ARTIFICIAL HUMAN RESOURCE IN MSME

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Dedication

My thesis is dedicated to the fellow researcher and visionaries in the field of Human Resource Management, whose groundbreaking work in finding a perfect alignment and utilization of artificial intelligence and automation is reshaping the future of work. It is also dedicated to all the individuals and organizations who are embracing these innovations to create better, efficient, and inclusive workplaces. May this research also contribute to all the potential of AI powered human resources management systems in shaping a better tomorrow for both technology and humanity.

Lastly, I would like to express my gratitude to my family and friends, whose unwavering support and belief in me have been constant pushed me towards completing this journey.

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ABSTRACT

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This dissertation explores the adoption, challenges, and benefits of artificial intelligence (AI)-powered Human Resource Management (HRM) tools within India's Micro, Small, and Medium Enterprises (MSMEs). Critical economic contributors, MSMEs face significant HR challenges due to limited resources, informal HR practices, and constrained technological adoption. AI-powered HRM tools present a promising solution to these challenges by automating processes, enhancing decision-making, and improving employee engagement. This study investigates these tools' acceptance levels, limitations, and advantages among MSME business owners and employees while addressing demographic and organizational influences.

A mixed-methods research design was employed, combining quantitative data from a survey of 200 respondents and qualitative insights from focus groups. Quantitative findings reveal high acceptance levels, with over 70% of participants rating AI tools positively for their ease of use, efficiency, and recruitment capabilities. These tools demonstrated strong potential in enhancing recruitment efficiency, delivering personalized

training programs, improving decision-making with predictive analytics, and reducing operational costs.

However, the study identified critical limitations, including technical challenges, cost barriers, skill gaps, and privacy concerns. These barriers were more pronounced in micro and small enterprises, where resource constraints were most significant. Correlation analysis revealed interdependencies between these limitations, underscoring the need for holistic solutions such as cost-effective pricing models, targeted training programs, and robust data security measures.

The findings emphasize the demographic trends in AI adoption, with younger professionals (aged 26-35) and employees in smaller enterprises showing the highest engagement. The study concludes that while AI-powered HRM tools offer transformative potential for MSMEs, addressing adoption barriers is essential for their widespread and practical use. By leveraging these tools strategically, MSMEs can enhance operational efficiency, workforce management, and long-term sustainability. This research provides valuable recommendations and lays a foundation for future studies exploring the integration of AI in HRM practices for MSMEs.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I:

INTRODUCTION

1.1 Introduction

Micro, Small and Medium enterprises (MSMEs) are a major part of global economy and are drivers of innovation while it contributes in creating jobs for millions globally. But because these enterprises do not have enough money as compared to bigger corporations they do need help on management of their human resource. Given the fact that effective HR practices plays a great role to the growth and sustainability of MSMEs, recruitment, retention and employee productivity are affected.

Artificial intelligence (AI) evolution is transforming the way HR practices would be in MSMEs. The routine tasks and the analytical insights which can help the better decision making process while the employees engagement can also be enhanced for the MSMEs with limited HR capabilities through the use of AI. The integrating of AI in the MSMEs HR practices is the focal point of this dissertation in order to know the level of adoption of AI in HR functionalities, where this dissertation also adds more on he impact on the MSMEs HR functionalities.

The biggest challenge in adopting AI in HR is that it also has disadvantages. They include cost of implementation, need of technical expertise, and resistance of employees to change. However, this research attempts to do so by exploring the opportunities and hurdles, to give a balanced take on AI's use in modernising HR practice in the MSME environment.

This serves to prepare the reader to move on to the forthcoming chapters that will tackle the literature review, methodology, findings and conclusion in detail. This study aims to make more strategic use of AI in HR integration which would improve the operational efficacy and competitiveness of MSMEs.

1.2 Overview of MSMEs

Micro Small and Medium Enterprises (MSMEs) are critical for economic growth and stability in emerging markets as they account for vast proportions of employment, gross domestic product (GDP), exports and innovation in emerging markets. MSMEs can be described as the 'engine of growth' in many emerging economies, given that it accounts for a significant portion of industrial enterprises and plays an important role in industrial development. For reference, MSMEs lead manufacturing output of 45% and 40% of the total exports in India. The participation of these enterprises in the generation of employment cannot be denied, as there are over 60 million people working in this sector alone in India, (Gautam&Sondhi, 2020),(Hongal, 2014).

