'Rhetoric' and 'Reality' of Artificial Intelligence in Apparel Sector in Sri Lanka: Comparative Case Study

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Abstract - *Artificial Intelligence (AI) has emerged as a transformational force in today's rapidly changing business environment. The apparel sector in Sri Lanka increasingly embracing AI technologies for the forthcoming adoption of AI technologies within the industry. Referring to evidence from companies that have evolved in Sri Lanka's apparel sector, this study examines the gap between AI's rhetorical promises and its practical (reality) application. It focuses on workplace perceptions of AI, bridging the gap between theoretical AI concepts and their implementation, the dynamics of integrating AI into organizational processes, future directions, and the reasons behind the adoption of AI technologies by case study organizations. Drawing from qualitative data, the study delves into the perceptions of AI among industry professionals, the integration of AI into organizational processes, and the strategic motivations behind adopting AI technologies. The findings highlight a significant disparity between the high expectations promoted by AI rhetoric and the reality and effectiveness of AI in practice. While AI is often heralded as a tool to enhance efficiency and reduce manual Labor, the reality within the case study organizations reveals a slower, more complex adoption process. This research paper further describes the rhetoric and reality insights of AI in case study organizations while extending the rhetoric institutionalism theory, how organizations develop specific rhetorical strategies when defining the organizational goals and how organizations strategically use symbols like (words and signs) to empower the ability of practicality in the organizations.*

Keywords: Artificial Intelligence, Apparel Sector, Institutional Practice, Reality, Rhetoric

I. INTRODUCTION

A. Background of Study

From a futuristic idea to being a mainstay of modern technology, artificial intelligence has had its impact on many industries worldwide in the past few decades. AI applied is the wide spectrum of technologies enabling machines to perform tasks usually requiring human intelligence, such as computer vision, natural language processing, and machine learning. The concept of AI can be traced back to a British computer scientist, Alan Turing, who proposed the classic question, "Can machines think?" in 1950, in his paper titled "Computing Machinery and Intelligence". Despite all the economic ups and downs, it has reached tremendous milestones in attaining deep learning, expert systems, predictive analytics, process automation systems, and new knowledge interpretation techniques. Contrasted to this is the argument that AI will be mainly used as an augmentation tool for business operations, rather than a replacement of human intelligence.

As much as AI is gaining fast growth, its promises and realities in practice need to be investigated properly. Many times, rhetoric for AI as persuasive discourses to influence, convince, and persuade often differs from its real application and impact, leaving a fallacy within the industries. The apparel industry is an excellent indicator of the economy between producers and consumers who undergo immense changes in a shift

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of consumer preference and behavior. These changes hit the apparel industry hard in the developing country of South Asia, Sri Lanka. AI is certainly one of the biggest and most important developments affecting today's revolution in design, production, and sales operations in the apparel supply chain. It aided designers in creating a single piece of clothing, optimized the production process, and forecasted demand accurately from consumers. That way, retailers will be on the safe side with regards to maintaining proper stock levels, online try-on, and recommendation systems with the help of AI. However, challenges related to algorithmic fairness, data privacy, and job displacement need to be addressed for the sustainable integration of AI in the apparel industry.

With increased speed in the development of AI technology, a transformation is created across industries, including in the apparel sector, which stands at the forefront. The adoption of AI becomes a significant concern in Sri Lanka's developing economy, relating to discourse discrepancy between the optimistic industry rhetoric and on-the-ground realities. While discussions around AI in the apparel sector focus on its efficiencies in improving efficiency, making data-driven decisions, and enhancing customer experience, such very optimistic projections are often hollow, sans empirical support in Sri Lanka's unique economic and cultural context. Literature also emphasizes the need to address practical challenges in the way of effective AI implementation.

This study seeks to identify why Artificial Intelligence in the garment industry is still quite far from its actualization. Through this study, it is found out how the rhetorical articulation of the transformative power of AI compares to its real application and impact in the apparel industry of Sri Lanka. The study will investigate whether AI discourses articulated by key stakeholders differ from how these technologies are realized in practice. Precisely, this research will try to explore the chasm that lies between the rhetoric and the reality of AI through an in-depth comparative case study of leading companies with regard to challenges, successes, and limitations of implementing AI in Sri Lanka's apparel industry.

