules, and personalizing reports. Moreover, the ERP solution should have the capacity to seamlessly integrate with other systems, such as customer relationship management (CRM) and supply chain management (SCM) systems. Scalability stands out as a crucial element in ensuring the success of an ERP implementation.

As organizations grow and expand, their business requirements will change. The ERP solution should be able to accommodate these changes without requiring a complete overhaul of the system. This means that the ERP solution should be modular and allow for the addition of new functionality as needed. In summary, a well-designed ERP solution should be scalable, flexible, and configurable. It should be able to adapt to changes in organizational size, structure, and business requirements without requiring a complete overhaul of the system.

- **Competitive Advantage**

By achieving the objectives of efficient, integrated, and agile operations, organizations can significantly improve their chances of gaining a competitive advantage in the market. Efficient operations allow companies to reduce costs and eliminate waste while maximizing productivity. Integration of different business functions, such as marketing, sales, and operations, helps to streamline workflows, enhance communication, and improve the overall performance of the organization. Agility, on the other hand, enables businesses to respond quickly and effectively to changes in the market, customer demands, and emerging technologies.

These factors combined help organizations remain ahead of their competitors, by enabling them to innovate, adapt, and seize new opportunities as they arise. Moreover, companies with efficient, integrated, and agile operations can benefit from greater customer satisfaction, reduced operational risks, and improved profitability. Therefore, it is essential for organizations to prioritize these objectives and work towards achieving them to remain successful in today's competitive marketplace.

2.6 Importance of Employee Productivity in Organizational Success

Efficient employee productivity is a crucial factor that determines the success of an organization. It impacts various aspects of a company's performance and contributes to its overall growth and reputation. Employee productivity means that employees can utilize resources efficiently, leading to tangible outputs that are essential for the organization's success (Beheshti, 2010).

Productivity is not just about completing tasks quickly; it is also about ensuring that they are done efficiently and effectively (Panchanatham, 2011). A productive workforce ensures that the company's resources, including time, money, and human capital, are used wisely. This not only leads to cost savings but also helps in achieving organizational goals in a timely and effective manner.

Moreover, employee productivity has a direct impact on the quality of work produced. A productive workforce ensures that tasks are completed to a high standard, which enhances the organization's reputation. It is essential for the success of an organization as it leads to efficient resource utilization that results in tangible outputs, which have a direct impact on the growth and reputation of the company (Kuruppu, 2009). Furthermore, productivity fosters innovation and creativity, which is essential for the organization to stay ahead of the competition (Bheda, 2003). Satisfied and engaged employees, sustained by a sense of purpose and recognition, contribute not only to their own professional development but also to the overall adaptability and resilience of the organization in the face of change.

The ripple effects extend to customer satisfaction, profitability, and corporate reputation, as organizations with a reputation for high productivity are more likely to attract customers, investors, and top talent. In essence, employee productivity is the catalyst that drives an organization towards sustainable growth and success. It is the foundation upon which organizational success is built, and as such, it is essential to create and maintain a productive workforce. Organizations that value and prioritize productivity are more likely to achieve their goals, gain a competitive edge, and establish a strong reputation that attracts customers, investors, and top talent.

2.7 Employee Productivity through ERP

ERP systems are powerful tools that provide organizations with a comprehensive solution to enhance employee productivity. (Kunt, 2015) emphasis that these systems offer a wide range of capabilities that help employees perform their tasks efficiently and accurately. One of the key features of an ERP system is centralized data management. This feature ensures that all employees have access to a unified database that spans across various departments, eliminating the need for multiple databases. This not only eliminates information silos but also reduces the time spent searching for and reconciling data, ultimately fostering accuracy in decision-making. With an ERP system in place, employees can easily access the data they need to make informed decisions, without wasting time on manual data entry or searching for information (Macičiulyte-Sniukiene, 2014). This streamlines business operations, enhances collaboration, and improves overall productivity.

ERP implementation involves the automation and streamlining of workflows, which are crucial for businesses to operate efficiently. Automating routine and repetitive tasks increases efficiency and allows employees to redirect their focus towards tasks that require critical thinking and creativity, such as decision-making and problem-solving. This helps them to add more value to the organization and contribute to its growth. By automating these tasks, there is also a significant reduction in the risk of errors that may occur in manual processes, which can save time and costs for the organization in the long run (Mamum, 2014).

Real time collaboration is enabled by ERP systems, which helps in breaking down communication barriers between different teams and locations. With instant access to shared information, employees can work together seamlessly, leading to faster problem-solving, decision-making, and overall improved teamwork. In today's highly competitive and dynamic business landscape, it is crucial for companies to be able to respond swiftly to changing market conditions.

ERP systems offer a wide range of benefits to organizations, including powerful reporting and analytics tools. These tools enable employees at all levels to leverage data in meaningful ways, providing valuable insights into the organization's operations. With these insights, employees can make informed decisions, identify patterns and trends, forecast future scenarios, and proactively tackle challenges before they cause significant problems. Accurate and timely information is critical in today's dynamic business environment, and ERP systems' reporting and analytics tools provide the data needed for informed decision-making throughout the organization (Macičiulyte-Sniukiene, 2014).

Resource optimization is another key benefit of ERP. Through effective management of human resources, organizations can ensure that the right people are assigned to the

right tasks at the right time. This includes tracking employee performance, managing work schedules, and identifying areas for improvement, all of which contribute to increased overall productivity.

Resource optimization being one of the most significant benefits of ERP systems. By leveraging the power of ERP, organizations can efficiently manage their human resources by ensuring that the right people are assigned to the right tasks at the right time. This means that employees are deployed in a manner that maximizes their skills and expertise, resulting in increased productivity and efficiency (Kunt, 2015). Moreover, ERP systems provide tools that allow organizations to track employee performance, manage work schedules, and identify areas for improvement, all of which contribute to better overall resource utilization and enhanced business performance.

ERP systems also contribute to improved customer service by integrating customer relationship management (CRM) functionalities. Employees gain access to comprehensive customer information, enabling them to respond promptly to inquiries, provide personalized services, and build stronger customer relationships.

Moreover, ERP systems have become increasingly popular in recent years for their ability to effectively manage an organization's resources, including financials, inventory, and customer relationship management. However, one of the lesser-known benefits of these systems is their ability to address regulatory compliance challenges. ERP systems automate processes related to reporting, data security, and other regulatory obligations, ensuring that the organization operates within legal frameworks. This, in turn, reduces the risk of non-compliance, which can result in costly penalties and reputational damage. By using an ERP system, organizations can streamline their compliance efforts, freeing up time and resources to focus on other areas of their business. This not only helps to ensure that the organization is meeting its obligations but also provides peace of mind that it is operating within legal and ethical boundaries (Kuruppu, 2009).

The implementation of mobile accessibility in ERP systems has revolutionized the way employees handle business-critical information and complete tasks. This feature empowers employees to access essential business data and perform everyday tasks from any location, including remote or field-based settings, resulting in increased productivity and efficiency (Altamirano, 2017). This flexibility allows employees to stay connected and engaged in organizational goals while on the move, ensuring that no valuable time or opportunities are lost due to their physical location.

However, according to (McAfee, 1999) the one-size-fits-all approach of traditional ERP systems may not align with the unique workflow requirements of every organization. That's where customization comes into play. By customizing an ERP system, organizations can tailor it to their specific needs and processes, ensuring that

it aligns seamlessly with different departments and functions. This adaptability not only increases efficiency and productivity but also helps organizations to remain competitive in an ever-changing business landscape.

In summary, ERP systems offer a holistic approach for enhancing employee productivity by addressing multiple areas of organizational operations. These systems provide efficient management of data, promote collaboration, enable analytics, and ensure compliance. By establishing a strong foundation for a flexible and effective work environment, ERP systems contribute to the long-term success of the organization, resulting in increased productivity.

2.8 ERP System and Business Performance

Numerous studies over the last decade have attempted to investigate the impact of ERP systems on business performance. The evaluation of business performance involves a range of parameters, both financial and non-financial, which have evolved over time, and represent a broad area of research. It is worth noting that previous studies have predominantly focused on assessing the tangible financial benefits of ERP systems, such as return on assets (ROA), return on investment (ROI), and asset turnover (ATO). According to (Kamhawi, 2008), companies that adopt ERP systems have demonstrated a significant improvement in their financial performance over a three-year period, compared to those who do not adopt them. Moreover, the financial performance of non-adopters tends to decline over time, while adopters' performance remains stable.

(Wier, Hunton, & HassabElnaby, 2017) assert that the concurrent adoption of ERP systems and Non-Financial Performance Incentives (NFPI) yields greater business performance compared to using either ERP or NFPI independently. Existing literature, including many relevant prior studies in the realm of non-financial performance indicators, has predominantly focused on aspects such as customer satisfaction and total quality management. ERP significantly enhances the performance of various functional areas within organizations across multiple dimensions. The implementation of ERP in sales, for instance, can enhance efficiency, leading to heightened customer satisfaction through improved responsiveness. In the service domain, utilizing ERP to access customer history data contributes to enhanced customer interaction. It is evident that the implementation of ERP systems contributes to the upliftment of business performance in numerous ways (Qutaishat, Khattab, Zaid, & Al-Manasra, 2012).

Productivity of the employees is one of the most important measurements in business performance. Compared to the research on financial performance there are lesser number of studies have been conducted in the different regions of the world in few industries. (Rei, 2014) has concluded from the study that no evidence found to prove a causal relationship between ERP investment and labor productivity growth in the

Portuguese economy. A study on Canadian firms was done by (Pilat, 2005), has shown that ERP users gain better productivity compared to non-ERP users.

2.9 The Impact of ERP on Business Performance at ABC Apparel Company

In the context of ABC Apparel Company, the implementation of ERP Systems has brought about significant and far-reaching impacts on the business. These impacts can be both tangible and intangible in nature and can be seen in a number of different areas such as finance, cycle time, machinery downtime, and customer satisfaction. In terms of financial impacts, the implementation of ERP has allowed ABC Apparel Company to streamline its operations, reduce costs, and improve financial reporting and forecasting. This has resulted in greater transparency and accuracy in financial reporting, as well as improved profitability and cash flow.

With regards to cycle time, the implementation of ERP has allowed ABC Apparel Company to reduce the time it takes to complete key processes and activities, such as order processing, inventory management, and production scheduling. This has resulted in faster turnaround times, increased flexibility, and improved customer service. Similarly, the implementation of ERP has allowed ABC Apparel Company to reduce machinery downtime by providing real-time visibility into equipment and maintenance needs. This has resulted in improved equipment utilization and reduced maintenance costs.

Finally, the implementation of ERP has had a significant impact on customer satisfaction, as it has enabled ABC Apparel Company to improve order accuracy, reduce lead times, and provide better visibility into order status. This has resulted in increased customer loyalty and repeat business.

Of course, not all impacts of ERP are positive, and there may be certain challenges and negative effects that need to be addressed. However, overall, the implementation of ERP has provided ABC Apparel Company with the opportunity to improve its operations and better serve its customers.

In the context of ABC Apparel Company, the impact that has been made on business is significant by means of tangible and intangible aspects with the use of ERP. The impact can be related to financial aspects, cycle time, machinery downtime, customer satisfaction, etc. Those impacts can affect the company either positively or negatively. If it is positive ABC company has an opportunity to improve further and if not, it has to take corrective decisions to overcome the destructive scenarios.

2.10 Problem Justification

Even though there are plenty of benefits and easiness on ERP Systems exist, according to the research done by many on the other hand, there are several implications that can identify (Al-Serafi, 2011). Overall, it can be for many reasons like, complexity, lack of user friendliness, limited of awareness, less responsiveness etc.

2.10.1 Application of ERP Systems

Despite the positive impact of ERP systems in augmenting business processes and facilitating cost reduction, better insights through information, shorter lead times and increased customer satisfaction, some scholars have brought to light certain concerns. These concerns could potentially undermine the effectiveness of these systems and limit the benefits they offer.

Certain scholars have raised concerns regarding the potential reverse cause-and-effect relationship between pre- and post-implementation phases, which could lead to a decline in specific performance indicators (Hitt, 2002). For instance, (Fuß, 2007) proposes that businesses in the services sector, such as banks, often deploy ERP systems to enhance their overall effectiveness. While cost reduction and productivity remain crucial considerations, the primary emphasis lies in improving the quality of business processes and information. Organizations adopting ERP systems in this sector recognize that solely measuring efficiency and productivity can be misleading and may result in unintended negative consequences. As a result, they prioritize quality over quantity in the realm of business processes and information.

