

Enhancing Employee Engagement in the Bag Manufacturing Industry: A Deep Dive into the Impact of Operational Technology Application

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Abstract—Operational technology applications underscore the importance of enhancing organizational efficiency and effectiveness. The bag manufacturing industry is increasingly embracing new operational technologies. Thus, this review study aims to investigate whether the implementation of technology has contributed to an increase in employee engagement within this industry. The research methodology used in this study involves conducting an Integrative Literature Review. This comprehensive approach includes a systematic examination of various scholarly sources, such as research articles, books, and other published texts, to gather and synthesize relevant information and findings. It is evident that a positive relationship exists between employee engagement and the application of technology. The impact of technology application on employee engagement is unquestionably positive. In the context of the bag manufacturing industry, technology application can be effectively assessed by considering user involvement and training provided for handling specific technologies. On the other hand, employee engagement can be comprehensively evaluated by considering three crucial dimensions: vigor, dedication, and absorption. These elements collectively provide a robust framework for assessing and understanding the level of employee engagement in this industry. The synergy between technology and employee engagement offers valuable insights for improving workplace dynamics and productivity in the bag manufacturing sector.

Keywords—Technology application, user involvement, training, employee engagement, vigor, dedication, absorption

I. INTRODUCTION

Operational efficiency encompasses the capacity to assess, analyze, and enhance processes within an organization or business [13]. Various industries have long employed technology in their operations. Consequently, firms in both manufacturing and service sectors typically view customer expectations and technological advancements as the primary catalysts for operational changes [1]. With the advance and features of block chain technology, new innovation and applications may strengthen platform operations naturally [16]. Accordingly, Fiddle (2023) has identified technology has drastically improved and accelerated the efficiency of business operations and implementing technological aspects could put the business well on its way to becoming more operationally efficient. The artificial intelligence (AI), automation, information technology, robotics, cloud computing, nanotechnology, military technology and control system are the firms that utilize technology systems in following ways in operations management in the world [16].

Further, bags.bg (2013), has explains the Extrusion as known as blown film extrusion and used to convert to foils and sleeves in various thickness, sizes, colors and other properties. Roll lamination has used a technology with two-component glue to bond materials and far more eco-friendly than many other comparable processes. Sheet lamination has used an automatic machine for hot laminating. Die cutting and ceasing have used hot stamping or embossing and are cut and creased with great precision by means of automatic or semi-automatic, machines. Laser cutting technology has used to cutting the designs of bags. Those are designing with soft wares as adobe Photoshop, canva, adobe illustrator, marvelous designer and etc. But the pivotal question is how these technologies affect employees – whether they heighten employee enthusiasm and engagement in their work or, conversely, diminish their engagement.

The employee engagement is a human resource concept that describes the level of enthusiasm and dedication a worker feels towards their job [17]. In the world, have to track that employee engagement metrics across thousands of organizations globally using the engagement survey. According to that survey there are 23% employee engagement and 18% actively disengaged globally today world [2]. Around 14% employees are engaged, 62% are disengaged and 23% are actively disengaged to their works in organizations in Sri Lanka. Given the significance of employee engagement and the prevalence of disengagement, it becomes imperative to assess the impact of technology within the bag manufacturing sector on employee engagement. This review study aims to determine whether technology applications have contributed to an increase in employee engagement within the industry.

II. THEORETICAL REVIEW

A. Technology Application

The technology become a key of foundation and development to competitiveness and survival of free market [10]. Have to flexible in order to improvise with technological complexity. Because one of the fundamental purposes if technology is to contribute to economic growth [6]. According to Kraugusteeliana et al. (2023), identified the business are not required to rely solely on the government; rather they should end over to eliminate any technological impediments they may face by maximizing the government. Numerous practical applications in aerospace, automotive, biomedical, energy and other fields and main processes, materials and applications of the current technology and presents future research needs for this technology [17]. In order to measure the extent to which information technology

provides competitive advantages, was operationalized [15]. According to Kraugusteeliana et al. (2023), the companies are ready to replace the role of humans with technology while the human or employee aspect is not ready to use sophisticated technology when working. The benefits of automation and technology integration in production and the emergence of further advanced technologies paved the way for a large leap in the industrial world [13]. According to Kraugusteeliana et al. (2023), the presence of technology has influenced the community and the surrounding environment. Where technology can help in a variety of ways, such as by improving the economy.

B. Employee Engagement

Employee engagement is a critical tool for effective tool management. And also, it enhances the competitiveness and image of an organization. Further that is great impact on growth of and organization and global economy [7]. According to Ajayram and Velmurugan (n.d.), employee engagement is the deviation, passion, of employees and effective leadership skills with support from the top management to the employees. New measurements have been proposed to judge user involvement and system support. With respect to user engagement, four elements have been identified, including the point of engagement, the period of sustained engagement, disengagement and re-engagement [20]. It also supports to in maintaining a higher level of commitment. Employee engagement is the level of employee's commitment and participation towards their organization and its values [2].