B. Research Objectives

The key objectives of this research are to explain how the rhetoric about AI has been institutionalized within the case study organizations and to identify the rationale behind their adoption of AI technology for enhancing operational excellence. Specifically, this research aims to work out how the institutionalization of AI rhetoric has been brought about in practice, that is, how organizations have anchored AI discourses in their respective cultures, policies, and strategic plans. This ranges from how language AI is integrated into a mission statement, to training programs and even internal communications to how resources can best be allocated towards AI initiatives and creating AI-driven metrics on performance. In addition, this study also aims at finding out the motive behind the decision of these organizations to adopt AI technology. These motivations have to be understood in terms of efficiency enhancement, cost-cutting, and competitive advantage, but also in terms of pressures from the market to innovate and adapt. In achieving these objectives, it will deliver an in-depth understanding of both the institutionalization of AI rhetoric and the strategic factors that drive AI adoption, hence giving insight into the role of AI in enhancing organizational operational excellence.

C. Scope of the Study

The present paper is an attempt to bridge this gap in the apparel industry by discussing the use of AI in internal networks, supply chain management, and customer service. In

this research, different areas of application of AI have been explained, such as machine learning, computer vision, natural language processing, and robotics, including recent trends and implementations in the industry over the past five years. The research brings together, in turn, a number of stakeholders: manufacturers, vendors, technology providers, experts, and users. In other words, it delivers comprehensive understanding in regard to how AI is applied to efficiency, cost-cutting, quality enhancement, customer satisfaction, and innovation. The main goal of such an approach will be very important for practitioners in industry, making policy, and scholars to have valuable insights by casting partial light on AI's practical meaning and its function in the transformation process of the apparel industry.

This introduction sets out the background of the study, its significance, research questions, and objectives while providing an underpinning of the research with regard to literature and theoretical frameworks. The context describes the scope and limitations in which this study will be undertaken.

II. LITERATURE REVIEW

A. Introduction

This is a critical review of the practice and implications of Artificial Intelligence in the apparel industry. In such respect, it culls existing studies to give a clear understanding of the motives behind the adoption of AI and methodologies used. This review identifies how AI impacts different facets of the apparel industry and gaps in current research. The field considers both local and global perspectives to contribute to its understanding of the role AI will play in this sector (Ade-Ibijola & Okonkwo, 2023; Alghamdi, 2020).

B. Rhetoric Defined

Rhetoric is the study of spoken, written, and visual language. It is concerned with understanding how language helps to create meanings, shape identities, and influence behavior (Romania et al., 2023). It views language as working dialogically, constituting thought, and engaging with social and cultural activities interdependently. Rhetoric has played a central role in the education process within Western Europe since Classical Greece and Rome, typically concentrating on speaking in public and persuading. The "Institution Oratorio" by Quintilian represents one of the central works concerning rhetorical pedagogues. The "new rhetoric" comes as a result of a philosophical shift to the effect of discourse in the minds of listeners. The philosophical perspective is fundamentally altered by the new discourse. Philosophy is now understood as the structuring of common principles, values, and loci, accepted by what the philosopher sees as the universal audience, rather than the search for self-evident, necessary, universally, and eternally valid principles insofar as it aims to direct and guide human action in all of the fields in which value judgements occur (Garson, 2002). In so far as the new rhetoric approaches all conversation, whether formal or informal, through the lens of how it affects the listeners' minds, it incorporates both Pragmatism and Existentialism's important ideas into the study of thinking (Giri et al., 2019). It is possible to offer an analytical philosophy the dynamic character that some academics feel has been lacking up until now by highlighting the consequences of speech. Thus, the new rhetoric may aid in the advancement of knowledge theory and improve comprehension of philosophy's past (Goti et al., 2023).

C. AI Application in the Apparel Industry Rhetorical Defined

AI in the apparel industry represents a major shift from the old ways to new ways influencing design, production, and marketing. Applied AI methodologies for pattern recognition and trend forecasting take large data for consumers' preference and sales, which are used in design processes, enhancing efficiency and customization of design (Iqbal & Su, 2022; Press, 2024). Such personalization creates brand differentiation and customer loyalty because it involves the incorporation of consumer suggestions in design (Baytar et al., 2022).

Artificial intelligence improves productivity through robotics and machine learning algorithms to ensure high-quality control and predictive maintenance. These technologies bring reduced errors, optimized resource use, and improved adaptability to the market trend. AI further extends to the efficiency gain in sales and marketing, where artificial intelligence-driven demand forecasting, price optimization, and personalization of marketing strategies are executed. AI tools analyze social networks, reviews, and browsing history to create tailored marketing campaigns and product offerings that raise sales and customer satisfaction (Choi et al., 2023).

AI also plays a very important role in promoting sustainability within the apparel industry. It helps to lessen environmental impacts by optimizing transportation routes, reducing waste, and improving inventory management. AI allows material tracking to ensure transparency and accountability. This brings about ethical business practices and improves a brand's image. But though it will naturally create more benefits, AI adoption is passed through difficulties, like data privacy issues, algorithm bias, and the digital divide, making it paramount to design robust regulatory frameworks and inclusive policies on the same.