The literature exploring the influence of ERP systems to the corporate accomplishment reveals diverse findings. While some researchers assert that ERP systems can augment overall business performance, others contend that these systems exhibit a limited impact, specifically enhancing certain facets of business performance. This implies that the connection between ERP systems and business performance is intricate and subject to various influencing factors. Consequently, organizations contemplating the implementation of an ERP system and assessing its potential benefits must be attentive to these factors. Such awareness can empower organizations to make well-informed decisions and optimize their utilization of ERP systems (Kang, Park, & Yang, 2008).

Certain studies suggest that the implementation of an ERP system might not lead to significant financial benefits. For example, a study by (Kennerley, 2001) revealed that return on sales remained unaffected after the implementation of ERP systems. Similarly, (Wieder B. B.-L., 2006) discovered that specific financial benefits attributed to ERP systems were not evident when comparing users to non-users. In the view of (Nicolaou, 2004), ERP adopters exhibited a worse ratio of general and administrative

expenses to sales compared to non-adopters, indicating a decline in financial performance. While some researchers, like (Wei, 2008), have identified long-term positive effects of ERP on financial performance, others propose that ERP systems may only help in maintaining current financial performance and might not necessarily lead to improvement. Consequently, further financial analysis is imperative to thoroughly investigate the genuine impact of implementing an ERP system.

2.10.2 The IT Productivity Paradox

Previous research has indicated that investments in information technology (IT) may have minimal to no effect on business performance (Ross, 2002). Empirical studies conducted during the period between 1980 and 1990 suggest that companies embracing IT technologies do not necessarily witness substantial gains in productivity. In fact, some researchers have even proposed that the adoption of IT might impede productivity growth. Nevertheless, more recent studies have identified that IT investments can indeed contribute to enhancements in productivity (Pilat, 2005) (Rei, 2014).

As noted by (Pavlou, 2005) the productivity paradox is a phenomenon observed when IT investments fail to yield positive effects on firm or process performance. Despite numerous studies investigating the relationship between IT investments and productivity, the literature has yet to provide conclusive evidence establishing a positive link between the two.

The productivity paradox is a term coined to describe an observation that has puzzled IT investors. The investment in IT was expected to bring about improvements in business performance, but empirical evidence suggests that this expectation was not borne out. Instead, the findings on productivity appear to contradict these expectations (Anderson, 2003).

Scholars have identified specific factors that can lead to a positive correlation between IT and business performance, including organizational change, innovation, and the development of employee skills. By embracing these factors, businesses can effectively leverage IT to improve their overall performance and gain a competitive advantage (Pilat, 2005). It is important to note that different factors may play a critical role in promoting a favorable link between IT and business performance, as highlighted by researchers who have emphasized the importance of organizational change, innovation, and the enhancement of employee skills.

The phenomenon of productivity paradox has been the subject of extensive research, with a particular focus on the effects of IT on the services sector. However, such studies may be misleading since IT investments in this sector often aim at enhancing customer service quality, which is the primary business goal, rather than improving

internal efficiencies. Moreover, the slow adoption of IT in the early stages, coupled with the lack of employee skills development and business process reengineering, has been identified as a key challenge in IT diffusion. As (Pilat, 2005) explains, IT diffusion refers to the gradual and often limited uptake of technology in organizations.

2.10.3 Research Issue

The use of ERP systems has become increasingly popular across various industries, primarily due to the numerous benefits they offer. However, despite organizations' widespread adoption of ERP systems, some have reported that employee productivity has not improved significantly. As such, researchers have conducted studies to identify the underlying reasons for this trend. These studies aim to inform organizations on how to improve employee productivity in the face of ERP implementation.

2.10.4 Factors Affecting Non-Improved Employee Productivity with ERP Systems

The given context highlights a disagreement regarding the effect of ERP systems on employee productivity. Some indicators indicate that ERP systems could enhance employee productivity, while other indicators suggest the opposite. The precise connection between ERP systems and employee productivity remains unclear and might require additional research to be fully understood.

While ERP systems are designed to enhance efficiency and productivity within organizations, it is imperative to acknowledge the potential negative impacts they can have on employee productivity during implementation or use. Challenges like poor data quality, employee resistance to change, inadequate training, and insufficient communication can significantly undermine the intended benefits of ERP systems. It is crucial for organizations to address these issues systematically to ensure the successful implementation and maximum benefit of ERP systems.

Resistance from employees when introducing new technologies and processes associated with ERP systems is not uncommon. Such resistance may be rooted in fear of the unknown, concerns about job security, or a lack of understanding about the advantages of the ERP system (Olsen & Sætre, 2007). Effectively addressing these concerns, along with providing adequate training and support during the implementation process, is essential for ensuring a smooth transition and extracting maximum benefits from the ERP system (Buonanno & Koch, 2001).

(Kim, Lee, & Gosain, 2005) has said that adequate training on the ERP system is crucial to ensuring employees can effectively use it, enhance productivity, and

improve organizational efficiency. Without proper training, employees may struggle to understand the system's features, leading to errors and inefficiencies. Therefore, investing in comprehensive, role-tailored training programs is vital to maximize the ERP system's benefits and streamline operations.

A poorly designed or complex user interface can pose a challenge to improving productivity in an organization. If the system is difficult to navigate or if users find it challenging to perform routine tasks, it can lead to frustration and decreased efficiency. Therefore, it is imperative to ensure that the interface is user-friendly and easy to navigate. User-centered design plays a crucial role in this regard, as it ensures that the interface is intuitive and easy to understand, which in turn can contribute to improved productivity within the organization.

It is true that ERP systems that are not customized to meet the specific needs of an organization may not align with its unique processes. This lack of customization can lead to inefficiencies as employees try to adapt their workflows to fit the rigid structure of the ERP system (Ziemba & Obłak, 2013). It is important for companies to carefully consider their requirements and work with experienced ERP vendors to ensure that the system is tailored to their specific needs. This can help maximize the benefits of the system and improve employee productivity.

Effective communication and employee involvement are critical components for the successful implementation of ERP systems. Poor communication regarding the goals and benefits of the implementation can lead to employee uncertainty and resistance to change, which can ultimately impede the success of the new system. Therefore, it is vital for organizations to communicate effectively with their employees about the goals and benefits of the new system, as well as involve them in the implementation process. By doing so, employees can better understand how the system will affect their roles and the overall functioning of the organization, which will help to facilitate a smooth transition and ensure the successful adoption of the new system. These measures will contribute to the overall success of the ERP implementation (Nah, Lau, & Kuang, 2001).

It is important to note that the adoption of ERP systems in the apparel industry is not without its challenges. As mentioned in the previous chapter, there are potential pitfalls, such as the IT productivity paradox, that organizations must consider before implementing such systems. However, the findings from this study provide practical implications for optimizing ERP systems to maximize the positive impact on employee productivity in the apparel industry. By carefully considering the potential drawbacks and taking appropriate measures to mitigate them, businesses can reap the benefits of ERP systems and enhance their overall performance.

2.11 Theoretical Framework

Studies have shown that the implementation of ERP systems can affect employee productivity in numerous ways. These effects can be a result of various factors such as changes in work processes, increased automation, and improved communication and collaboration among employees. By examining these factors in detail, businesses can develop a comprehensive framework to address issues related to a lack of improvement in employee productivity.

Upon reviewing previous research studies, it can be inferred that the factors influencing employee productivity due to the implementation of ERP systems may differ based on the specific context of the ABC Apparel Company in Sri Lanka. This is because factors such as attitudes and perceptions regarding customer satisfaction are subject to regional variation.

Hence, we can infer that factor such as:

- Compatibility
- Complexity
- Efficiency
- Best Practices
- User Training
- Empowerment

may directly influence employee productivity through the utilization of ERP Systems at ABC Apparel Company.

2.12 Chapter Summary

This chapter is intended to offer an extensive analysis of the existing corpus of knowledge concerning the variables selected for the research and their correlation with the research topic. This chapter is an invaluable source of information for the readers and researchers alike in gaining a comprehensive understanding of the ERP systems and the employee productivity. Additionally, it is instrumental in identifying the most appropriate research methodologies and approaches for the study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter aims to delineate the conceptual framework of the study, encompassing key variables and their operational definitions. Furthermore, it will delve into the assumed relationships and hypotheses that have been formulated. The latter portion of the chapter will be devoted to crafting the overall design of the investigation, incorporating aspects such as population, sample, data collection techniques and instruments, and the data analysis procedures utilized to analyze the gathered primary data.

3.2 Research Design

3.2.1 Deductive Research Design

The deductive approach in research methodology emphasizes the formulation of a hypothesis or hypotheses based on existing theory. Subsequently, a research strategy is designed to test the hypothesis, particularly prominent in quantitative research. This approach is recognized for its structured and rigorous nature compared to inductive approaches. It typically commences with a theory or hypothesis, followed by the application of research methods to test and validate it. The deductive approach is commonly employed in academic research (Wilson, 2010).

In this study, the research delves into examining the influence of ERP implementation on employee productivity, with a specific focus on the case of ABC Apparel Company. Adopting a deductive and quantitative approach, the study aims to systematically analyze the correlation between ERP integration and enhancements in employee productivity metrics. The research objectives encompass identifying specific areas within ABC Apparel Company where ERP has the most significant impact on productivity, quantifying the extent of these improvements, and understanding employee perceptions regarding the ERP system. Several theories and literature have been utilized in the study to finalize and formulate variables and hypotheses. Primary data was collected through a finite random sample to investigate the improvement in employee productivity resulting from the impact of ERP systems.

3.2.2 Correlational Research Approach

According to (Base, n.d.), Correlational Research design is a methodology that examines the relationship between two variables without the researcher exerting control over either of them. The approach places emphasis on identifying and analyzing the nature of the hypothesis, which may indicate a positive, negative, or zero correlation (McCombes, 2023). Given the assumption of a causal relationship between established variables and employee productivity, the study has chosen the correlational research design approach. Prior to testing the formulated hypotheses and conducting quantitative data analysis, a survey method was employed to gather data. This method is commonly utilized in correlational research studies (Base, n.d.). Additionally, a naturalistic observation was carried out to collect data on ERP usage behavior. The collected data underwent quantitative analysis to ascertain the relationship between the response rate and various factors.

It is imperative to acknowledge that discovering a correlation between independent and dependent variables does not establish a causal relationship between them. Therefore, an observed variation in employee productivity does not necessarily indicate that the independent variables are the cause of it. However, it is noteworthy that despite the study's inability to establish causation, a meticulously analyzed substantial data set is capable of providing strong support for a causal hypothesis.

3.2.3 Conceptual Framework of the Research

A conceptual framework provides a graphical representation of the expected relationships between variables in a research study. It outlines the research goals and how they combine to form logical conclusions (George, 2022)..

In this study, the conceptual framework focuses on the factors that impact employee productivity through the implementation of ERP systems in the context of ABC Apparel Company. The framework outlines these factors and their relationships to each other.

Independent Variables

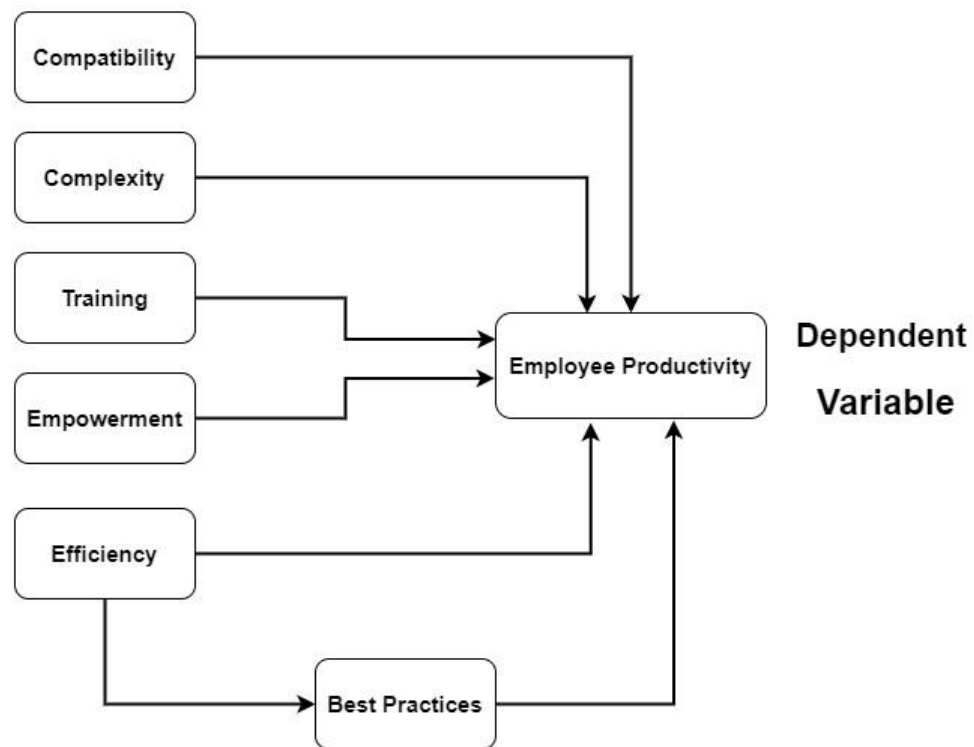


Figure 2 : Conceptual Framework

Source: Author Developed (2024)

3.3 Development of Hypothesis

The hypothesis is a formally expressed statement that delineates the expected relationship between the independent and dependent variables, as described by (Stobierski, 2021). In connection to the identified variables, the study has crafted the following hypotheses for investigation.