MSMEs also contribute towards promoting equitable development by missing the region gaps. It promotes the industrialization in the rural and underdeveloped areas which lessens income inequality and offers opportunities in places sighted by large scale industries. As a result, the degree of decentralization has made to ensure a fairer distribution of wealth that will limit poverty (Dixit, 2015).

Main advantage of MSMEs is that they are resolute in economic slowdowns. Contrary to large corporations, MSMEs are typically more flexible in adjusting the market changes as well as able to maintain operation during financial recessions. Such agility allows them to stabilize local economies by keeping production and employment levels when other sectors do not. It was especially this resilience that saw their role as dampening the effects of economic downfalls and emerging markets (Chakravarthi&Rao, 2015).

MSMEs are also good at innovation and entrepreneurship. Across emerging markets, they exercise their inventive powers on emerging ideas and new technologies. MSME played an important role in strengthening competitiveness and product and services diversification, both in domestic as well as in international market, by fostering creativity

and promote local entrepreneurship. Economic dynamism is driven by this drive for innovation in order to help MSMEs cope with globalization and also competing on the market (Tumiwa& Nagy, 2021).

Despite these strengths, MSMEs struggle to gain access to finance, have outdated technology and are up against bigger players in the market. Supportive policies, access to credit and technological integration can go a long way in overcoming these barriers to make the ECD enterprises better contributors to economic development. As long as gained the proper support, MSMEs can keep on fueling sustainable development, create jobs, diminish poverty and stabilise economies in emerging markets.

1.3 Human Resources in MSMEs

There are major obstacles that hinder MSMEs from effectively executing effective human resources management practices (HRM), ultimately affecting their capacity to draw and keep experienced human resources. A major problem is that more financial resources are required. Budget constraints in MSMEs tend to keep their wages and benefits much less competitive. Taking into consideration this, MSMEs are disadvantaged compared to big organizations that can offer it as they can present better salaries, integrated benefits, and job security (Suprayitno, 2024).

A big problem is that there are simply too many unstructured HR practices. A lot of MSMEs require separate HR departments, which is not just to recruit, train and monitor staff, but also stagnates when managers do it via informal or through overburdened managers. Incomplete systematic Human Resource (HR) management gives rise to inefficient methodologies for identification and development of talent resulting in the organization not being able to produce a suitable much less committed workforce (Agarwal, 2011).

One of the frequent problems of career development opportunities in MSMEs. Due to lack of clear career paths or a robust and developing training and development programs, employees tend to see little room for growth in these organizations. One of the drawbacks of PPP is that skilled workers who have been promoted for their long term growth and development rates have higher turnover rates as they look elsewhere (Agyeman, 2014). Loss of key employees has an adverse consequence, which includes disruption of operating conditions, loss of institutional knowledge, additional cost of frequent recruitment and training.

Technology adoption is another challenge. Most of the MSMEs require assistance in using the modern HR tools like Human Resource Information Systems (HRIS) and implementing them into their operating system. This shortage of technological advancement will not allow them to streamline HR functions such as recruitment, performance evaluation, and employee engagement, which are important in successful workforce administration. Such tools are often avoided and efforts are made by them to stay in competitive market, which becomes themselves inefficient (Gani et al., 2024).

Additionally, MSMEs also require assistance in building a strong employer brand in order to attract good quality candidates. Organizations with a larger size are able to present themselves as good employers because they can provide better work environment and improve concepts of professional growth. However, MSMEs may require visibility and a mechanism to enhance their peculiar strength, for example, flexible work environments as well as chance for diversified responsibilities (Nawangsari et al., 2023).

All these challenges cumulatively make MSMEs unable to attract and retain skilled people, undermining the long term sustainability of MSMEs. This high attrition has its own inherent disruption problem that causes frequent disruptions to operations and elevates the workload on other staffers, blasting morale and diminishing productivity as a whole. To

address these problems a strategic choice within adopting flexible compensation strategies, robust HR practices, training employees, and technological advancement to streamline operations would be necessary. Organizational culture and employer brand building can give MSMEs the ability to position itself as a desirable workplace to better compete for talent in a very competitive labour market.