Reality in this context is simply a general term for everything that exists, known and unknown, in contrast to things that are fictitious or nonactual. AI is one such major development in the simulation of human intelligence that performs such tasks that typically require human cognition, including learning and problem-solving. Although AI boasts supreme performance in data analysis and automation, it still fails to perform any deep contextual understanding and creation tasks.

In the apparel industry, AI applications range from design and production to distribution, increasing operational efficiency and customer experience. According to the review, AI is identified in trend prediction, using machine learning techniques that analyze data from fashion shows and social media for effective and accurate forecasting (Ade-Ibijola & Okonkwo, 2023; Choi et al., 2023). Accordingly, AI will assist designers in predicting consumer preference and coming up with collections that best fit the market.

D. AI Application in the Apparel Industry – Reality Defined

A meta-synthesis of research on AI in the apparel sector divulged that dominantly applied AI applications are machine learning and expert systems. Under machine learning techniques, SVM and predictive algorithms are very common while in the case of expert systems, fuzzy logic, neural network, and genetic algorithms are widely used by researchers (Giri et al., 2019; Gangoda et al., 2023). However, the big data and AI technologies in business development have not been taken full advantage of in the industry, with emphasis restricted more towards the supply chain stages than the product design stages of the apparel industry.

The reform in education is required to orient the students with the various AI integrations in the apparel industry (Jebreen & Ghanem, 2015). More recently, the

potential of text mining for the management of supply chain risk has been widely recognized; beyond this, there is an increasingly active interest in how AI might further support B2B market development. Of all ethical considerations surrounding anthropomorphic drive in AI, putting aside questions of autonomy and decision-making, it is immense and vastly different in understanding the overall implications of AI.

AI has advanced into applications related to product design, fabric production process, garment manufacturing, and distribution. In design, AI sets the fashion trends, generating personalized products. Producing fabrics, AI enhances the quality, reduces waste, and smooths the processes involved. Manufacturing AI increases productivity, reducing labor with automation. AI optimizes logistics, reducing delivery time and improving customer service.

The influence of AI is extended to both B2B and B2C contexts. Within B2B settings, AI empowers supply chain management, marketing, and production. In the case of B2C settings, AI predicts fashion trends, improves customer service, and offers customized clothing. It will be pertinent to extend this further in future research about consumer-oriented solution and digital competencies required in future labor forces.

Lekamge and Ekanayake, 2021 say "AI has brought many ethical challenges, such as affecting human autonomy and making ethical decisions, which needs to be carefully considered". Potential future prospects of AI in the case of apparel industry lie in decreased levels of waste during production processes, enhanced production through line balancing and sustainability (Romania et al., 2023). Human error has been hugely decreased with the use of artificial intelligence in pattern designing and quality control of garments (Goti et al., 2023).

E. Institutionalized Artificial Intelligence (AI)

The use of AI in the apparel industry has become from concept to reality and has brought important changes in manufacturing, sustainability, and customer interaction. AI is providing technologies like improved material grading, stock management, and product testing—which reduce waste and increase sustainability in fashion. Scientific studies report AI innovations in different sectors, from fabric optimization to asset tracking and product inspection.

It facilitates virtual fitting and tagging, thereby improving customer experience and reducing returns. AI improves storage and product identification with better search options and logistics planning (Perelman, 1971). Predictive analytics allows for demand forecasting accurately, hence reducing overstocking and minimizing (Ramos et al. 2023). Its application in procurement and supply chain control optimizes operations further (Choi et al, 2023).

Machine vision and robotics, products of AI-driven systems, enhance quality and productivity in garment manufacturing. Equipment downtime is prevented through predictive maintenance, which addresses issues before they escalate. In a firm, AI changes the supply chain management by rationalizing its logistics and inventory control. Customer relations are also changed by facilitating tailored recommendations and efficient service.

AI's role in making this process sustainable comes with the identification of eco-friendly material, optimization of designs that would reduce waste, and matching of consumers with environmentally conscious producers. As customer trends gear toward sustainable fashion, AI has a place in supporting such trends (Giri et al., 2019). However, matters related to ethics, like data privacy and job displacement through automation, are

not ignored either (Lee & Lim, 2023). This makes the trustworthiness and explainability of AI decision-making processes highly relevant to stakeholder confidence.

As such, the integration of AI into the apparel industry becomes a collaboration between the human mind and artificial intelligence. Further research is being done on how to enhance speed, accuracy, and sustainability by integrating AI into the apparel industry (Kumar et al., 2023). The transformative impacts of AI in this sector include innovation in design, manufacturing, and customer interactions that promise a more efficient and sustainable future.