Identifier	Hypothesis
H1	Compatibility of the ERP systems has a relationship with Employee Productivity
H2	Complexity of the ERP systems has a relationship with Employee Productivity
H3	Trainings given for users on ERP systems has a relationship with Employee Productivity
H4	Empowerment of the users on ERP systems has a relationship with Employee Productivity
H5	Best practices of the ERP systems have a relationship with Employee Productivity
H6	Efficiency of the ERP systems has a relationship with Employee Productivity
H7	Best Practices of the ERP systems mediates the relationship between ERP system Efficiency and Employee Productivity

Table 2 : Hypotheses of research

3.4 Operationalization

Operationalization is a crucial process in the field of social sciences that involves defining the precise methods of measuring a variable (Babbie, 2013). The concepts and variables under study are often uncertain and may have different meanings, scales, and measures. Through operationalization, researchers can specify the operations necessary to measure a concept and identify the research processes used to gather data about it. This process can increase the relevance and accuracy of the findings. To analyze the impact of ERP systems to improve employee, it is essential to define the concepts, their definitions, and the ways of measuring the variables. In this regard, we have identified the variables, their indicators, and the level of measurement required to conduct a comprehensive analysis of this phenomenon. The table below presents these variables and indicators to aid in the research process.

Variable	Indicators	Source for Variable/Indicator	Measurement Scale	Question Number
Compatibility	Compatibility with retained system	(Bradford, 2003)	Likert	Q11
	Compatibility with existing hardware	(Ruivo, 2013)	Likert	Q12
	Compatibility with network infrastructure	(Ruivo, 2013)	Likert	Q13
Complexity	Learnability	(Kositanurit, 2006)	Likert	Q14
	Usability	(Chang, 2011) (Kositanurit, 2006)	Likert	Q15 Q17
	Accessibility	(Ruivo, 2013)	Likert	Q16
Efficiency	User Effectiveness	(Rajagopal, 2002)	Likert	Q18
	User Friendliness	(Bendoly, 2004)	Likert	Q19
	Speed	(Gattiker, 2005)	Likert	Q20
	Reliability	(Gattiker, 2005)	Likert	Q20

Best Practices	Ease of configuration	(Chou, 2008)	Likert	Q21
	Work organization	(Wenrich, 2009)	Likert	Q22
	Adaptability	(Quattrone, 2005)	Likert	Q23
Trainings	Quality of training	(Bradford, 2003)	Likert	Q24
	Quality of content and material	(Ruivo, 2013)	Likert	Q25
	Level of relevancy	(Ruivo, 2013)	Likert	Q26
Empowerment	Accessibility to reporting	(Calisir, 2004)	Likert	Q27
	Information Accuracy	(Gattiker, 2005)	Likert	Q28
	User Collaboration	(Kositanurit, 2006)	Likert	Q29

Table 3 : Operationalization Table

3.5 Validity and Reliability

Evaluating the trustworthiness and accuracy of research data is crucial, especially when the research findings are intended for practical applications in a specific industry or field. Validity, according to (Leydens, 2000), is defined as the extent to which the evidence supports that the interpretations of the data are correct and appropriate. In simpler terms, validity refers to the truthfulness, believability, and accuracy of the results obtained. To determine validity, researchers should ask a series of questions and collect answers, investigating their accuracy, as explained by (Rafilson, 1991). Moreover, reliability measures how consistent the results are when an experiment is repeated using the same methods.

3.5.1 Reliability

Reliability is a crucial aspect of any measure, indicating the consistency of the results obtained from the measure. In essence, if respondents answer the same questions multiple times, the answers should remain consistent and yield similar results. While providing an exact calculated value for reliability is challenging, it can be estimated using various measures. According to (Bolarinwa, 2015), there are three primary attributes of reliability: Homogeneity, Stability, and Equivalence.

Homogeneity, also known as internal consistency, gauges the extent to which all items on a scale measure the same construct. In simpler terms, if a set of questions is designed to measure a particular concept, homogeneity ensures that each question is measuring the same thing and producing consistent results. Stability, on the other hand, assesses the consistency of results obtained using an instrument with repeated testing. This implies that if the same test is administered multiple times to the same group of individuals, stability ensures that the results remain consistent and do not vary significantly. Finally, Equivalence measures the consistency of results among multiple respondents using the same instrument. If the same test is administered to different groups of individuals, equivalence ensures that the results remain consistent across all groups.

3.5.1.1 Internal Consistency with Cronbach's Alpha Testing

In quantitative research, it's crucial to ensure that the data collected through surveys, questionnaires, or exams is reliable and valid. To achieve this, researchers use various statistical measures, including Cronbach's alpha testing. This method is very popular among the researchers as a method that helps assess the internal consistency of such instruments. By evaluating the consistency of items as a group and their relationship with each other, it provides researchers with valuable insights into the accuracy and reliability of their data. Specifically, Cronbach's alpha testing measures the extent to which the items in a questionnaire or survey are related to each other, and it serves as a measure of scale reliability (Jerry J. Vaske, 2017). This means that it helps researchers to determine how well a questionnaire or survey measures a particular concept or construct.

The study followed a quantitative approach and used a questionnaire with 35 items to collect data. Before administering it to the entire sample of 132 responses, a pilot study was conducted with 20 respondents to test the questionnaire's reliability by using Cronbach's alpha testing for each variable to guarantee the validity and reliability of the collected data. This approach improved the research findings' overall quality and ensured the accuracy and dependability of the results. The results for each variable in both the pilot study and the main study are listed below.

	Pilot Test			Real Test		
Scale	Number of Items	Cronbach's Alpha	Reliability	Number of Items	Cronbach's Alpha	Reliability
Compatibility	3	0.654	Reliable	3	0.715	Reliable
Complexity	4	0.857	Reliable	4	0.856	Reliable
Efficiency	3	0.678	Reliable	3	0.73	Reliable
Best Practices	3	0.697	Reliable	3	0.734	Reliable
Trainings	3	0.713	Reliable	3	0.72	Reliable
Empowerment	3	0.741	Reliable	3	0.776	Reliable

Table 4 : Pilot Study Cronbach's Alpha Values

In theory, Cronbach's alpha produces values between 0 and 1. Negative values, if obtained, may indicate potential data issues, such as omitted item reversals. Generally, a Cronbach's alpha surpassing 0.70 is considered good, exceeding 0.80 is deemed better, and achieving 0.90 or higher is considered optimal (Cronbach's Alpha, n.d.).

3.5.2 Validity

Ensuring that research instruments and assessment tools accurately measure what they are intended to measure is critical to achieving meaningful and relevant results (Heale, 2015). To this end, validity is a crucial aspect of research and testing. It pertains to the degree to which an instrument provides a truthful and meaningful representation of the concept or construct it is designed to evaluate. Validity assessment is essential to ensure that the results obtained are relevant, meaningful, and applicable to the intended purpose or study.

3.5.2.1 KMO and Bartlett's Test

To ensure the accuracy and validity of results in factor analysis, it is important to assess whether the collected data is suitable for analysis. In order to do this, researchers commonly use the KMO (Kaiser-Meyer-Olkin) and Bartlett's tests (Shrestha, 2021). The KMO test is particularly useful in determining whether the variables used to measure a concept accurately capture that concept. Essentially, it confirms that the data collected is relevant and appropriate for conducting a factor analysis, allowing researchers to have confidence in the accuracy of their results.

It is important to mention that the KMO value is a metric that varies between 0 and 1, with values closer to 1 indicating more favorable and satisfactory results. Values below 0.5 suggest inadequate sampling, while values closer to zero indicate widespread correlation, posing a significant issue for factor analysis (Nkansah, 2018). Therefore, a KMO value greater than or equal to 0.5, along with a significant value less than 0.05, is considered statistically acceptable for the sample.

KMO Measure	Recommendation
≥ 0.90	Marvelous
0.80+	Meritorious
0.70+	Middling
0.60+	Mediocre
0.50+	Miserable
≤ 0.50	Unacceptable

Table 5 : Interpreting KMO Measures

Source - (Nkansah, 2018)

The dataset's suitability for analysis was assessed using Kaiser-Meyer-Olkin (KMO) and Bartlett's Tests, which resulted in a value of 0.797, indicating that the collected data is appropriate for further analysis.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.797
Bartlett's Test of Sphericity	Approx. Chi-Square	1262.909
	Sig.	.000

Table 6 : KMO and Bartlett's Test Results of the Study

3.5.2.2 Fact Analysis

Factor analysis, a statistical technique employed in SPSS, aims to identify underlying factors within a set of observed variables. During this process, each component is assigned an EigenValue, representing the quality score of the component. The EigenValue serves as an indicator of how likely the component is to represent the underlying factor. Components with high EigenValues are considered more likely to represent the underlying factor compared to those with low EigenValues. Thus, EigenValues performs an essential role in assessing the relevance and significance of each component in factor analysis (Pearce, 2013).

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.823	35.910	35.910	6.823	35.910	35.910
2	1.857	9.775	45.684	1.857	9.775	45.684
3	1.761	9.269	54.953	1.761	9.269	54.953
4	1.432	7.536	62.490	1.432	7.536	62.490
5	.997	5.247	67.737	.997	5.247	67.737
6	.839	4.418	72.155	.839	4.418	72.155
7	.834	4.388	76.543			
8	.723	3.806	80.348			
9	.619	3.256	83.604			
10	.557	2.929	86.533			
11	.454	2.388	88.921			
12	.401	2.109	91.030			
13	.362	1.907	92.937			
14	.308	1.624	94.560			
15	.253	1.332	95.892			
16	.228	1.199	97.091			
17	.225	1.182	98.273			
18	.202	1.061	99.334			
19	.126	.666	100.000			

Table 7 : Fact Analysis Results

The results of the Fact Analysis conducted with the help of SPSS reveal that certain components obtained a higher Eigen value, indicating their strength, while others are considered weak factors. SPSS extracted only six components through Principal Component Analysis. It was discovered that these six factors account for 72.155% of the total variance from the nineteen components. Therefore, only these six factors are necessary to represent all the components listed.

3.6 Population and Sample

The study specifically targets a population comprising employees at ABC Apparel Company actively engaged in using the ERP system. These individuals, termed end-users, rely on the ERP system for their daily transactional tasks and report generation. The estimated total count of end-users in the company is approximately 650 SAP users. To ensure the sample's accuracy and representativeness, a finite random sampling method is chosen, recognized for its reliability and validity in statistical analysis. By randomly selecting a subset from the entire population, the study aims to offer a comprehensive insight into ERP usage patterns and effectiveness among end-users at ABC Apparel Company.

When conducting research, one of the essential factors to consider is determining the appropriate sample size. In this case, the sample size was calculated using G*Power software, which takes into account various factors such as effect size, power, significance level, and type of statistical analysis (Kang H. , 2021). These factors are crucial in calculating the precision and accuracy of the study's outcomes.

To determine the sample size, the following steps were taken:

1. Identifying the research objectives and hypotheses
2. Selecting the appropriate statistical tests to be used

Based on the expected statistical tests, the sample size of 128 was determined using G*Power software.