With such efforts, MSMEs are capable of making an enormous leap in their human resource capability and become a real component of the growth and sustainability of companies in competitive and dynamic markets. I will be happy to assist you further with MSME HR management inputs if you wish.

1.4 Introduction to AI in HR

More and more artificial intelligence is becoming the artery that brings in various changes in Human Resource (HR) practices in Micro, Small, and Medium Enterprises (MSMEs), particularly in the way of work workforce managements, decision-making in the company and raise efficiency of the operation for more entire company. Most of these enterprises have only limited budget, resource limitations, or no dedicated HR staff, which makes that they become vital tools to overcome these restraints using these enterprises. In this day and age, AI is taking the control over this and is automating the routine tasks, providing data-driven insights and making better planning, all of which is enhancing the management of human resource in modern MSMEs.

However, the most profound change that AI brings is to recruitment process. Recruitment methods that rely on resources and time become obsolete by AI tools that can automate these aspects in the hiring process. Through their character and capability to screen through large candidate volumes, analyze the data of candidates, and finally shortlist the top fit kind of applicants, these systems work to reduce biases and increase hiring

efficiency. With AI, candidates are also better engaged through tools like chatbots which are real time assistance, schedule interviews and answer queries thus making for a better and smoother candidate experience. Presently, this streamlining of recruitment processes is especially relevant to MSMEs because these enterprises often require a greater use of time and resources than with larger organizations (Das et al., 2023).

MSMEs' workforce management is also revolutionized by the use of AI's predictive analytics and optimization tools. The predictive analytics use should be applicable to forecast staffing needs, identify the risk of attrition in the workforce, and uncover requirement of future talent. For example, AI systems can look at the past and predict turnover trends, and recommend how to be proactive about retention. Just like these, operational demands must be met, efficiently and at the least cost, and the use of optimization tools streamlines tasks like shift scheduling and resource allocation. These capabilities of are allowing MSMEs to take informed decision regarding the workforce and improve productivity with reduced expenditure (Tyagi et al., 2023).

Performance management and employee development also benefit significantly from AI integration. Performance evaluations are traditional and hence is suffering from subjectivism and inconsistence, which further making the employee dissatisfactory and disengaged. However, AI driven system brings in continuous feedback mechanism, real time performance level, and data backed evaluation. With these systems, skill gaps are identified and then responding with the personalized training programs associated with filling in the skill gap based on the employees needs. AI's synergy with an aspiration to training and organizational goals makes it an ideal culture for encouragement of continuous learning and development of employees and retains high employee satisfaction. (Ganatra, 2024).

Another role that AI plays is to transform HR's decision making process as it allows the organization to make profound decisions based on real time ability to analyze large datasets. As it takes data as an input, MSMEs are able to create evidence based policies, forecast workforce trends and evaluate within HR strategies. For instance, the use of AI can help it analyse employee pattern behaviours, anticipate performance outcomes, and make changes for the betterment of engagement and efficiency. These capabilities enable HR professionals and the leaders of the organization to make better decisions based on HR functions aligned with general business objectives (Zhang, 2024).

The personalization based on AI is driven further to assist with employee engagement and retention. And with AI data analysis of employee data, push personalised engagement initiatives that make employees feel the love, leading to loyalty and morale. For example, AI can suggest personal benefits, recommend what could motivate an employee to continue to grow in his or her career, or even predict when an employee might be thinking about leaving in order to intervene at a more opportune moment. These strategies improve employee experience as well as reduce turnover costs, making it a major advantage for MSMEs with limited resources available to them (Kulshrestha, 2024).

Actually, it is quite challenging to use AI in HR. Data privacy concerns, lack of data and an incapacity to upskill its HR professionals are the main hurdles the MSMEs must hurdle to gain the most from AI's potential. For building trust from employees and other stake holders, ethical considerations such as transparency and accountability in the decisions using AI are very important. Despite these challenges, the benefits of AI integration—ranging from enhanced efficiency and fairness to improved employee satisfaction—highlight its transformative potential in MSME HR practices (Aini et al., 2024).

1.5 Potential of AI in MSMEs

Artificial intelligence (AI) tools made more available and scalable due to the advancement in these tools in the past few years makes it possible for the Micro, Small and Medium Enterprises (MSME) to adopt it. In many respects, especially Human Resources (HR), AI reshapes operational performance as well as employee engagement. With the use of the cloud computing, the software as a service (SaaS) platforms and user friendly platforms, MSMEs can integrate AI technologies also without the big resource and technical knowledge.