III. METHODOLOGY

A. Introduction

The research methodology and research approaches are employed to achieve the research objective of the study. Which are the qualitative methodology and multiple case study approach. Further, this chapter provides details on the research context, and data collection, in terms of data collection stages and methods, as well as a description of the data analysis and rational behind their selection for the current study.

B. Research Philosophy

This study delves into in-depth ontological and epistemological analysis, providing a comprehensive framework for exploring AI integration beyond academic terminology (Baytar et al., 2022). The research aims to uncover the practical effects of AI technologies in the clothing industry, shedding light on how AI is reshaping manufacturing processes, enhancing sustainability measures, and transforming consumer interactions with retailers (Lekamge & Ekanayake, 2021).

From an ontological perspective, this research adopts a subjective approach that embraces subjectivity and acknowledges the diverse realities present in the realm of AI adoption (Choi et al., 2023). Unlike positivist methodologies that advocate for a single, objective reality, this study recognizes the multitude of experiences, perspectives, and interpretations of reality held by stakeholders involved in AI initiatives within company “A” and company “B”. By employing a subjective ontology, the research seeks to delve deeper into the lived experiences and subjective realities of those engaged in the implementation of AI, aiming to unveil the nuanced intricacies and complexities of AI integration within these organizations.

Methodologically, the research philosophy significantly influences the study's design and implementation by emphasizing qualitative approaches that enable the exploration of individual experiences and interpretations linked to AI integration within company “A” and company “B”. By utilizing techniques such as semi-structured interviews, participant observation, and thematic analysis, the research seeks to uncover the real-life experiences of individuals involved in AI endeavors, thereby enhancing comprehension of the organizational dynamics and socio-cultural factors impacting AI adoption. Additionally, the research philosophy underscores the importance of subjectivity and reflexivity among researchers to maintain openness and objectivity in data interpretation, ensuring a comprehensive exploration of the challenges and implications of integrating AI within corporate settings like company “A” and Company “B”.

C. Research Design

The research design in this study has been carefully designed to employ comparative case study methods, strategically chosen to provide in-depth insights into the application of artificial intelligence (AI) and on the impact of the apparel industry (Kaur et al., 2022). This optional approach allows for a detailed examination of real-world scenarios in various areas industry sectors, including manufacturing, focusing on a wide range of issues (Gangoda et al., 2023). So that includes retail, supply chain management, and customer service. The research can capture nuances and variations in AI adoption, considering factors such as company size, market, technology infrastructure and goals as they are applied in an appropriate manner that supports and identifies challenges and constraints faced by organizations. Furthermore, the comparative data analysis process facilitates data comparison, increasing the depth and accuracy of analysis the value is greater. Overall, the research process is structured to yield rich and contextual insights, providing valuable insights for industry practitioners in understanding the reality of AI of the apparel industry.

D. Sample Selection

This qualitative research on the use of AI by leading apparel exporting companies in Sri Lanka. For collect the data we use in depth interviews. Based on the analysis of data obtained from EDB, the top 2 exporting enterprises are identified, and 16 key informants are selected from those two enterprises for preliminary interviews. Organizations that have incorporated their use of AI. For this research we will be selected and 8 people from each organization will be asked questions. These interviewees will give insights on how they have incorporated AI and how it affects some of them company operations. Findings made in these organizations will help triangulate interview results and provide a better understanding of how AI works. The method was chosen to provide a robust and reliable data collection procedure. We balance the limitations of each approach to increase our validity and reliability results.

E. Data Collection Method

The case study approach is a type of qualitative research method that was adopted for this research subject since it enables an evaluation of the complex and diverse impact of artificial intelligence on the apparel industry (Pasek, 2013). This method is particularly useful for identifying purposes based in real-life situations, and for getting an understanding of the contextual factors influencing the status of AI in terms of take-up and deployment, in the apparel industry.

The employment of the case study approach in this research topic is particularly beneficial because of its ability to examine multiple instances found in the apparel industry. It helps to understand various uses of AI and the implications of this phenomenon on different aspects of the business. Thus, this research method enables identification of the details and nuances of AI implementation and later in the apparel industry, which might be difficult to consider and study using other research methods.

Since case studies give the researcher an omnibus view of the subject area of study, different aspects as well as the dimensions may be explored (Kaur et al., 2022). For this reason, by analyzing actual cases from the apparel industry, this methodology fosters a clear understanding of the practical application, reception, and organizational integration of artificial intelligence in various contexts (Baytar et al., 2022).Thus, through examining different cases this research aims to identify typical issues, unique challenges,

and effective solutions connected with the use and enactment of artificial intelligence technologies in fashion industry that range from small-sized fashion houses to large multinational companies.