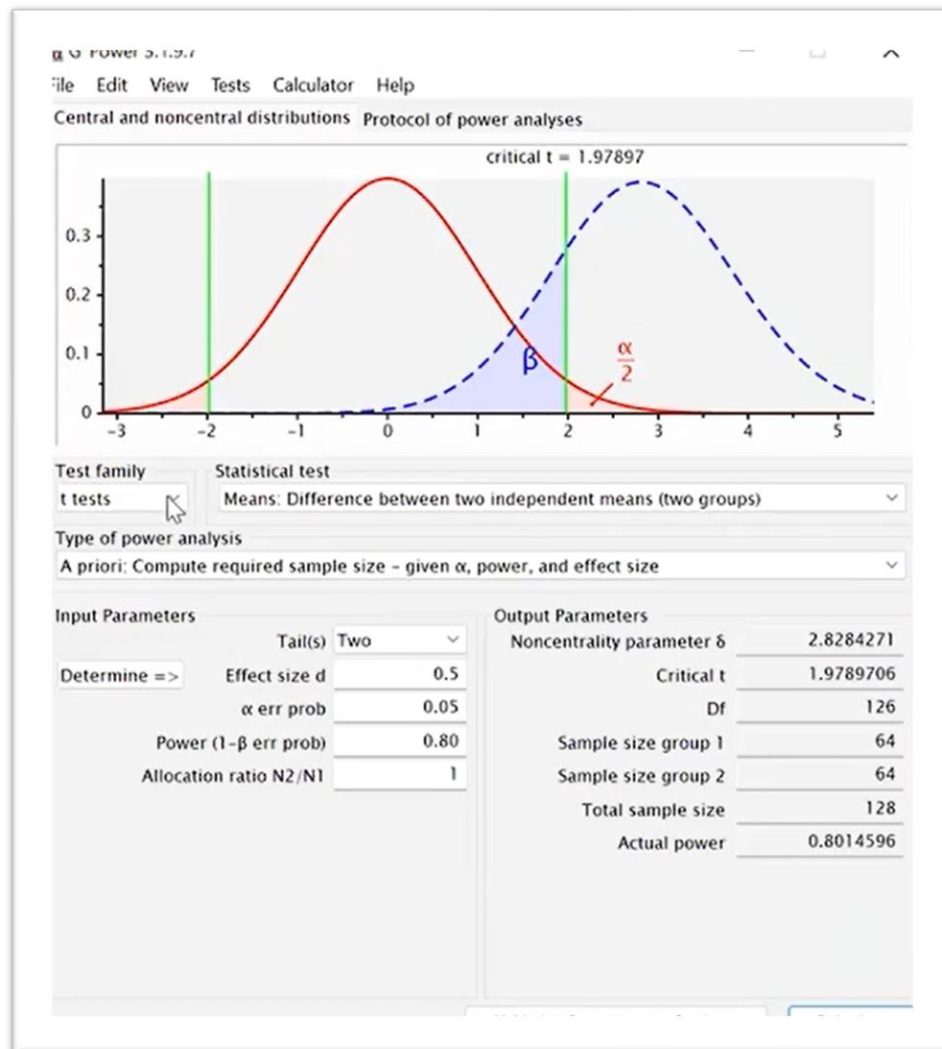


Figure 3 : Sample Size Calculation using G*Power

3.7 Questionnaire Development

The data collection strategy was thoroughly planned and executed. The questionnaire questions were developed based on the variables identified in the operationalization table, aligning them with the formulated hypotheses to achieve the research objectives. This method ensures that the collected data is relevant and valuable for the research study. Additionally, the questions were systematically crafted to measure the scale variables, contributing to the reliability and validity of the collected data. The careful design of the questionnaire is expected to yield high-quality data, providing an accurate representation of the research objectives.

The questionnaire used for data collection can be found in Appendix A for reference.

3.7.1 Demographic Factors

The questionnaire employed in the research study aimed to collect data on key variables identified through an extensive literature review and operationalization process. Additionally, demographic factors such as age group, gender, marital status, and education level were incorporated to evaluate their potential impact on response rates. These details were thoughtfully chosen to provide insights into participants' backgrounds and enhance the overall understanding of the study.

Age Group

Respondents were asked to provide their age in years, which was subsequently categorized into different age intervals. Participants selected the category that corresponded to their age:

- a) 18 - 25
- b) 26 - 32
- c) 33 - 45
- d) 45 - 55

Gender

Given the question, the respondents were asked to choose the answer as below to record their gender.

- a) Male
- b) Female

Marital Status

Given the question, the respondents were asked to choose the answer as below to record their marital status.

- a) Married
- b) Single

Highest Level of Studies

Regarding the education-related question, respondents were prompted to select their educational qualifications from the provided options:

- a) A/L
- b) Diploma
- c) Degree
- d) Master's Degree

3.7.2 Dependent Variable

Additional questions were included to assess the dependent variable, Employee Productivity, utilizing the Likert Scale. Respondents were required to express their level of agreement using the following options:

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

3.7.3 Independent Variables

The Likert-type scale questions were employed to gauge the independent variables. Participants were prompted to express their perceptions of the influence of ERP on employee productivity by assigning ratings on a scale ranging from 1 (indicating strong agreement) to 5 (indicating strong disagreement).

3.8 Data Collection

The survey instrument for this research was created utilizing Google Forms and disseminated electronically to the designated sample. Participants were contacted via email and provided with shareable URLs within different travel groups and communities. The questionnaire encompassed inquiries aligned with the variables outlined in the conceptual framework, seeking to gather information on the influence of ERP systems on employee productivity within ABC Apparel Company. Utilizing online channels for questionnaire distribution was chosen to enhance accessibility and foster a more favorable response rate.

Since the questionnaire as the primary data source to collect the secondary data sources interviews, group discussions, dashboards and company intranet were used.

3.9 Data Analysis Techniques

The section outlines the statistical methods to be employed in the study. Data entry, analysis, and presentation will be conducted using MS Excel and Statistical Package for Social Sciences Software (SPSS) to address the research problem. Descriptive and statistical tools will be utilized for data analysis. Regression and correlation will specifically be employed to assess whether ERP systems enhance employee productivity, aligning with the main research objective.

3.10 Chapter Summary

This chapter provided an overview of the methodology, including the independent and dependent variables. The questionnaire will be administered to the population to measure the dependent variable, while the methodology will involve testing the independent variables.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This section thoroughly examines the gathered data and its analysis, constituting a pivotal element in the entire study. It presents the findings of statistical analyses and provides interpretations that shed light on the consequences of the outputs. The primary goal of this study is to uncover valuable insights that can help organizations enhance workforce optimization, leading to increased productivity through the implementation of ERP. The research comprises a sample size of 132 participants, chosen randomly by infinite random sampling. Employing various quantitative analysis techniques, the study encompasses the examination of both independent and dependent variables, along with hypothesis testing. The analytical methods employed include Exploratory Data Analysis including, Descriptive Statistics, T-Test, ANOVA, and Correlation and Regression Analysis.

4.2 Descriptive Analysis

In this research, a frequency analysis was performed to examine the demographic variables such as gender, marital status, age, and level of education. This analysis aimed to gain insights into the sample population's characteristics and assess their potential influence on employee productivity. The findings from the frequency analysis played a significant role in the subsequent stages of data analysis.

4.2.1 Characteristics of Respondents

This section focuses on examining the influence of specific characteristics, including gender, age, and education level, on the respondents. Descriptive analysis was employed to gain a comprehensive understanding of the association between these factors and employee productivity. The outcomes of these analyses offer valuable insights into the potential impact of these characteristics on productivity, aiding in the formulation of strategies to enhance employee performance.

4.2.1.1 Age

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 25	11	8.3	8.3	8.3
	26 - 32	68	51.5	51.5	59.8
	33 - 45	47	35.6	35.6	95.5
	45 - 55	6	4.5	4.5	100.0
	Total	132	100.0	100.0	

Table 8 : Descriptive Statistics: Age

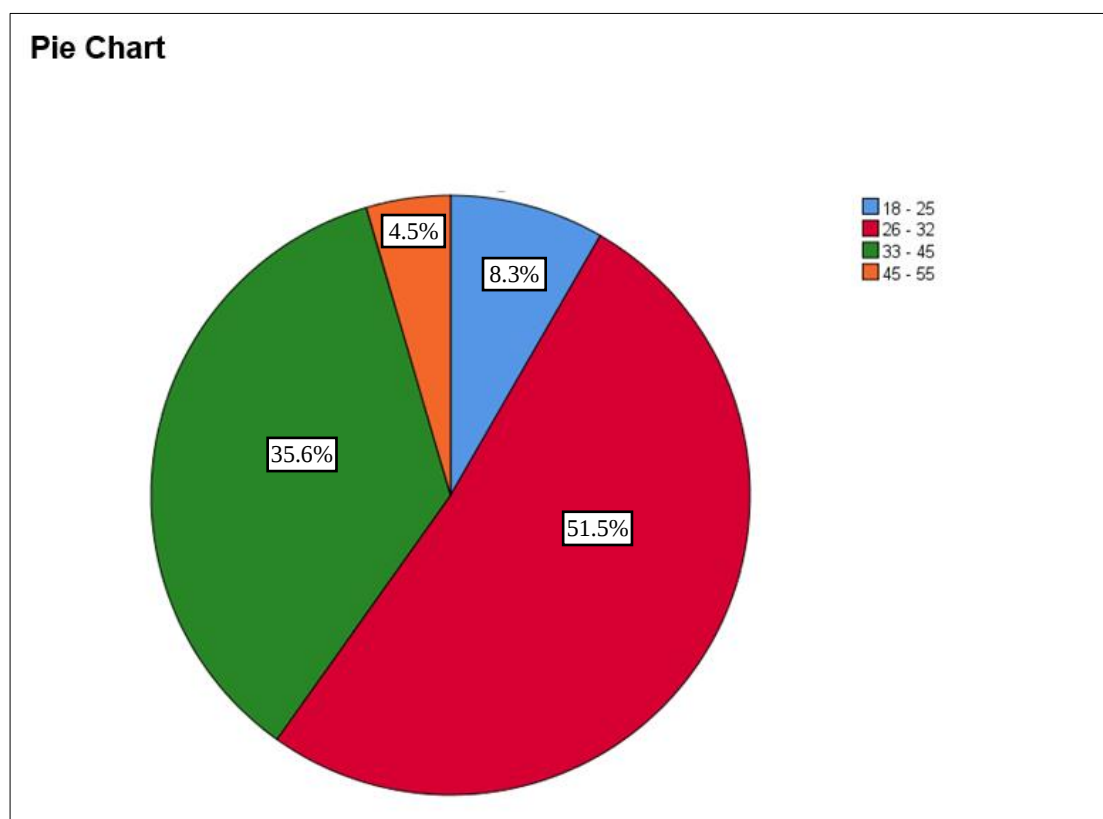


Figure 4 : Pie-Chart Age

Grounded on the data rendered in the table, it can be stated that the majority of the respondents, accounting for 51.5%, belong to the age group of 26-32. This suggests that this age group has a higher representation in the sample population. The age group of 33-45 is the second highest with 35.6% representation, followed by the 18-25 age

group with 8.3% representation. The age group of 45-55 has the least representation with only 4.5% of the respondents.

4.2.1.2 Gender

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	77	58.3	58.3	58.3
	Male	55	41.7	41.7	100.0
	Total	132	100.0	100.0	

Table 9 : Descriptive Statistics: Gender

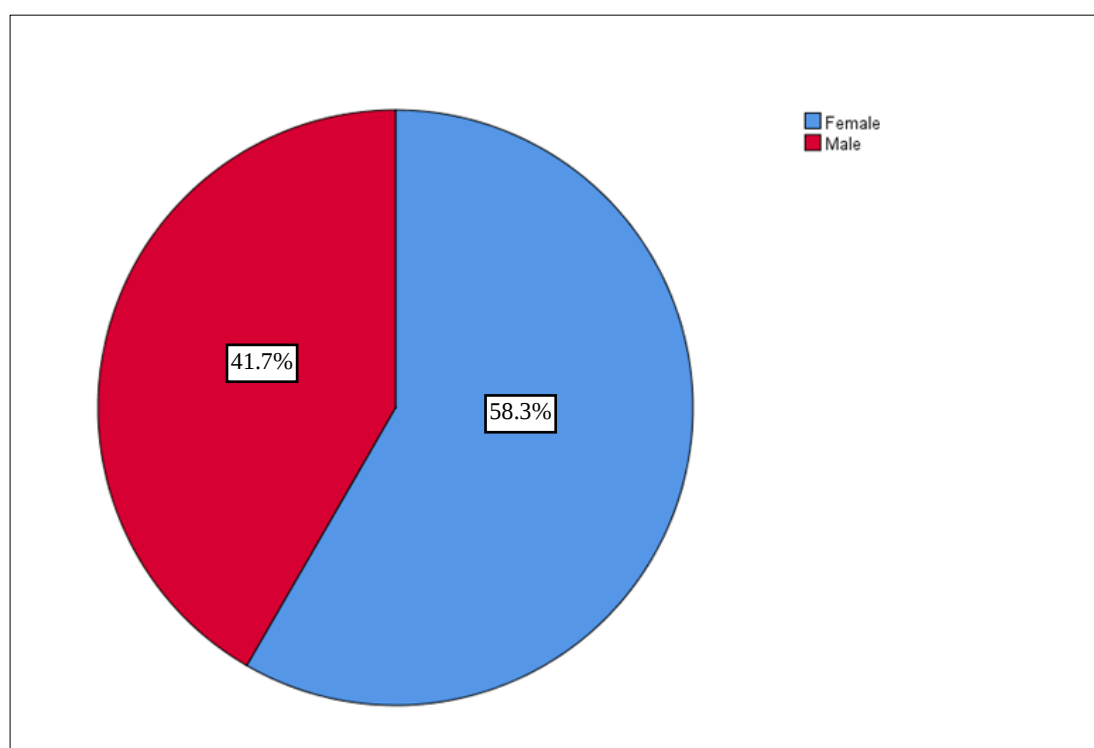


Figure 5 : Pie-Chart Gender

From the information presented in both the table and the pie chart, it is evident that a significant portion of the respondents, constituting 58.3% of the total sample, identified as female. This observation is significant as it highlights the predominance of females in the dataset. Acknowledging this distribution based on gender is essential for a nuanced analysis and interpretation of the study's findings.