- Enhanced Accessibility and Scalability

The costs involved and the deployment have been made easier with decreasing costs of deploying AI, according to Wi-Fi in Latin America. SaaS platforms and cloud based solutions take away the cumbersome task of procuring expenditures and expensive infrastructure so that the MSME's can utilize the hi tech HR tools without high up front investment. Obviously, these tools handle capabilities such as workforce planing, workforce management, employee engagement etc from recruitment till lifecycle management of the workforce. As an example of this, human resource management systems (HRMS) equipped with AI are ready to give flexible and scalable solutions that are scalable enough to change with the growing organization's needs. Dasari & Sujatha (2023) considered such systems to be a feature of large corporations and features of such systems are real time analytics, automated processes and predictive modelling.

The user interface design and usability barriers are lowered even more. Nowadays, there are many AI tools with their intuitive dashboards and automation capabilities, which makes HR teams able to deploy and manage the tools without any training. It is essential for MSME HR professionals, who often wear many hats and don't have dedicated resources for specialized systems (Martynenko&Tokar, 2024).

- Impact on Operational Efficiency

HR has used AI to automate the repetitive, time consuming tasks so that automation can be made in operational efficiency. Thus, for instance, with great candidate pools, AI algorithms can assist with recruitment by facilitating speed up of selection process and assist in selection of the most appropriate applicants. This automation cuts down on hiring time and imbues human errors at the same time and tools such as the chatbots enable better communication with the candidate, also scheduling interviews, as well as providing real time updates (Jafri et al., 2024).

MSMEs use predictive analytics to schedule their workforce and forecast the need of the same, as well as highlight workforce attrition risks while planning on workforce planning. On the flip side, AI driven solutions helps in improving onboarding by providing an automation on submissions and onboarding programs which are quite inherent for each user. Organizational policies being adhered; however, new hires are integrated faster (Tyagi, et. al., 2023).

- Enhancing Employee Engagement

By using AI tools, employees will be able to facilitate enhancement on their engagement as they will be able to maintain personalization of the experience in the workplace. The use of sentiment analysis and movements of behavioural data can be leveraged to learn what employees want and need in order to enable more personalised, engaging and more tailored to the individual employee needs and preferences, initiatives. An example of such AI based platform is that it suggests the career development path and training possibilities for that employee based on such employee's goal and an organization goal (Samman& Al Obaidly, 2024).

In addition to chatbots and virtual assistants of AI power, communication becomes friendlier as they help people to easily get the instant support to queries of the employees, and other means of communication that lead to smooth flow of information. The use of

these tools assists the participation of the workforce through prompt response to sheer as well as supporting atmosphere that is transparent (Malik et al., 2022).

- Future Trends and Projections

This means that more tools blending AI that can forecast future trends, and help to handle the workforce's work life to enhance training, will come. We think NLP and ML innovations are perhaps to lead to far deeper explicitations of employee behavior and hyper personal engagement strategies that result. This will help MSMEs to forecast such events like loss in productivity or turnover risks (Kulshrestha, 2024).

But there are also challenges to them. Although algorithms might not be their preference, they remain concerned about data privacy, algorithmic biases and ethical issues. In order to solve these issues in a responsible use of AI in HR practices (Benabou et al., 2024), robust governance frameworks and transparent algorithms will be needed.

1.6 Research Problem

India's micro, small and medium enterprises (MSME) have had a challenging and untapped human resource management landscape, which influences the way in which the organization is run in these small units where human resource plays an immense role in taking the business forward. MSMEs contribute significantly to India's GDP and employment, although, more so due to their typically under equipped HR departments – largely because of the management structure behind it, most of which is held by a single individual or a small group. A lack of sophisticated HR capabilities further hamper these enterprises from recruiting, training and keeping good talent; it hinders their growth and survival as well as their ability to manage change in the technological advances. Based on this, we believe integrating Artificial Intelligence (AI) in Human Resource (HR) practices will bring a huge transformation, automating routine tasks, improving workforce

management and allowing for making fact based strategic decisions. Despite this, MSMEs have the ability and the capacity to adopt such advanced technologies, as well as these integrations are able to be done effectively or not.