People create and operational use the organization's strategy; and the engagement will be intrinsically linked to the quest for high levels of operational performance or strategic advantage [19]. According to Sun and Bunchapattanasakda (2019), employee engagement is an important issue in management theory and practice. And also, still there are major differences in the concept, theory, influencing factors and outcomes of employee engagement. Engaged employees have a sense of attachment towards the organization and invest themselves in their roles and the organization as a whole [3]. There are some benefits on the employee engagement. According to Turner (2020), promised benefits of employee engagement are higher productivity, more discretionary effort, more rapid innovation and faster time to make.

III. METHODOLOGY

The research methodology employed in this study involves conducting an Integrative Literature Review. This comprehensive approach involves a systematic examination of various scholarly sources, including research articles, books, and other published texts, to gather and synthesize relevant information and findings.

To accomplish the research objectives, this methodology encompasses a thorough critique of the identified literature, where the strengths and weaknesses of each source are evaluated. It also involves the synthesis of these findings, allowing for the creation of a cohesive and comprehensive narrative that brings together the relevant knowledge and insights from the selected sources. This integrative approach aims to provide a well-rounded understanding of the subject

matter and contributes to the achievement of the study's research objectives.

IV. FINDINGS

The findings highlight a significant gap in the research landscape concerning the global bags industry. To thrive in the bag manufacturing sector, industry leaders must possess a well-rounded set of professional literacies, comprising knowledge, skills, attitudes, and values. This requirement extends to various roles within the industry, including bag designers, manufacturing technicians, patternmakers, hand-stitches, and production supervisors, all of whom stand to benefit from acquiring these essential professional literacies [12]. A noteworthy development in the bags manufacturing sector is the emergence of luggage tracking as a pivotal innovation. The Internet of Things (IoT) plays a pivotal role in implementing effective tracking systems. IoT technology empowers devices to monitor luggage in real-time, offering location-based information to users [3]. However, it is crucial to note that there is a paucity of research exploring the relationship between technology and employee engagement in the bags manufacturing industry, particularly in the context of Sri Lanka.

Unfortunately, the research landscape does not yield any studies investigating the impact of operational technology applications on employee engagement in the bags manufacturing industry in Sri Lanka. This reveals a significant research gap, especially from the perspective of Sri Lanka. Nevertheless, the available evidence suggests that the adoption of cutting-edge technology has the potential to exert a positive influence on employee engagement within this industry. The bags manufacturing industry has updated anytime with new technology aspects because they bag manufacturing industry use technology for all of their operations during the manufacturing process in the world. Though there some very attractive facts have identified on this technology applications in bags industry in Sri Lanka. That is the laser technology, which is used for their operations for designing their bags in Sri Lankan manufacturing industry. Majority of machines are automated and working with less number of operators.

Further to that, user involvement, which is defined as a series of cognitive processes and behavioral activities that users perform to accomplish different types of search tactics while interacting with information retrieval (IR) systems [20], has been identified as a way of measuring technology application. According to Xie and Matusiak (2015), users need to be intellectually engaged while system assists them by providing different system features. User-centered design is an essential component in any information technology development. User involvement and feedback during the development process ensures that the final products meet user expectations, fulfill the task requirements, and provide a stable and suitable solution to enhance the overall user experience [15]. According to Xie, Joo and Bennett-Kapusniak (2013), have explored various types of user involvement and system support relative to different types of search tactics occurring during interactions with four type of IR systems: web search engines, online public access catalogs (OPAC), online databases and digital libraries. User involvement in system development is becoming more salient due to the fact that this can lead to better designed

products from the perspective of customers [5]. Further, that user involvement is playing a more and more vital role in the system development cycle and meaningful involvement of users in system development coupled with overall user orientation has been identified as being critical to the success of any project [9]. According to Karwowski, Rizzo and Rodrick (2003), user involvement allows for obtaining stuffiest information about the initial system requirements, for assessing if a product meets the end users' requirements and needs, and for gathering data for the next version of the design. Another technology application is training literature which will be discussed in the next paragraph.

Boothby, Dufour and Tang (2010), have identified the combination of technologies and types are commonly undertaken by firms, presumably as part of their strategies to effectively utilize the adopted technologies and to improve their economic performance. The technological advances have helped to position technology based training applications as practical tools for addressing these demands [8]. That simply investing in new technologies is unlikely to provide competitive advantage and that the full benefits of new technologies are only realized when they are used together with new workplace organizations including training [10]. According to Bell and Kozlowski (2007), companies can effectively use technology to deliver training and meet their human capital development needs.

Training is often used to meet the challenges for two reasons. Such as training is less costly and training can change user's attitude towards adopting new technologies and increase the acceptance [10]. Further, Batool et al. (2021), who has identified there is a relationship between training and HR technology. They help the employees develop their skills, knowledge, learning abilities and promote emotional intelligence. Bell and Kozlowski (2007), has been identified as potentially impact on the effectiveness of technology-based training involves characteristics of the technology. And who has founded that the quality of the technology often exhibits a relationship with training effectiveness. Batool et al. (2021), The factors and importance of training for developing the employees and focus that how HR technology and e. practices help the HR consultants to make the training more efficient, and what type of technology use in training and how to improve the training that helps in employees' development.