4.2.1.3 Marital Status

Marital Status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	86	65.2	65.2	65.2
	Single	46	34.8	34.8	100.0
	Total	132	100.0	100.0	

Table 10 : Descriptive Statistics: Marital Status

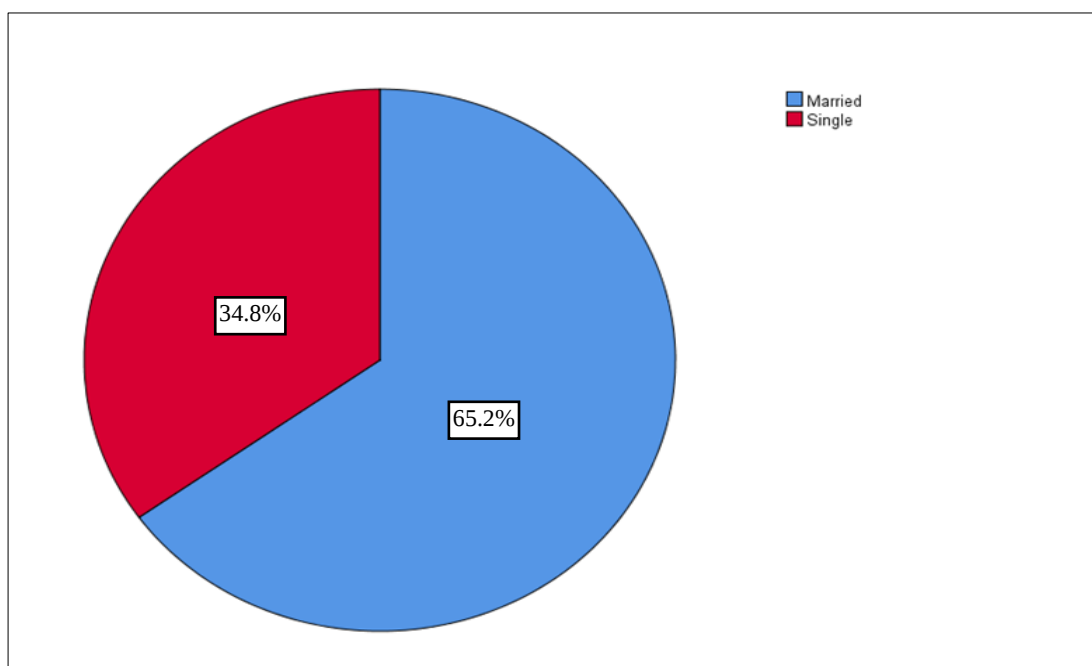


Figure 6 : Pie-Chart Marital Status

Analyzing the provided table and pie chart reveals that a substantial portion of respondents, comprising 65.2% of the total sample, indicated their marital status as married. This discovery holds significance, signaling that married individuals constituted the predominant group in the study. Recognizing this distribution of marital status is crucial for a nuanced interpretation of the study's outcomes and the formulation of conclusions.

4.2.1.4 Education Level

Highest Level of Studies					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A/L	8	6.1	6.1	6.1
	Bachelor's degree	69	52.3	52.3	58.3
	Diploma	24	18.2	18.2	76.5
	Master's Degree	31	23.5	23.5	100.0
	Total	132	100.0	100.0	

Table 11 : Descriptive Statistics: Education Level

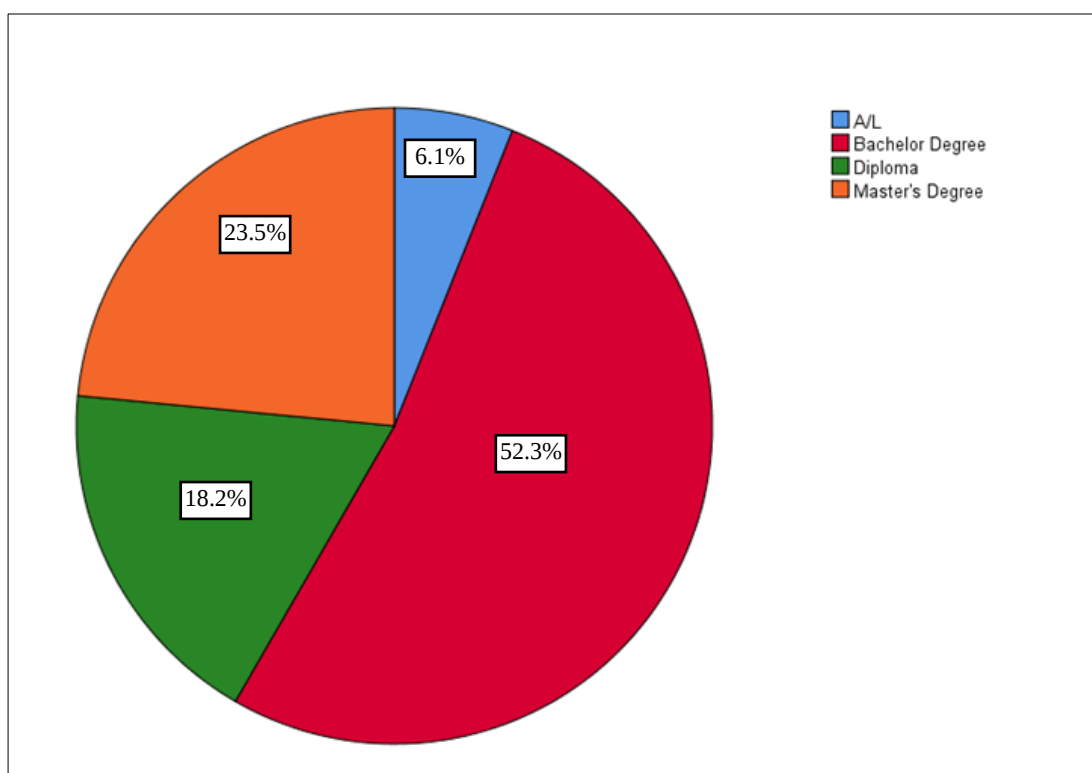


Figure 7 : Pie-Chart Marital Status

The data presented in the above table indicates that 6.1% of the respondents had completed their studies up to A/L's, while 52.3% held a bachelor's degree. In addition, 18.2% of respondents had completed a diploma, and 23.5% held a master's degree. From the total pool of respondents, it can be inferred that the majority of respondents had completed their studies up to the bachelor's degree level.

4.3 T- Test

The t-test is a statistical method widely used in inferential statistics to assess the significance of differences between the means of two groups or variables. It plays a crucial role in enabling researchers to draw inferences about a population based on sample data. There are two main types of t-tests: independent and paired. The independent t-test compares two groups of participants, while the paired t-test assesses the same group under two different conditions or at two different times. The significance level for a t-test is often set at 0.05. If the probability of obtaining the observed difference between means falls below this level, the difference is considered statistically significant, indicating that it is unlikely to have occurred randomly (HAYES, 2023).

A t-test was utilized in this investigation to evaluate the statistical significance of nominal independent variables with respect to the dependent variable, which was determined to be a scale variable. Through the use of this test, it was possible to compare the means of several groups and determine whether there was a significant variation in worker productivity according to age, gender, marital status, or educational attainment. This test helped determine whether, in the context of ABC Apparel Company's ERP deployment, these demographic parameters had a substantial effect on worker productivity.

4.3.1 Impact of Gender in Employee Productivity

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Employee Productivity	Male	55	19.3091	2.39500	.32294
	Female	77	19.7273	2.28632	.26055

Table 12 : Impact of Gender on Employee Productivity

T Value	-1.016
Degree of Freedom	130
Significant Value	0.593

According to the T-Test results, it was determined that the mean productivity value for male employees is 19.3091, while for female employees, it is 19.7273. Additionally, the obtained significance value of 0.593 exceeds the standard value of 0.05. This suggests that there is no statistically significant difference in the productivity levels between male and female employees. Consequently, the conclusion drawn is that gender does not have a direct impact on employee productivity. Thus, the null hypothesis, asserting that gender does not influence employee productivity, can be accepted.

4.3.2 Impact of Marital Status in Employee Productivity

Group Statistics					
	Marital Status	N	Mean	Std. Deviation	Std. Error Mean
Employee Productivity	Married	86	19.7326	2.29795	.24779
	Single	46	19.2174	2.38433	.35155

Table 13 : Impact of Marital Status in Employee Productivity

T Value	1.211
Degree of Freedom	130
Significant Value	0.553

The T-Test analysis revealed that the mean productivity value for married employees is 86, whereas for singles, it is 46. However, the obtained significance value of 0.5553, exceeding the 0.05 threshold, indicates a lack of statistically significant impact of marital status on employee productivity. Consequently, it is not possible to assert a direct relationship between marital status and employee productivity. Thus, the null hypothesis, suggesting no impact of marital status on employee productivity, can be accepted.

4.3.3 Impact of Age to Response Rate

ANOVA					
Employee Productivity					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30.483	3	10.161	1.907	.132
Within Groups	682.145	128	5.329		
Total	712.629	131			

Table 14 : Impact of Age to Response Rate

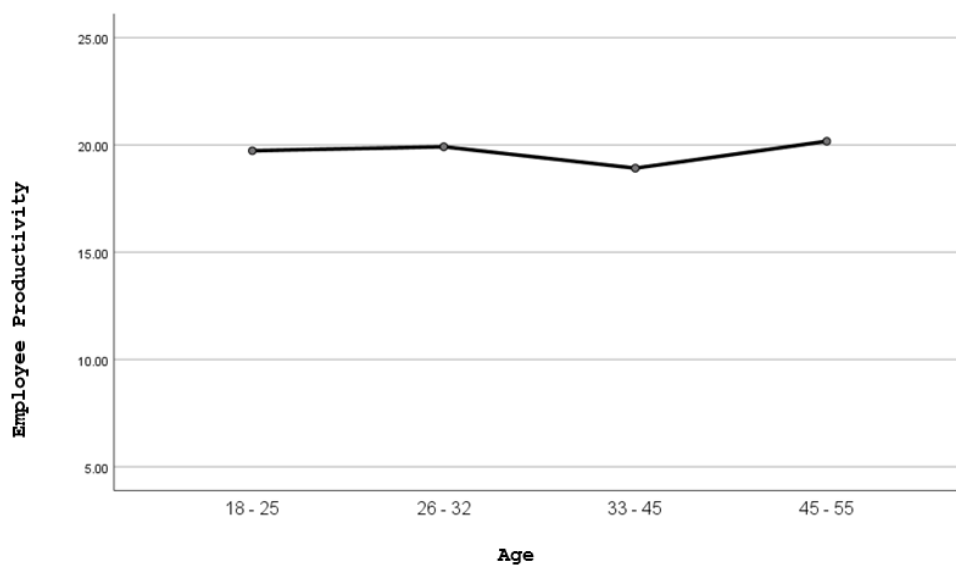


Figure 8 : Impact of Age to Response Rate

The study findings indicate that the significance value for age groups is 0.132, surpassing the standard significance level of 0.05. Consequently, the hypothesis is rejected, and it can be concluded that there is no significant impact of age category on employee productivity.