Therefore, the main research problem is to assess the ability of AI to solve the deficiencies of HR management in MSMEs to make the processes more efficient and less biased and which are the barriers of adoption of AI and consequences onto business operations. The gap that this study looks to fill is by analyzing in depth the ways that AI can help in bringing HR practices in the MSME sector to a whole new level of revolution involving the acceptance of such concepts by business owners and their employees and its more far reaching effects on the growth and competitiveness or an organization in the market.

1.7 Purpose of Research

The primary aim of this research is to meticulously evaluate the readiness of micro, small, and medium enterprises (MSMEs) to integrate artificial intelligence (AI) into their human resource (HR) management practices. MSMEs play a crucial role in the Indian economy by contributing significantly to employment and GDP. However, these enterprises frequently need help with HR management due to their limited resources and the absence of sophisticated HR systems. This study seeks to explore the transformative potential of AI in alleviating these challenges, specifically focusing on how AI can streamline recruitment, training, and overall workforce management processes.

- Detailed Goals Include

Research on Assessment of AI Adoption Readiness: The research will explore the state of the art current landscape of AI adoption in MSMEs specifically in the HR domain. The objective is to verify the degree of acceptance and readiness of AI adoption at the

MSME owners as well as with their employees. This involves revealing the nature of perceived benefits towards AI and fears of adopt AI technologies and producing a less subjective estimation of the variables impacting the decision to incorporate AI technologies.

Study Methodology: The key aspect of the study is to identify and document the different barriers which hinder AI adoption in HR practices of MSMEs. That involves looking hard at technological, financial and cultural challenges as well as staff and management resistance. The research will examine ways to circumvent these barriers and how to take measures to increase the ease with which AI technologies are adopted in HR management.

The research will explore the benefits of AI in HR and specifically explores the various benefits AI will offer in HR functions in MSMEs. And it will ensure that we have evidence-based insight of how AI can improve efficiency of recruitment processes, accuracy in employee evaluations and employee engagement. The study intends to illustrate these benefits to prove the potential of using AI to make HR a more strategic and data driven function for MSMEs.

On the whole, this research, therefore, aims to present a thorough analysis which shall contribute to academic knowledge and give practical advice to MSMEs when utilizing AI in their HR practices. The findings will inform their decision as to whether or not to incorporate AI technologies into their operations and make their HR functions better. The purpose of this study is to deepen his understanding on the role of AI in modernizing HR management and supporting sustainable MSME's growth in the competitive market.

1.8 Significance of the Study

The importance of this study lies in the fact that it considers artificial intelligence (AI) as an enabling factor in the human resource (HR) practices integrated in micro, small

and medium enterprises (MSMEs), a core sector in India's economy. The research aims to provide a comprehensive analysis on the potential that AI can bring to change the HR function, called potential that can be implemented into several stakeholders in the society: MSME owners, HR professional, policymakers, academics and society. This research is particularly useful for MSME owners and managers who are starting to use AI in HR processes like recruitment, training, performance management of employee, talent retention strategy, helping them how AI can effectively be utilized as a tool to optimize their HR processes, improve efficiency, reduce costs, and make better decisions with insights driven by data.

The study introduces the tremendous impact of AI on HR management and HR optimization, and therefore presents a blueprint for HR professionals to enhance their practice with AI to embark on a career growth. Findings ultimately prove to be useful for policymakers to formulate policies to encourage technology adoption within the MSME sector, offering such options that have evidence base to inform on the technology diffusion initiatives. The research provides a key gap that is academically by filling with the current understanding of the role of AI in organizational behavior and HR management and within emerging markets and small business environments. Such research would punch through into academic inquiries into the longer term repercussions on organizational culture and employee behaviour from AI. The research on a social level shows how improving HR practices through the use of AI in MSMEs would mean a better workplace for workers, increased worker satisfaction and decrease in turnover rates that could result in a more stable and productive among workers, and hence, create the background for broader economic stability and growth. Improvements in this sector, which are MSMEs, can have an effect on the nation's employment rates and overall performance of the economy.

1.9 Research Questions

1. How have recent advancements in artificial intelligence enhanced the accessibility and scalability of AI tools for MSMEs, and what impact does this have on their HR practices in terms of operational efficiency and employee engagement, according to current trends and future projections?