F. Comparative Case Study

This study looks at the use of AI and its effects in two apparel-related organizations. It has been proposed that Comparative Case Studies provide useful instruments for comprehending practice and policy along three distinct axes of social science research: transversal (time), vertical (scales), and horizontal (spaces). The first section of the chapter highlights the prerequisites for comparative research and provides an overview of the methodological foundation of case-based research in comparative studies. The case studies examine how these companies have incorporated AI into their daily operations, the difficulties they have encountered, and the advantages they have experienced. Comparative analysis, on the other hand, looks at parallels found in various circumstances or instances that have one or more things in common but vary in other ways. Social sciences also often use comparative analyses, which range in the degree of information they provide in explaining different components from statistical abstractions via vignettes to the amount of detail seen in particular case studies.

Table 1. Interview Details

Company	Position	Experience	Interview Time and Duration
Company "A"	1. Deputy Analyst	1 and ½ year	40 minutes
	2. Executive – Automation and Innovation	2 years	45 minutes
Company "B"	1. General Manager – Projects Developing	15 years	1h 15 minutes
	2. Executive – Automation (Visual Modeling and Transformation)	20 years	45 minutes
	3. Manager – Digitalization Department	7 years	35 minutes
	4. Development Merchandizer	1 and ½ years	1 hour
	5. Senior Executive – Automation	12 years	1 hour
	6. Senior Engineer – Automation	1 year and 9 months	35 minutes
	7. Senior Executive – Talent Aqustition	2 years and 9 months	1 hour
	8. Business Analyst	3 years	45 minutes

Source: Authors' compilation.

G. Population and Sample

The study focusses on the discourse and application of artificial intelligence (AI) within the apparel sector in Sri Lanka. By contrasting different organizations, the research seeks to understand how artificial intelligence is seen and used in the apparel industry. The study's population consists of Sri Lankan apparel manufacturing enterprises that have

included artificial intelligence (AI) technology into their development process. This includes a wide range of businesses, including small and medium-sized businesses (SMEs) and major manufacturers. AI has applications in many different areas, including supply chain management, design, manufacturing, and customer service.

Purposive sampling will be employed in this study. Purposive sampling, for instance, enables researchers to choose participants based on their expertise or background in using AI in the apparel sector. There are two unique businesses that reflect various AI consolidation sizes and strategies. These firms were chosen based on three criteria: adoption of AI, size, and market presence. Key stakeholders in the sample will be represented by these firms. Top executives working in the field of artificial intelligence, including heads of IT departments and service performance departments. To get further information, these people are surveyed and interviewed. A thorough grasp of the rhetoric and reality of AI in the Sri Lankan clothing operations is required by the sample size, which will be around 15–20 people in total.

H. Data Collection

The base of empirical research is data collection (Mirhosseini & Bagheri-Lori 2015). Two types of data can be used when conducting research as their main sources namely primary data and secondary data. Primary data is the original data collected by the researcher for the first time with a specific purpose with the help of interview, observations, focus-group discussions, and questionnaires, whereas secondary data have been already collected by somebody for their purpose and are usable in research. It is available in the form of documents, company proceedings, industry publications, books and many more (Hussey, 2003).

The use of multiple data collection method assists the researcher to mitigate the failures of each method and enhance the reliability and validity of the collection process. This study used primary sources of data such as interviews, focus group discussions and observations.

1) Interviews: Interviews involve interacting directly with the respondents and taking their opinions into consideration, past studies suggest that, in comparison to other qualitative techniques, interviews are the most effective technique to gather information in detail (Renaningtyas et al., 2023). Interviews can be in the form of in-depth, structured and semi-structured. In-depth interviews are unstructured and direct interviews that encourage respondents to speak as per their wishes about the subject. Semi-structured interviews are carried out with a pre-defined question guide by allowing the respondents to express their thoughts deeply on the questions. Accordingly, both in-depth and semi-structured interviews were conducted with pre-defined questions covering all key aspects of research questions, theory and past empirical studies. State that interviews can be undertaken face-to-face, voice-to-voice, or screen-to-screen. This study employs these three interviews as the main method of data collection which are considered suitable for qualitative research which involves an in-depth exploration of a phenomenon.

2) Observations: A researcher may also play the role of an observer for the purpose of conducting qualitative research through primary data. Accordingly, interview data were complemented by observations made at Company “A” & Company “B” highlighted the complexities, challenges, and strategic nuances involved in AI integration. The discrepancy between rhetoric and implementation, operational challenges, strategic focus,

and sustainability initiatives underscored the need for a holistic approach to AI adoption that aligns with organizational goals, industry trends, and competitive pressures. Field notes were used to record the data collected through observations. Accordingly, interview data were crosschecked with personal observation and presented in this research.