Subsequently, various methodologies for assessing employee engagement were examined by reviewing a range of articles. As per Schaufeli et al. (2019), employee engagement composed with 3 items are feeling energy (vigor), enthusiasm (dedication), and immersion (absorption). According to Cortés-Denia et al. (2023), work engagement is composed with vigor, which refers to the level of energy, effort and resilience displayed in the workplace. An engaged and proactive person—someone who has not just the willingness, but the physical energy to go the extra mile, or, as it's known in the trade, "discretionary effort." [11]. The vigor at work and work engagement were important variables to explain the authentic leadership-job satisfaction relationship in both private and public organization [11]. According to Lopez-Zafra, Pulido-Martos and Cortés-Denia (2022), have identified the vigor as an affective dimension mediates the effect of positive leadership on engagement and have analysed the relations of both

leadership styles to vigor, and affective construct, and engagement at work, a motivation outcome.

Vigor at work has been defined as a positive affective state characterized by experiencing feeling of physical strength, which represent physical capacities of the individual; emotional energy, such as the ability to show and express empathy and companion to other people; and cognitive aliveness, which is described as the flow of thought processes and mental agility [11]. Further, feel the well-being that triggers positive affect, a magnetic force that can propel you and others beyond obstacles. You are willing to draw on that energy to go beyond the normal level of effort [11]. Another dimension is dedication in employee engagement literature which will be discussed in the next paragraph.

Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm and challenge. Accordingly, vigor and dedication are considered direct opposites of exhaustion and cynicism, respectively, the two core symptoms in burnout [4]. Work engagement refers to a positive, affective-motivational state of high energy combined with high level dedication and strong focus on work [6]. According to Bakker and Albrecht (2018), have identified their strong dedication to and focus on their work activities. Engaged workers show better in-role task performance. It's the opposite of the cynicism that comes from burnout, which sees any self-initiative as futile and naïve. Burnout can't coexist with the passion and loyalty of dedication [11].

Bakker, Demerouti and Sanz-Vergel (2014), have explored the volunteers had worked with great dedication and enthusiasm for several months prior to the onset of these symptoms. The need to feel effective is critical to self-worth. Dedicated employees feel valued, because they have opportunities to contribute and make a difference [11]. The individuals who burn out from their work deplete and their energetic resources and lose their dedication to work in organization [4]. According to Rustiawan et al. (2023), employee is confronted with challenging job demands, job resources become valuable and foster dedication to the tasks at hand. Further, employees will provide full of dedication if the company pays attention to several factors. Including respecting employee needs, internal training and the development in the company, and the ability to retain employees. Another dimension is absorption in employee engagement literature which will be discussed in the next paragraph.

Refer to the absorption, which is person's state of mind that is more pervasive and persistent [4]. Absorption is characterized by complete concentration and preoccupation with work, where time passes quickly and a person has difficulty separating from work [22]. But further, Jaya and Ariyanto (2021), have identified absorption on performance has a very weak positive significant effect. Your skills meet a challenge in the moment, there's a sense of mastery, a loss of self-consciousness, and a clear focus, not to mention a sense of competence and autonomy, and that satisfies two core psychological needs [11]. According to Jaya and Ariyanto (2021), that absorption has a significant positive effect on employee productivity and job performance.

And also, it feels of a person braking away from the surrounding environment, high concentration and not paying attention to the time that passes. Absorption here signifies the working for an institute with immersed in work, happily performing at workplace and forget everything when they are at work. A high-level absorption will result in better performance, because absorption represents an attitude of concentration and seriousness in work [4].

The literature review found that very little literature reviews has been done on the operational technology application in the global context. The topic of the Effect of Operational Technology Application on Employee Engagement in the Bag Manufacturing Industry in Sri Lanka has not been researched before. The Firstup (2022), indicates the employees have to involve their works, enthusiastic about the organization they work for, have a sense of belonging and be afforded flexibility around schedule and location and easiness doing works. Hence, the employee engagement and the technology application has a relationship is a positive impact of technology application on employee engagement. Technology has given influence to an organization, not only the organization, but the influence extends to employee engagement [23]. As an examined of the study, have to realize there is strong positive relationship with technology and employee engagement for their operations in bags industry.

V. CONCLUSION

It is evident that there exists a positive relationship between employee engagement and technology application. The impact of technology application on employee engagement is indeed positive. In the context of the bag manufacturing industry, technology application can be effectively gauged through the lenses of User Involvement, and this is closely tied to the training provided for the handling of specific technologies. Employee engagement, on the other hand, can be comprehensively measured by considering three vital dimensions: vigor, dedication, and absorption. These elements collectively provide a robust framework for assessing and understanding the level of engagement among employees in this industry. This interplay between technology and employee engagement offers valuable insights for enhancing workplace dynamics and productivity in the bag manufacturing sector.

VI. RECOMMENDATIONS

Given the absence of any existing studies on this particular topic within the context of Sri Lanka, it is highly recommended that further research be conducted to investigate and understand the impact of technology application on employee engagement in the bag manufacturing industry. This research gap presents a valuable opportunity to delve into unexplored territory and explore the complex dynamics between technology adoption and employee engagement within the Sri Lankan context.

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