2. What are the primary challenges faced by MSMEs in developing effective human resource management practices, and how do these challenges impact their ability to attract and retain skilled talent?

3. How do micro, small, and medium enterprises (MSMEs) contribute to economic growth and stability in emerging markets?

CHAPTER II:

REVIEW OF LITERATURE

2.1 Introduction

The literature review serves as a foundational element of this dissertation, aiming to systematically explore and synthesize existing research on the integration of artificial intelligence (AI) into human resource (HR) practices, specifically within the context of micro, small, and medium enterprises (MSMEs). This chapter critically examines the relevant literature, focusing on understanding the current landscape of HR management in MSMEs, the advent and impact of AI technologies in this field, and the specific challenges and opportunities these technologies present to smaller business entities.

The purpose of delving into these scholarly and practical resources is twofold. First, it establishes a theoretical and empirical backdrop against which the study's hypotheses and inquiries are framed, ensuring that the research is grounded in a robust academic context. Second, it identifies gaps in the existing body of knowledge, particularly highlighting areas where the application of AI in HR within MSMEs has yet to be thoroughly explored or understood. By mapping out these territories, the literature review not only contextualizes the significance of the study but also delineates the trajectory for potential future investigations.

This chapter sets up first by defining MSMEs and indicating the economic significances, then it investigates the operational challenges of MSMEs with a higher focus on HR. Then, it discusses the traditional HR practices within these enterprises, including current problems and inefficiencies that could be issues for focalization for AI intervention. Later sections then discuss the introduction of AI to the HR domain and review developments in technology and its application in big corporations before a focus on its applicability and fit into the MSME space.

After examining the benefits and the potential pitfalls of AI use in HR practices from a literature review, supported by empirical studies, expert opinions, and case studies describing these technologies in real world applications and consequences, this thesis proposes a taxonomy of the most relevant applications of the AI in HR practices to be investigated in the empirical study. It also contains theoretical approaches for the adoption and integration of innovative technologies in organizational context, especially in small and medium industries. The chapter attempts to review these elements comprehensively in order to give us a well rounded understanding of the current state of the use of AI in HR in MSMEs, and upon which the research questions for this study are based.

2.2 Overview of MSMEs

Micro, Small and Medium Enterprises (MSMEs) are central to national and global economies being formers of employment, innovation and regional development. Features of their unique structure and management greatly impact their human resource practices that play an important role in sustaining operational efficiency and growth. Usually, financial and technological constraints limit these enterprises to determine their HR policies including the recruitment strategies and the employee engagement methods.

A lack of formalized HR practice necessitates more characterization of MSMEs due to their size and limited resources. A lot of MSMEs often do not practice formal practices in conducting their HR function but concentrate more on immediate operational needs rather than long term strategic planning. Its informality means that they would often respond by providing low cost, flexible and adaptable systems to support the unique facilities of small enterprises. Despite this, there are occasions when these practices may not be as consistent, with possible consequences of inefficiencies in recruitment, training and employee retention (Bhattacharjee & Sinha, 2015). Recruitment process in MSME is

localized — considered mostly on word of mouth referrals and informal networks which limited the pool of talent diversities and quality.

The defining factor in the HR strategies of MSMEs is the resource constraints. They lack the ability to pay competitive salaries, conduct a good training program and use modern human resources technologies based on limited budgets and technological capabilities. However, in this case, many MSMEs believe that employee engagement could be achieved through collaborative work environment and team building. Such efforts compensate for the lack of financial incentives, and therefore help the employees to feel belong and loyal to the firm (Trikurnian & Fridayani, 2024). Training programs are another area in which MSMEs seek to improve the capabilities of its work force, though to lesser extent, in a more task specific and hands on approach.

Other characteristic of MSMEs are the personal involvement of owners in the management. The actions of the owners of the business to influence HR decisions directly or through personal employees management with an emphasis on personalized approach with regard to the composition of the staff. This owner driven model also entails a barrier towards standardized HR practices and this may impact future growth and scalability (Wulandari & Koe, 2023).

MSMEs play a significant role in economic stability and growth beyond the boundaries of the organization. In labour intensive sectors, it is a large employment provider for these enterprises. Making MSMEs an important element of national employment and poverty alleviation is evident from the fact that there were over 119 million people employed in MSMEs in Indonesia in 2019 (Sunarti et al., 2023). Additionally, the contribution of MSMEs in economic diversification is made through promotion of innovation and weakening dependence on corporate giants. This adaptability further ensures resilience when there is an economic downturn (Joeliaty, 2024).