4.3.4 Impact of Higher Studies Level in Employee Productivity

ANOVA					
Employee Productivity					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30.483	3	10.161	1.907	.132
Within Groups	682.145	128	5.329		
Total	712.629	131			

Table 15 : Impact of Higher Studies level in Employee Productivity

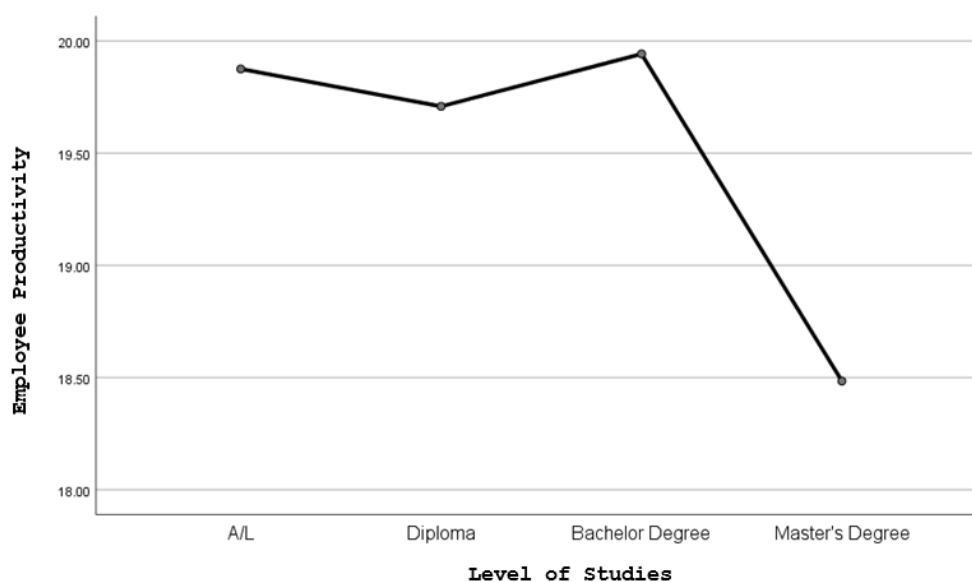


Figure 9 : Impact of Higher Studies level in Employee Productivity

In light of the study's results, it can be deduced that there is a significant impact of the level of higher studies on employee productivity. This conclusion is substantiated by the significant value for higher studies groups, which stands at 0.032, falling below the conventional threshold of 0.05. Consequently, the hypothesis is rejected, indicating that investing in higher education and promoting employees to pursue advanced studies can indeed have a positive effect on their workplace productivity.

4.4 Correlation Coefficient

The correlation coefficient is a statistical measure used to determine the strength and direction of the linear relationship between two variables. It ranges from -1 to +1, with values greater than 0 indicating a positive correlation, values less than 0 indicating a negative correlation, and a value of 0 indicating no correlation. The magnitude of the correlation coefficient reveals the extent of the linear association between the two variables, with values closer to -1 or +1 indicating a stronger relationship. The sign of the correlation coefficient indicates the direction of the relationship, with a positive correlation implying that as one variable increases, the other also tends to increase, and a negative correlation indicating that as one variable increases, the other tends to decrease. The Pearson correlation coefficient is widely used due to its simplicity and ability to provide valuable insights into the strength and direction of the relationship between two variables.

For the Pearson correlation coefficient, widely used for its interpretability, the following interpretations are common. When studying the relationship between two variables, the Pearson correlation value can provide valuable information about the strength and nature of their association.

A weak relationship is indicated by a value between 0.1 and 0.29 (or -0.1 and -0.29), while a moderate relationship is suggested by a value between 0.3 and 0.49 (or -0.3 and -0.49). A strong relationship is signified by a value greater than or equal to 0.5 (or less than or equal to -0.5). These insights are useful for understanding the interdependence of the variables (Coldwell and Herbst, 2004).

Correlations								
		Employee Productivity	Compatibility	Complexity	Efficiency	Best Practices	Trainings	Empowerment
Employee Productivity	Pearson Correlation	1	.339**	.558**	.397**	.399**	.384**	.492**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.000
	N	132	132	132	132	132	132	132
Compatibility	Pearson Correlation	.339**	1	.247**	.347**	.298**	0.170	.322**
	Sig. (2-tailed)	0.000		0.004	0.000	0.001	0.051	0.000
	N	132	132	132	132	132	132	132
Complexity	Pearson Correlation	.558**	.247**	1	.659**	.630**	.341**	.446**
	Sig. (2-tailed)	0.000	0.004		0.000	0.000	0.000	0.000
	N	132	132	132	132	132	132	132
Efficiency	Pearson Correlation	.397**	.347**	.659**	1	.636**	.302**	.520**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000	0.000
	N	132	132	132	132	132	132	132
Best Practices	Pearson Correlation	.399**	.298**	.630**	.636**	1	.221*	.534**
	Sig. (2-tailed)	0.000	0.001	0.000	0.000		0.011	0.000
	N	132	132	132	132	132	132	132
Training	Pearson Correlation	.384**	0.170	.341**	.302**	.221*	1	.346**
	Sig. (2-tailed)	0.000	0.051	0.000	0.000	0.011		0.000
	N	132	132	132	132	132	132	132
Empowerment	Pearson Correlation	.492**	.322**	.446**	.520**	.534**	.346**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	
	N	132	132	132	132	132	132	132
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

Table 16 : Correlations Coefficient Table

4.4.1 Discussion of Correlation Analysis Results

4.4.1.1 ERP Compatibility to Employee Productivity

According to the above results, there is a moderate positive correlation (0.339) between compatibility and employee productivity. This means that as the compatibility of the ERP system increases, there is a tendency for employee productivity to increase as well. In other words, the higher the degree of compatibility between the ERP system and the organization's business processes, the more likely it is that the system will be used effectively by employees, resulting in improved productivity. Therefore, it is essential for organizations to consider the compatibility of their ERP systems with their business processes to ensure that employees can use the system effectively and efficiently, leading to improved productivity.

4.4.1.2 ERP Complexity to Employee Productivity

According to the research results, a robust and positive correlation has been identified between the complexity of ERP systems and employee productivity. The correlation coefficient, with a value of 0.558, suggests a high strength in the relationship between these two variables. This implies that as the complexity of the ERP system increases, there is a corresponding increase in employee productivity. It's essential to highlight that this correlation is not incidental; instead, it signifies a meaningful finding with potential implications for businesses relying on ERP systems to streamline their operations.

4.4.1.3 Efficiency to Employee Productivity

The study's results indicate a moderate and positive association between efficiency and employee productivity, with a correlation coefficient of 0.397 suggesting a medium-strength relationship. This suggests that as organizational efficiency improves, there is a corresponding increase in employee productivity. However, it's crucial to emphasize that this relationship is not strong enough to imply a direct causal effect between efficiency and employee productivity.

4.4.1.4 ERP Best Practices to Employee Productivity

Based on the study's findings, a significant and positive correlation exists between Best Practices and employee productivity. With a correlation coefficient of 0.399, the relationship between these variables is considered to have medium strength. This indicates that incorporating Best Practices in the workplace can moderately enhance

employee productivity. These results offer valuable insights for organizations seeking to improve the performance levels of their employees.

4.4.1.5 Training on ERP to Employee Productivity

As per the study's outcomes, a moderate and positive correlation is evident between ERP training and employee productivity. With a correlation coefficient of 0.384, the relationship between these variables is considered to have a medium level of strength. This implies that implementing training programs on ERP for employees can notably influence their productivity levels. Such insights may prove beneficial for organizations seeking ways to enhance the performance and overall output of their workforce.

4.4.1.6 Empowerment on ERP to Employee Productivity

As indicated by the research results, a moderate and positive correlation exists between employee empowerment in ERP systems and productivity. With a correlation coefficient value of 0.492, the strength of the relationship between these variables is considered to be at a medium level. This implies that as employees feel more empowered when working with ERP systems, there is a likelihood of higher productivity levels.

4.5 Inferential Analysis

In inferential statistics, the aim is to determine if there is a relationship between two variables, which is expressed through the null hypothesis. The null hypothesis posits that two variables are unrelated, and based on the results of inferential analysis, we either reject or fail to reject this hypothesis. If the null hypothesis is rejected, it implies that there is enough evidence to support the alternative hypothesis, often referred to as the research hypothesis. In other words, when the null hypothesis is not upheld, it suggests that there is a significant effect or relationship present in the data, supporting the claims made in the alternative hypothesis. (Myers, 2013).

Three types of relationships between variables are association, correlation, and causal relationships. Association, measured as ordinal or nominal, predicts that the value categories of one variable will be associated with or found more often with value categories of another variable. Correlation, whether positive or negative, indicates the relationship between two variables. A positive correlation means high values of the first variable align with high values of the second variable and vice versa for low values. A negative correlation suggests an inverse relationship. While association and correlation don't imply causation, hypotheses directly infer a causal relationship between variables, stating that one variable cause or directly influences another (Randolph and Myers, 2013).

Key terms in research describing relationships between variables include Independent Variables (IV) that explain or cause the values of another variable, Dependent Variables (DV) influenced by the IV, Moderator Variables affecting the strength of the IV and DV relationship, and Mediator Variables explaining all or part of the relationship between IV and DV (Randolph and Myers, 2013).

Inferential statistical methods like multicollinearity analysis, regression analysis, simple regression analysis, and multiple regression analysis are commonly employed for hypothesis testing.

4.5.1 Regression Analysis

4.5.1.1 Simple Regression Analysis

The regression analysis is used to measure the impact of the independent variables of the study namely, Compatibility of ERP, Complexity, Efficiency, Best Practices, Training and Empowerment on Employee Productivity.

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Compatibility Complexity Training Best Practices Empowerment Efficiency ^b		Enter
a. Dependent Variable: Employee Productivity			
b. All requested variables entered.			

Table 17 : Regression Output

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	314.816	6	52.469	16.000	.000 ^b
	Residual	409.911	125	3.279		
	Total	724.727	131			
a. Dependent Variable: Employee Productivity						
b. Predictors: (Constant), Compatibility, Complexity, Training, Best Practices, Empowerment, Efficiency						

Table 18 : ANOVA Dependent Variable: Employee Productivity

The ANOVA table assesses the overall fit of the model and determines whether the independent variable significantly predicts the dependent variable. A significant value below 0.05 indicates that the regression model effectively predicts the dependent variable statistically. In the provided table, the P-Value is 0.000, which is less than 0.05. Consequently, the model is considered significant at a 95% confidence level.

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.659 ^a	0.434	0.407	1.811	1.716
a. Predictors: (Constant), Compatibility, Complexity, Training, Best Practices, Empowerment, Efficiency					
b. Dependent Variable: Employee Productivity					

Table 19 : Model Summary

In linear regression models, the R-Squared value serves as a measure of goodness of fit, indicating the proportion of variance in the dependent variable explained by the independent variable. It gauges how well the data align with the specific model and also evaluates the dispersion of data points around the linear line. The R-Squared value ranges from 0% to 100%, with a higher value indicating a better fit of the regression model to the study's observations (Gulati, 2023).

As per the provided Model Summary table, the R-Squared value for this study stands at 43.4%. This signifies that the predictor variables (Compatibility, Complexity, Training, Best Practices, Empowerment, Efficiency) collectively account for 43.4% of the variance in Employee Productivity. The remaining 56.6% of variance is attributed to other variables not considered in this study.

4.5.1.2 Multiple Regression Analysis

Multiple regression analysis was performed to calculate the mediating influence of ERP Best Practices on the relationship between ERP Efficiency and Employee Productivity.

4.5.1.2.1.1 Estimate the Direct Effect of ERP Best Practices and ERP Efficiency for Employee Productivity

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.440 ^a	0.194	0.181	2.128	1.706
a. Predictors: (Constant), Best Practices, Efficiency					
b. Dependent Variable: Employee Productivity					

Table 20 : Model summary to compute mediating effect.

According to the table, the R-squared value was 0.194 or 19.4%, indicating that the predictor variables (Best Practices, Efficiency) collectively explain 19.4% of the variance in Employee Productivity. The remaining 80.6% of the variance is attributed to other variables not considered in this study.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	140.472	2	70.236	15.508	.000 ^b
	Residual	584.256	129	4.529		
	Total	724.727	131			
a. Dependent Variable: Employee Productivity						
b. Predictors: (Constant), Best Practices, Efficiency						

Table 21 : ANOVA table to compute mediating effect.