3) Internal Documentary Analysis: Yin (2009) stresses that documentary analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning to an assessment topic. Accordingly, I was able to analyze some of the organizations' documents such as communication on progress in company "A", Technology vision of company "B", annual report of company "A" and company "B". For each of these documents' summary forms were maintained to put the documents in the context of the interview data. This documentary analysis was further helpful in clarifying interview data.

I. Stages of Data Collection

Firstly, an objective was set to target some local companies that are of substantial economic importance to Sri Lanka and concealed how the instruments and tools that drive their management controls achieve success. Following this approach, the author managed to receive access to after a conversation with a manager of automation using personal contacts. The manager was contacted verbally and briefed on the study to follow this approach with a letter from the University and the research proposal to request data collection access.

Prior to the pilot study data collection, desk research was conducted to gather background information. Various resources such as web resources, personal contacts, and industry journals related to the research site were consulted. However, obtaining publicly available information about the research site, being a privately owned organization, posed challenges due to limited accessibility. This process underscores the importance of thorough preparation and diligence in data collection to ensure a comprehensive understanding of the AI implementation in the apparel industry.

J. Pilot Study

In June 2024, a pilot study was conducted involving several key participants. The deputy analyst from company A, who has 1.5 years of experience, was interviewed for 40 minutes. The general manager of projects from company "B", with 15 years of experience, participated in an interview that lasted 1 hour and 50 minutes. The senior executive in automation from company "B", boasting 20 years of experience, was interviewed for 45 minutes. Finally, the executive in automation from company "B", who also has 15 years of experience, engaged in an interview lasting 1 hour and 50 minutes.

Interviewers play an important role in gaining in-depth knowledge for empirical studies on the integration of AI into business processes. It's important to prepare by carefully studying the company's history, current and past AI initiatives, and industry trends through public statements, financial reports, and project descriptions. The performance of the interviewer is important throughout the interview. The interviewer should be professional, ask open-ended questions and listen actively to get adequate answers. Familiarity is essential when exploring nature topics.

The survey covers a wide range of topics including why we use AI, its impact on agility, sustainability and employee productivity. It is important to find a balance between answering every question and allowing for in-depth research. During the interview, it is

important to pay attention, take detailed notes and allow for necessary clarifications or follow-up questions. It is important to remain neutral during the interview and avoid biased and provocative questions that may distort your answers. After the interview, the analysis process involves reviewing the notes, identifying the most important findings, and compiling the data into a well-structured report. The findings, models, challenges and opportunities for AI application in the apparel sector discussed in the interviews should be summarized in this analysis. The interviewer is essential to lead a productive and insightful discussion about the company's AI journey, the obstacles it faces, lessons learned and future applications of AI for apparel in the industry.

K. Data Analysis

In qualitative research, data analysis focuses on understanding the deeper meanings, themes, and insights from textual or non-numeric data. We use qualitative data to analysis our research. Qualitative research is an exploratory approach that seeks to understand human experiences, behaviors, and social phenomena. It involves collecting and analyzing non-numeric data such as interviews, observations, and documents. The goal is to gain insights into underlying reasons, motivations, and patterns through detailed and in-depth analysis. In qualitative research, various methods can be employed to analyze data, including content analysis, narrative analysis, grounded theory, and thematic analysis. For this study, we will use thematic analysis as our primary qualitative data analysis method.

Thematic analysis is a method for identifying, analyzing, and reporting patterns (themes) within data. Thematic analysis is a method for identifying, analyzing, and reporting patterns (themes) within data. It is flexible and can be applied across a range of theoretical frameworks and research questions. It provides a flexible and detailed account of data, suitable for exploring the complex integration of AI in the apparel industry, as demonstrated by company “A” and company “B”.

Thematic analysis was instrumental in identifying key themes by examining interview data from various employees at company “A” and company “B”, including senior management, IT specialists, data scientists, production managers, and marketing executives. This method helped reveal substantial changes in job roles due to AI integration, data analytics, and automation, and the need for up-skilling initiatives.

IV. FINDINGS

A. Introduction

This research study's findings of the pilot interviews about the implications for the apparel sector of artificial intelligence's implementation and institutionalization, as well as its rhetorical and performance excellence justifications. These days, AI is a buzzword that refers to a machine's capacity for autonomous action and decision-making, frequently mimicking human qualities like inventiveness. (Soliwal, 2023)

“Company “A” was exposed to the persuasive power of AI proponents in 2020 while attending a technology conference in Silicon Valley. Company “A” was inspired to use AI technology by this experience as well as the idea that AI may improve the business's competitiveness and operational effectiveness. The company was further motivated to institutionalize the use of AI throughout its operations, making it a crucial component of day-to-day operations and converting Company “A” into a "smart" apparel enterprise by the immediate success of the initial AI installation.”