Moreover, MSMEs are adopting sustainability approaches to their operations, besides their economic contributions. For example, eco friendly recruitment, training and retention are taking shape among MSMEs as an MHR approach. Environmental performance and employee satisfaction and organizational reputation would be enhanced through these practices (Hamidah et al., 2024). Such initiatives indicate the MSME potential for aligning the business objective with the societies and environmental objectives.

This has even seen their growth in furthering HR formalization and scalability still lagging behind compared to their contribution. For addressing these issues, we need to address it with intervention like financial support, adoption of technology and training programs. Additionally, policymakers and stakeholders should promote formalization of HR practices that would not compromise the paradox of MSME flexibility. MSMEs can improve their operational efficiency,_not_to boost to some business performance by going hybrid, through structured but adaptive systems of HRs.

2.3 Current HR Practices in MSMEs

Micro, Small, and Medium Enterprises (MSME) adopt their distinct human resource (HR) practices that are based on their size and the level of resource limits as well as the approach of management. As with many of the practices associated with the informal economy, informal recruitment processes, flexible workforce management, minimal training programs, and owner driven decision making typify these practices. With constrained resources and absence of structured HR system, recruitment in MSMEs is usually driven through locally and informally networks. While this tempering of the hiring costs, doesn't make it easy for tap into a diverse and skilled talent pool. In such enterprises, flexible scheduling and multitasking provide the means for response to market demands in a quick fashion, as occurs in the case of dynamic sectors such as the creative industries.

Training and employees development are rarely systematic and remain ad hoc; this approach is extremely cost-effective; however, comes at the expense of long term development & growth of skills. In addition, HR decisions in MSMEs are centralized and business owners play a direct role in making decisions, therefore personal approach on HR practices; However, HR practices will be less scalable. In addition, because of the financial constraints MSMEs face, the compensation and benefits offered are usually minimal, which makes the MSMEs unable to attract and maintain the best highly skilled personnel.

Although these HR practices have an influence on the performance or growth potential of operation, yet they have challenges associated with them. Through informal HR systems, the recruitment, training and the performance management processes are consistent and inefficient resulting in organizational productivity. Another factor that affects Adoption of advanced HR strategies (e.g. elaborate training programs and engagement tools), adds to retention problem. The high attrition rate, low compensation and limited growth in terms of career means lack of continuity which increases the cost of recruitment. Furthermore, most MSMEs rarely adopt HR Technology, for example Human Resource Information System (HRIS), only to run successfully and efficiently in future. These challenges have a great effect to the operational performance and potential growth for MSMEs. This dependence on informal recruitment practices makes it impossible to hire skilled workers and therefore affects employee productivity and innovation. Employee turnover is high and disrupts operations, costs increase, profit reduces; there is no structured training program thus failing the organization to cope with market changes. Yet, its adoption ensures that the employee satisfaction increases and the organizational performance improves in the case of MSMEs that have adopted innovative HR practices like flexible work environment and the employee engagement initiatives. This is an example of how sustainable HR practice such as online working and managerial support

enhances employee well being and retention in the organization, leading to organizational growth and resilience. Strategic human resource interventions can address these challenges to enable growth potential for MSMEs and help keep the sector playing a part in the development of the economy.

2.4 Introduction to Artificial Intelligence in HR

While Advance technologies such as machine learning (ML), natural language processing (NLP), and predictive analytics can be termed artificial intelligence, (AI), they are in reality helping human resource (HR) management. Now, these tools are helping the organizations streamline processes, enhance the employee engagement and facilitate the decision making. Key areas in which HR can make use of AI include recruitment, workforce management, employee engagement. An illustration of this would be machine learning algorithms which can study huge datasets to forecast results like employee turn over or workforce productivity but are capable to make data powered decisions. To apply NLP is to make AI understand human language, which is essential for resume screening, sentiment analysis, and chatbots among others. At its essence, ML feeds into the practice of predictive analytics, which enables organizations to predict future trends regarding workforce in terms of staffing needs or training requirement, among others for prior stakeholders to plan accordingly. Also, RPA automates processes like payroll management and benefits administration thus allowing HR professionals to focus on the strategic activities. Sentiment and behavioural analysis tools also help in employee management by assuming the morale and detecting inefficiencies (Ahmad & Schroeder, 2003; Bhattacharjee&Bhattacharjee, 2015).