As per the table, with a significant value less than 0.05, the regression model significantly predicts the dependent variable statistically. Specifically, the P-Value

recorded in the table is 0.000, which is below 0.05. Consequently, the model holds statistical significance at a 95% confidence level.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	13.230	1.167		11.338	0.000		
	Efficiency	0.270	0.115	0.240	2.346	0.021	0.596	1.679
	Best Practices	0.322	0.134	0.246	2.406	0.018	0.596	1.679
a. Dependent Variable: Employee Productivity								

Table 22 : Coefficients to compute mediating effect.

As indicated by the table, since the p-value is ≤ 0.05 , the total effect is significant for both Efficiency and Best Practices variables. The unstandardized coefficient, B1, for Efficiency is 0.270, signifying that with each one-unit increase in Efficiency, there is a corresponding increase in Employee Productivity of 0.274 times the unit. Similarly, the unstandardized coefficient, B2, for Best Practices is 0.322, indicating 0.322 times increase in Employee Productivity for every one-unit rise in Best Practices.

4.5.1.2.2 Estimate the Direct Effect of ERP Efficiency for ERP Best Practices

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.636 ^a	0.404	0.400	1.396	1.975
a. Predictors: (Constant), Efficiency					
b. Dependent Variable: Employee Productivity					

Table 23 : Model summary to compute mediating effect.

According to table, R squared was 63.6%, that is to say, the predictor variables (Efficiency) describe 63.6.% variance of Employee Productivity. Other percentage of 36.4% will describes through the other variables that we have not considered in this study.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	172.099	1	172.099	88.299	.000 ^b
	Residual	253.378	130	1.949		
	Total	425.477	131			
a. Dependent Variable: Efficiency						
b. Predictors: (Constant), Employee Productivity						

Table 24 : ANOVA table to compute mediating effect.

As per the table, since the p-value is less than 0.05, the regression model significantly predicts the dependent variable statistically. The significant value (P-Value) in the table is 0.000, indicating statistical significance at a 95% confidence level.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5.029	0.626		8.040	0.000		
	Efficiency	0.547	0.058	0.636	9.397	0.000	1.000	1.000
a. Dependent Variable: Best Practices								

Table 25 : Coefficients to compute mediating effect.

As indicated by the table, since the p-value is less than or equal to 0.05, the effect of Efficiency on Best Practices variables is deemed significant. The unstandardized coefficient, B for efficiency, is 0.547, signifying that for each one-unit increase in Efficiency, there is a corresponding increase in Best Practices by 0.547 times the unit.

4.5.1.2.3 Test Indirect Effect for Statistical Significance

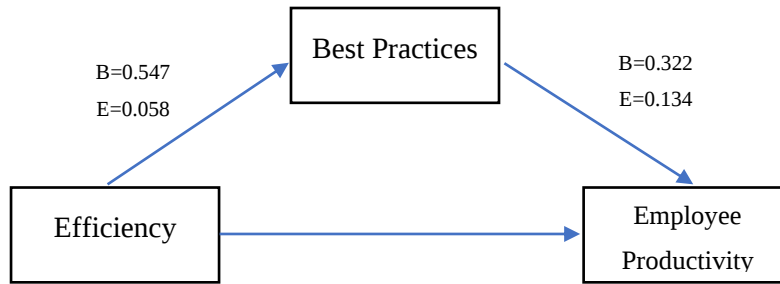


Figure 10 : Summary of regression coefficients for mediation analysis.

To assess the statistical significance of the indirect effect in our example, the Sobel Test (Sobel, 1982) can be employed. While SPSS does not directly provide the Sobel Test, it can be easily conducted using online Sobel Test calculators. These calculators require inputting the Unstandardized Coefficient Beta values for A and B, along with the corresponding Std. Error coefficients for A and B, to determine the statistical significance of the indirect effect.

Input:		Test statistic:	Std. Error:	p-value:
a	0.547	Sobel test: 2.32858679	0.07563987	0.01988097
b	0.322	Aroian test: 2.31639117	0.07603811	0.02053692
s _a	0.058	Goodman test: 2.3409771	0.07523952	0.01923335
s _b	0.134	Reset all	Calculate	

Figure 11 : Sobel Test Results

The Sobel test results as below.

Test statistic	2.32858679
Std. Error	0.07563987
p-value	0.01988097

Table 26 : Sobel Test Results

The crucial parameter in this analysis is the p-value, and in this instance, it is less than 0.05. Consequently, we can infer that the indirect effect between efficiency and Employee Productivity through Best Practices is statistically significant (p-value $\leq$ 0.05).

4.6 Hypothesis Testing

As discussed in chapter 03, seven hypotheses were generated for this research, mentioned in table 2. Seven hypotheses were tested using regression analysis. All the hypothesis results are discussed below. As claimed by the findings of the research, below is the acceptance of the above hypothesis.

Hypothesis	Pearson Correlation Coefficient	Sig Value	Result
H1 - Compatibility	0.339	0.000	Accepted
H2 - Complexity	0.558	0.000	Accepted
H3 – Efficiency	0.397	0.000	Accepted
H4 – Best Practices	0.399	0.000	Accepted
H5 – Training	0.384	0.000	Accepted
H6 - Empowerment	0.492	0.000	Accepted
H7 – Mediator		0.019	Accepted

Table 27 : Hypothesis Testing Results

The above research findings can be interpreted as below according to the results obtained from the tests performed.

Hypothesis 1

H1: Compatibility of the ERP systems has a relationship with Employee Productivity

According to table, the significant value is 0.000, and it is less than 0.05. Then null hypothesis can reject. The Pearson correlation coefficient for the relationship mentioned above is +0.339. So, we can declare that there is a moderately significant positive relationship between compatibility of ERP systems and Employee Productivity.

Hypothesis 2

H2: Complexity of the ERP systems has a relationship with Employee Productivity

According to table, the significant value is 0.000, and it is less than 0.05. Then null hypothesis can reject. The Pearson correlation coefficient for the relationship mentioned above is +0.558. So, we can declare that there is a strong significant positive relationship between complexity of ERP systems and Employee Productivity.

Hypothesis 3

H3: Efficiency of the ERP systems has a relationship with Employee Productivity

According to table, the significant value is 0.000, and it is less than 0.05. Then null hypothesis can reject. The Pearson correlation coefficient for the relationship mentioned above is +0.397. So, we can declare that there is a moderately significant positive relationship between efficiency of ERP systems and Employee Productivity.

Hypothesis 4

H4: Best Practices of the ERP systems has a relationship with Employee Productivity

According to table, the significant value is 0.000, and it is less than 0.05. Then null hypothesis can reject. The Pearson correlation coefficient for the relationship mentioned above is +0.399. So, we can declare that there is a moderately significant positive relationship between best practices of ERP systems and Employee Productivity.

Hypothesis 5

H5: Training of the ERP systems has a relationship with Employee Productivity

According to table, the significant value is 0.000, and it is less than 0.05. Then null hypothesis can reject. The Pearson correlation coefficient for the relationship mentioned above is +0.384. So, we can declare that there is a moderately significant positive relationship between training of ERP systems and Employee Productivity.

Hypothesis 6

H6: Empowerment of the ERP systems has a relationship with Employee Productivity

According to table, the significant value is 0.000, and it is less than 0.05. Then null hypothesis can reject. The Pearson correlation coefficient for the relationship mentioned above is +0.492. So, we can declare that there is a moderately significant positive relationship between empowerment of ERP systems and Employee Productivity.

Hypothesis 7

H7: Best Practices of the ERP systems mediates the relationship between ERP system Efficiency and Employee Productivity

According to table, the significant value is 0.019, and it is less than 0.05. Then null hypothesis can reject. So, we can declare that ERP best practices has a partial mediating effect of generating a relationship between efficiency of ERP systems and Employee Productivity.

4.7 Discussion of Objectives

4.7.1 Objective 01

To discuss the present situation of employee productivity with the ERP systems use in the ABC Apparel Company

The implementation of various ERP systems at ABC Apparel Company has proven to be a transformative step in automating and integrating manual day-to-day tasks into cohesive software solutions. This strategic adoption has undoubtedly led to significant enhancements in employee productivity compared to traditional manual methods. By replacing siloed processes with interconnected and streamlined workflows, these ERP systems facilitate seamless communication and collaboration across different departments.

The automation of routine tasks such as inventory management, order processing, and supply chain coordination has not only accelerated operational processes but has also minimized the likelihood of errors inherent in manual data entry. Real-time access to centralized information empowers employees to make informed decisions swiftly, contributing to more agile and responsive business operations.

Furthermore, the implementation of ERP systems has likely led to improved data accuracy, reducing discrepancies and enhancing the reliability of business information. The consolidation of various functions into a unified platform promotes efficiency, allowing employees to focus on value-added tasks rather than spending excessive time on routine administrative work.

Despite the strategic implementation of ERP systems at ABC Apparel Company with the intention of improving employee productivity, challenges have arisen that have hindered the anticipated advancements. To maximize the benefits of these ERP systems by overcoming the challenges, ongoing training programs and user support are crucial. Ensuring that employees are adept at utilizing the features and

functionalities of the ERP systems will contribute to their overall job satisfaction and efficiency. As ABC Apparel Company continues to leverage these integrated software solutions, it is poised to sustain and further augment the positive impact on employee productivity in the ever-evolving landscape of the apparel industry.

4.7.2 Objective 02

Determine the characteristics of ERP systems that are related to improved employee productivity at ABC Apparel Company

Present study had analyzed the demographic factors of the ERP users, compatibility of the ERP, complexity of the ERP, trainings provided, empowerment, efficiency of the ERP and best practices to find their impact on improving Employee Productivity. According to the study all the factors considered in the conceptual framework has a significant relationship with the employee productivity.

By delving into these characteristics, the study aims to provide a comprehensive understanding of the factors influencing employee productivity within the context of ERP system usage at ABC Apparel Company. The insights gained can guide the company in refining its approach to ERP implementation and ensuring that these systems positively contribute to the workforce's efficiency and overall performance.

4.7.3 Objective 03

Explain the correlation of distinguishing determinants of ERP Systems improve Employee Productivity at ABC Apparel Company

The correlation of compatibility, complexity, training, empowerment, best practices, and efficiency within ERP systems at ABC Apparel Company is intricately woven to enhance employee productivity. The compatibility of the ERP systems with existing workflows reduces resistance to change, while managing complexity ensures smooth user adoption. Comprehensive training empowers employees to proficiently navigate the system, fostering a collective understanding of its productivity benefits. Employee empowerment, achieved through granting autonomy and decision-making tools, correlates positively with heightened engagement and productivity. Implementing and adhering to best practices guides employees in maximizing the system's potential, and the overall efficiency of ERP systems streamlines processes, facilitating faster decision-making. This harmonious interplay ensures that ERP systems not only

integrate seamlessly into daily operations but actively contribute to a more productive and efficient workforce at ABC Apparel Company.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter aims to provide a summary of the study, followed by a summary of the findings and the conclusions drawn from the data analysis. Recommendations to improve employee productivity using ERP Systems will also be discussed in this chapter. Limitations of this research and further research areas will be elaborated on in the last part of this chapter.

5.2 Summary of the Study

This research sought to examine how the implementation of ERP affects the enhancement of employee productivity within the apparel industry, with a specific focus on ABC Apparel Company. Additionally, the study aimed to pinpoint the factors contributing to the lack of improvement in employee productivity with ERP systems. Employing a deductive research design and a correlational research approach, data was gathered through a questionnaire survey administered to 132 employees at ABC Apparel Company utilizing the ERP system. The analysis involved descriptive statistics, T-Test, Correlation Coefficient, and Regression Analysis.

The study explored the effect of some common demographic factors, ERP attributes and how they impact the employee productivity ABC Apparel Company. The study focused on three objectives,

- To discuss the present situation of employee productivity with ERP systems use in the ABC Apparel Company.
- Determine the characteristics of ERP systems that are related to improved employee productivity at ABC Apparel Company.
- Explain the correlation of distinguishing determinants of ERP Systems improve Employee Productivity at ABC Apparel Company.

5.3 Summary of the Findings

The results of this study indicate a significant and positive correlation between the utilization of ERP systems and the enhancement of employee productivity in the apparel industry. The research highlights that ERP systems contribute positively to employee productivity by improving aspects such as time management, accuracy, and overall efficiency. Moreover, the study identifies key factors, including training, compatibility, complexity, efficiency, best practices, and system empowerment, that play a role in influencing employee productivity with ERP systems.