The biggest real estate on our body is clothing and understanding the consumer is the first step in apparel innovation, *"We at Company "B" use AI to understand the behavior of our consumers. The apparel industry has reached leaps and bounds from designing your customized clothing using a mobile application to 3D printing them in a short time."*

The purpose of this study was to shed light on how the apparel industry's operations have been affected using AI, as well as how the language of AI has been practically entwined in the numerous case study organization's journey toward business excellence and has become an institutionalized practice.

To optimize operations and digitally revolutionize its product development process Company "B" teamed up with Centric Software in 2019. Five business units have been able to increase cooperation, increase efficiency, and maintain competitiveness by utilizing Centric PLM. One of their major businesses, Company "B" Intimates, adopted Centric PLM, which allowed teams to make data-driven decisions, eliminate manual administrative activities, and speed up product development processing.

This is how the rest of the chapter is organized. It begins by providing a thorough explanation of the rhetorical justifications for AI integration. The chapter then lists the tactics used by the apparel sector to initiate AI integration as a change initiative and the difficulties experienced during deployment. The chapter then goes on to describe how to use AI to achieve corporate success. Lastly, the modifications made to the operations and control procedures of the apparel sector by AI based on the information acquired from field research. *"The Company "A"'s investments in AI have enabled it to achieve impressive operational metrics, such as an 11-day lead time for up to 600,000 pieces and 32+ product launches per season with key customers."*

Evidence of AI integration in Sri Lanka's apparel industry is shown in this chapter. It emphasizes recent research findings and several case studies. Through an exploration of the practical uses of AI, this chapter seeks to present a comprehensive overview of the state of adoption as it stands today, as well as the specific use cases and quantifiable advantages that clothing companies are enjoying.

B. AI from a Rhetorical Perspective

Artificial Intelligence (AI) technologies are intended to boost efficiency in the apparel industry by reducing labor hours, optimizing processes, and automating repetitive jobs. Businesses can reduce costs, save time, and increase overall manufacturing efficiency for the creation of clothing by utilizing this connection.

"In response to the growing importance of Generation Z as a consumer segment, Company "A" implemented a "digital at the core" approach, reallocating resources to digital transformation to satisfy changing customer demands." Company "B" innovates by developing scientific and engineering solutions that revolutionize human-textile its innovation arm, Twiner, utilizing its knowledge of manufacturing, human body biomechanics, fabric wear ability, and material science, is home to more than 50 revolutionary innovations in the areas of materials, lighting, heating, odor prevention, and aqua-repellency. The goals of applying AI to the apparel sector are to increase quality, reduce production costs, and boost productivity. Artificial intelligence (AI) solutions produce outstanding results while boosting efficiency and economy of scale by improving apparel quality, streamlining production processes, and guaranteeing optimal resource management.

Company "A" deliberately partnered with big tech companies, such as Google and Microsoft, to integrate enterprise-grade AI into their business processes. This collaboration demonstrates a dedication to using cutting-edge technology to generate value for clients and staff. To attain compound growth throughout all its activities, Company "B" adopted digital transformation with AI at its core. Company "B" has achieved significant business results in terms of productivity, efficiency, and cost savings by using UiPath's AI platform to automate 52 operations. This has also put Company "B" on a strategic road towards digital transformation.

C. Technological Advancements and Capabilities

Technological advancements and capabilities have led to a revolution in several processes within the apparel sector via the incorporation of artificial intelligence (AI). AI is using machine learning, computer vision, and natural language processing to optimize supply chains, improve manufacturing efficiency, and change design processes.

With these developments, AI systems can now comprehend image contents, automate design iterations, customize designs, increase the accuracy of pattern recognition, maximize resource usage, improve quality control, enable predictive maintenance, and use predictive analytics to completely transform inventory management.

In the interview, we find out Company "A" uses these technologies for their operations, "Company "A" has worked with big tech companies like Microsoft and Google to proactively integrate enterprise-grade AI. Copilot for Microsoft 365 is a potent generative AI service that merges massive language models with organizational data from Microsoft 365, and Company "A" has adopted it. As IIoT 5.0 approaches, Company "A" has thoughtfully included 5G into its IoT and automation architecture.

"Company "A" hopes to increase productivity without sacrificing worker well-being by utilizing Copilot to improve operational excellence, transform workflows, reduce the load of email tracking, and boost efficiency."

In the interview, we find out below information about Company "B". *"Leading technology companies like UiPath and Centric Software have teamed with Company "B" to digitally alter their product development process and automate important business procedures. Company "B" has increased production, reduced costs, and improved efficiency throughout its operations by utilizing Centric PLM and AI."*

"Company "B" has created innovative smart textile technologies through its innovation arm, Twinery, with the goal of revolutionizing the human-textile interface. Twinery is spearheading wearable technology and fabric integration innovation with their multidisciplinary knowledge spanning materials, lighting, warmth, and more."