Furthermore, the study investigates the impact of demographic factors such as age, gender, marital status, and education level on employee productivity. The hypothesis testing summary, as revealed in the data analysis in Chapter 4, is outlined below:

H1: Compatibility of the ERP systems has a relationship with Employee Productivity

There is a moderately significant positive relationship between compatibility of ERP systems and Employee Productivity.

H2: Complexity of the ERP systems has a relationship with Employee Productivity

There is a strong significant positive relationship between complexity of ERP systems and Employee Productivity.

H3: Efficiency of the ERP systems has a relationship with Employee Productivity

There is a moderately significant positive relationship between efficiency of ERP systems and Employee Productivity.

H4: Best Practices of the ERP systems has a relationship with Employee Productivity

There is a moderately significant positive relationship between best practices of ERP systems and Employee Productivity.

H5: Training of the ERP systems has a relationship with Employee Productivity

There is a moderately significant positive relationship between training of ERP systems and Employee Productivity.

H6: Empowerment of the ERP systems has a relationship with Employee Productivity

There is a moderately significant positive relationship between empowerment of ERP systems and Employee Productivity.

H7: Best Practices of the ERP systems mediates the relationship between ERP system Efficiency and Employee Productivity

ERP best practices has a partial mediating effect of generating a relationship between efficiency of ERP systems and Employee Productivity.

Based on the descriptive analysis the following evidence were found related to ERP Systems and Employee Productivity.

- Based on the analysis, it is observed that the majority of the respondents, accounting for 51.5%, belong to the age group of 26-32. This suggests that this age group has a higher representation in the sample population.
- It is observed that the majority of the respondents were identified as female, accounting for 58.3% of the total sample. This information is noteworthy since it indicates that females were the most represented gender in the data set.
- Based on the analysis it was evident that most of the users hold a bachelor's degree accounting majority of the population around 52.3%.

5.4 Conclusion

The impact of Enterprise Resource Planning (ERP) on the improvement of employee productivity in the case study of ABC Apparel Company reveals several noteworthy conclusions. The study examined various variables, including training, compatibility, complexity, efficiency, best practices, and empowerment. The findings suggest that all these variables have a positive relationship with the overall enhancement of employee productivity within the organization.

The positive relationship between ERP implementation and employee productivity highlights the significance of training programs. Adequate training ensures that employees can effectively use the ERP system, resulting in increased productivity through optimized utilization of technology. The study indicates that the compatibility of the ERP system with existing processes and workflows positively influences employee productivity. The seamless integration of ERP into daily operations fosters a smoother transition, reducing disruptions and enhancing overall efficiency.

Contrary to concerns about ERP system complexity, research reveals that a well-managed and user-friendly ERP system can contribute positively to employee productivity. Simplified interfaces and clear communication regarding system complexities are key factors in achieving this positive relationship. The positive correlation between ERP implementation and efficiency emphasizes the system's role in streamlining processes, reducing redundancy, and automating tasks. This efficiency gain directly translates into improved productivity across various departments within ABC Apparel Company. The adoption of best practices in ERP implementation contributes to the positive relationship observed. Aligning the ERP system with industry best practices ensures that the organization maximizes the benefits of technology, ultimately enhancing employee productivity. The empowerment of employees through the ERP system positively influences productivity. Access to real-time data, decision-making tools, and enhanced communication channels provided by the ERP system empower employees to perform their tasks more effectively and contribute to overall organizational goals.

In conclusion, the case study of ABC Apparel Company demonstrates that a well-executed ERP implementation positively influences employee productivity. By addressing variables such as training, compatibility, complexity, efficiency, best practices, and system empowerment, the organization can unlock the full potential of its workforce, leading to improved operational efficiency and competitive advantage in the marketplace. The findings of this study underscore the importance of strategic

planning and effective implementation of ERP systems in achieving positive outcomes for both employees and the organization as a whole.

5.5 Recommendations

The recommendations outlined in the study aim to enhance employee productivity through the effective implementation and utilization of ERP systems within the organizational framework. These suggestions are derived from the study's conclusions and are intended to address key areas that can potentially influence the successful integration and impact of ERP systems on workforce efficiency.

- **Provide Proper Training**

Employees should receive comprehensive training on how to effectively use the ERP system. This training is crucial for ensuring that staff members are equipped with the necessary skills to navigate and utilize the system's features optimally.

- **Improved Communication**

Establish clear communication channels between employees and management to articulate the benefits of the ERP system. Employees need to understand how the ERP system can positively impact their work and contribute to overall productivity.

- **Ensure User-Friendly Interface**

Design the ERP system with a user-friendly interface to facilitate ease of use for employees. A system that is intuitive and requires minimal effort to navigate can contribute significantly to user adoption and efficiency.

- **Regular Monitoring and Evaluation**

Implement a consistent monitoring and evaluation process to assess the effectiveness of the ERP system in enhancing employee productivity. Regular reviews allow organizations to identify areas for improvement and make necessary adjustments to optimize system performance.

- **Provide Incentives**

Introduce incentive programs to reward employees who effectively utilize the ERP system. Recognition and rewards can serve as positive reinforcement, motivating other staff members to embrace the system and explore its capabilities for productivity gains.

In summary, these recommendations collectively form a strategic approach to not only implement ERP systems effectively but also to foster a culture of continuous improvement and engagement among employees. By addressing training, communication, usability, ongoing evaluation, and motivation, organizations can maximize the benefits of ERP systems and create an environment conducive to enhanced employee productivity.

5.6 Limitations of the Study

While the investigation into the influence of Enterprise Resource Planning (ERP) on employee productivity at ABC Apparel Company yields valuable insights, it is crucial to recognize and address certain limitations that could affect the applicability and robustness of the findings.

The study is confined to the specific context of ABC Apparel Company, and its outcomes may not be universally generalizable to diverse industries or organizational settings. Variations in industry dynamics, corporate culture, and business processes may result in different impacts of ERP implementation in alternative contexts. Additionally, the study might be constrained by a specific timeframe, and the enduring effects of ERP on employee productivity might unfold over an extended period. Long-term consequences and trends may not be fully captured within the study's scope, necessitating further research to evaluate the sustainability of productivity improvements.

The findings may be subject to response bias, as employee feedback and perceptions about the ERP system could be influenced by various factors such as job satisfaction, personal opinions, or recent experiences. The study's reliance on self-reported data may introduce a degree of subjectivity. The effectiveness of ERP systems often depends on the extent to which all available modules and functionalities are utilized. If certain modules are underutilized or not implemented, the study might not fully capture the potential impact of the entire ERP system on employee productivity.

Addressing these limitations by considering a broader range of contexts, incorporating long-term perspectives, minimizing biases in data collection, and accounting for external influences would enhance the study's robustness and contribute to a more nuanced understanding of the relationship between ERP implementation and employee productivity.

5.7 Directions for Further Studies

The exploration of the impact of ERP on employee productivity at ABC Apparel Company provides valuable insights, but there are avenues for further studies that could deepen our understanding and contribute to ongoing improvement. The following directions for further studies are recommended:

The collection of employee productivity data directly from the employees themselves in this study may lead to biased results. To mitigate this, it is recommended to obtain validation from the respective reporting managers to ensure unbiased data collection. The results of this validation should be incorporated into the study to provide a more accurate representation of the effectiveness of the ERP system in enhancing employee productivity.

Conduct a longitudinal study to track the long-term impact of ERP implementation at ABC Apparel Company. This study could analyze employee productivity trends over several years, taking into account any changes in technology, organizational structure, or market conditions. Compare ABC Apparel Company's ERP implementation and its impact on employee productivity with industry benchmarks. This comparative analysis could provide a broader perspective on the company's performance and highlight areas where further improvements or optimizations might be needed.

Conduct in-depth qualitative research, including interviews and surveys, to explore employees' experiences with the ERP system. Understanding their perspectives, challenges, and suggestions can provide valuable qualitative data to complement quantitative findings. Investigate the relationship between ERP implementation and employee satisfaction and retention rates. Analyzing whether a positive correlation exists between the effective use of ERP and employee job satisfaction could be crucial for talent retention strategies.

Exploration of Specific ERP Modules:

Focus on specific ERP modules that play a critical role in employee productivity. For instance, a dedicated study on the impact of ERP's human resource management or inventory management modules could provide targeted insights into how certain functionalities contribute to overall productivity.

Explore the correlation between ERP usage and innovation within ABC Apparel Company: Investigate whether the ERP system facilitates or hinders innovative processes and how it contributes to the company's ability to adapt to market changes. Conduct a study to evaluate the effectiveness of ERP training programs for employees. Analyze whether the training provided aligns with the evolving needs of the workforce and if additional training or resources are required for continuous improvement.

By pursuing these directions for further studies, researchers can contribute to the growing body of knowledge on ERP systems' impact on employee productivity, offering valuable insights for both academics and practitioners in the field.

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APPENDICES

A – Questionnaire

ANALYSIS OF WHETHER ENTERPRISE RESOURCE PLANNING IMPROVES EMPLOYEE PRODUCTIVITY AT ABC APPAREL COMPANY

Section I - Demographic Information

Please select the most appropriate option or answer when required for the following questions.

1. Your age to date.

18-25 ☐ 26-32 ☐ 33-45 ☐ 45-55 ☐

2. Gender

Female ☐ Male ☐

3. Marital Status

Married ☐ Single ☐

4. Your highest level of studies

Up to A/L ☐ Diploma ☐ Degree ☐ Master's ☐
degree

5. How long have you been using the ERP system?

0-3 ☐ 3-6 ☐ 6-9 ☐ 9-12 ☐

6. What is the department you work in the company?

7. How often do you use the system?

- a. Several times a day
- b. About once a day
- c. 2 or 3 times a week
- d. About once a week

8. About how many hours altogether did you work in the past 7 days?

9. How many hours does your employer expect you to work in a typical 7-day week?

10. Please think of your work experiences over the past 4 weeks (28 days). In the spaces provided below, write the number of days you spent in each of the following work situations. In the past 4 weeks (28 days), how many days did you...

I. ...miss an **entire** workday for any reason (including vacation)?

II. ...miss **part** of a workday for any reason (including vacation)?

III. ...come in early, go home late, or work on your day off?

Section II

Please tick to indicate your level of agreement for the given statements on the scale given below.

V1-Compatibility						
#	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
11	SAP is compatible with legacy system software that was retained. (Bradford & Florin, 2003)					
12	SAP is compatible with existing hardware (Ruivo et al., 2013)					

13	SAP is compatible with existing network infrastructure (Ruivo et al., 2013)					
V2-Complexity						
Scale – User adoption, Users’ predisposition						
#	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
14	It is easy to learn how to use the SAP system.(Kositanurit et al., 2006)					
15	I feel comfortable using the SAP. (Chang et al., 2011)					
16	SAP is intuitive enough to get done my work. (Ruivo et al., 2013)					
17	The function/command names of the SAP are easy to remember. (Kositanurit et al., 2006)					
V3-Efficiency						
Scale – User Confidence, Reliability, Effectiveness in tasks						
18	SAP provides user effectiveness in executing repetitive tasks. (Rajagopal, 2002)					
19	The user interfaces are user friendly and efficient in SAP. (Bendoly & Kaefer, 2004)					
20	I am satisfied with the speed and reliability of the system. (Gattiker & Goodhue, 2005)					
V4-Best Practices						
Scale – Business and user adaptability						
21	It is easy to set up the application according to your need. (Chou & Chang, 2008)					

22	It is easy to map workflows based on local requirements. (Wenrich & Ahmad, 2009)					
23	SAP is adaptable to the business needs. (Quattrone & Hopper, 2005)					
V5-Training Scale – Quality of training, Quality of content and material						
24	Our firm provided extensive training with the ERP system.(Bradford & Florin, 2003)					
25	The content materials provided are complete and easy to understand.(Ruivo et al., 2013)					
26	Navigate through topics applied to daily tasks is not complex.(Ruivo et al., 2013)					
V6-Empowerment Scale – Ease of access to data and reporting, User collaboration						
27	SAP provides the ease of access to comprehensive reporting. (Calisir & Calisir, 2004)					
28	SAP provides access to real time, precise and sufficient information.(Gattiker & Goodhue, 2005)					
29	SAP enables greater collaboration among users. (Kositanurit et al., 2006)					

Productivity Scale – Employee Performance, Absenteeism						
#	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
30	I do a large amount of work each day					

31	I accomplish tasks quickly and efficiently.					
32	I have a high standard of task accomplishment.					
33	My work outcomes are of high quality.					
34	I always beat our team targets.					
35	What rating did you receive from your supervisor on your most recent performance appraisal on your current job this year?	Poor	Below average	Average	Above average	Excellent