The promise of artificial intelligence (AI) in the garment sector is found in its capacity to use cutting-edge technology to fulfil changing customer expectations and maintain competitiveness in the market. These benefits include the ability to enhance efficiency, lower costs, and promote sustainable growth.

D. Institutionalized Artificial Intelligence

AI is viewed as a tactical instrument that businesses may use to improve productivity, simplify processes, and maintain an advantage over rivals in this fast-paced industry. The demand for flexible, data-driven supply chain management has grown because of the fast-fashioned business model, AI can make this possible. Apparel companies can anticipate demand, optimize inventory, and react swiftly to shifting consumer tastes with the use of AI-powered technologies.

We find out below information from our interview, *"As a pioneer in the transformation of the clothing sector into the health and hygiene market, Company "B" has positioned itself for success. Company "B" is spearheading the transition from disposable to reusable products by developing cutting-edge products under names like Femography and Softmatter, with an emphasis on impact, accessibility, and disruptive innovation. This calculated action fits nicely with the fast-fashion industry's growing trend toward environmentally friendly and sustainable methods."*

Company "A" has implemented a "digital at the core" approach, reallocating resources towards a full digital transformation, in response to the rise of Generation Z consumers. Through the integration of AI, IoT, and 5G technologies, Company "A" hopes to improve user experience, accelerate workflows, and increase overall efficiency.

Company "B" has been spearheading impactful diversification, emphasizing the creation of favourable social and environmental effects via cutting-edge goods and sustainable business methods. Company "B" is leading the way in sustainable garment manufacturing through the development of strong e-textile platforms, the use of natural dyeing methods, and the adoption of thermal molding technology. This dedication to sustainability is in line with the growing legislative constraints and customer expectations for eco-friendly fashion selections in the fast-fashion sector.

Company "A" integration of AI and cutting-edge technology improves operational efficiency while also supporting sustainability initiatives. To meet regulatory standards in the fast-fashion industry and handle sustainability concerns, Company "A" is focused on data intelligence and AI adoption while also aligning technology with organizational culture.

Customers want brands to respond to them more quickly and are more interested in setting trends. To address these changing demands, garment firms can use AI to analyze customer data, forecast upcoming trends, and provide personalized products and experiences.

Company "A" is committed to satisfying changing customer demands, as evidenced by its concentration on developing solutions that are both inexpensive and accessible to worldwide populations, including Sri Lanka. To remain relevant and competitive in a market that is constantly changing, Company "A" is adjusting to the changing needs of consumers in the fast-fashion industry by incorporating data analytics and AI into marketing initiatives and creating creative revenue models.

E. Challenges of AI Implementation (Pilot Interviews)

Company "A" faces significant technological, financial, and operational obstacles in deploying AI bots. The high upkeep cost, surpassing the monthly salaries of all 30 workers, questions financial viability. Integrating artificial intelligence requires significant preparation, upkeep, and specialized instruction, hence increasing expenses. From an operational standpoint, the integration of AI is intricate, requiring human supervision to handle mistakes and guarantee precision, which impedes production. The issues are compounded by employee reluctance stemming from concerns about job security and the need to adhere to strict data security rules.

Company "B" encounters similar hurdles with AI implementation, focusing on AI and virtual prototyping. Integration with existing systems is technically demanding and requires collaboration with technology providers. Training staff to use AI tools is essential for client trust but is time-consuming and costly. Overcoming organizational

resistance to automation is crucial for success, requiring efforts to demonstrate the benefits of AI.

V. CONCLUSION

The purpose of the research proposal is to demonstrate a proper understanding of the words and the world of Artificial Intelligence (AI) in apparel businesses. The study will be useful in identifying the status of the use of AI technology in the fashion and apparel business as it analyzes the use of AI solutions, the match between the stated and the actual practices, sustainability and environmental concerns, ethical and social issues, and specific challenges of the fashion and apparel industry.

In turn, the research findings on the discrepancies between the potential given by AI and its effects on the garment industry will contribute to the existing knowledge. In this regard, the project will establish a theoretical framework for discussing the factors that shape the AI discourse and the challenges that hinder the effective implementation of AI by drawing on institutional theory.

By presenting the potential benefits, challenges, and impacts of implementing AI, this research will help organizations align their promise of using AI with tangible outcomes and ensure the responsible and sustainable application of AI in the apparel industry. However, it is essential to note that the research plan has certain limitations, language restrictions and exclusion of other databases with relevant publications. Nevertheless, the study aims to make a significant contribution to the existing literature on artificial intelligence in the clothing industry and to establish a foundation to subsequent research in this fast-growing domain.

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