Early adopters of AI tools in HR are larger corporations that use the machinery to tackle HR issues that are complex. Many large organizations also use AI-backed applicant tracking systems (ATS) on the way to automating the hiring process. It analyzes thousands

of resumes, ranks candidates on how fit they are based on the criteria defined by the company and they can even perform initial screenings. For instance, Unilever uses AI to pull recruitments to a fast lane by using AI gamified assessment and AI processed video interview resulting in better quality candidates and shorter time to hire. Personalized support by AI also helps employees engage and well in the organization. For example, Microsoft Viva Insights is a tool leveraging AI to study behavioural data and generate actionable recommendations in terms of the level of productivity and morale. For instance, with chat bot, which is used by IBM, there is quick response to employees' queries; this improves on HR communication. AI driven systems in performance management provides continuous feedback with regards to performance and flag high potential employees for personalised development plans. Just as adaptive learning platforms adjust the training programs to the needs of each employee, so do these programs tailor the training programs to the individual employee's needs and help to develop skills fitting the needs of the organization. AI also helps organizations do its workforce planning by forecasting this staffing needs and allocating resources to optimum. Moreover, in terms of hiring and promotions, AI helps remove such biases through reviews of anonymized resumes and language analysis on job descriptions. Recruitment and training technologies lead to HR efficiency improvement and improve the whole employee experience (Dutta et al., 2024; Gani et al., 2024).

Though big corporations enjoy sophisticated AI tools like SAP SuccessFactors and Workday but MSMEs have trouble adopting such technologies as they lack of funds and technical skill. MSMEs on the other hand typically rely on simpler, more cost effective solutions that work with the scale of their organization, whereas large organizations leverage AI's scalability for getting complex HR needs catered. However, with the

challenges mentioned above, the potential of AI in bridging MSME's operation gaps still large to be adopted by MSMEs in the future (Sutomo et al., 2023; Nurianna et al., 2023).

2.5 Adoption of AI in MSME HR Practices

Aware of the role Artificial Intelligence (AI) can play to make the MSMEs' operational efficiency, talent management, and strategic decision-making, HR practices by them are increasingly holding the uses. But, they differ greatly by technological infrastructure, financial resources and organisational culture as far as MSMEs' readiness and adoption rate of AI. There are studies of MSME readiness for AI adoption in developing countries, especially in the automotive and manufacturing sectors with moderate level of readiness. For instance, Patil et al. (2023) indicated that although MSMEs perceive the advantages of AI in simplifying Human Resource processes, such MSMEs are not able to achieve maximum utilization of the AI capabilities due to lack of advanced technology as well as necessary skills. Like this, Budiraharjo et al. (2024) also argued that Indonesian MSMEs should benefit from targeted strategies to be ready in using AI, such as updating digital literacy and strategizing to implement AI in their business. Further, Singh and Pandey (2024) stated that the success of AI adoption related to HR function depends on strong digital leadership, collaborative organizational culture, and reliable HR data.

While such opportunities exist, implementing them in their businesses is hindered by several barriers that might impede adoption in MSMEs. Important obstacles are technological, including a lack of IT infrastructure and low levels of digital literacy and this is due to the adoption of a DRM TICTOC. As the complexity of these technologies (Gani et al., 2024) is high, many MSMEs need help in integrating AI solutions into their existing HR systems. Furthermore, high implementation and maintenance costs limit the ability of MSMEs to spend on AI technologies or to appoint skilled individuals to manage

them (Dinmohammadi, 2023). There are other critical barriers: Cultural and organizational resistance. Lack of awareness regarding the benefits of AI has made people sceptics while employees tend to be concerned about job displacement due to automation (Amaleshwari & Shanmugapriya, 2024). Also, problems with data underlie the performance of AI systems: poor data quality and privacy issues hinder the effectiveness of AI systems that heavily depend on good quality datasets to reveal accurate thoughts (Kachalla&Adamu, 2024).

These barriers exert a great and negative effect on the performance and the growth potential of MSMEs. A lack of ability to adopt AI technologies to their competitive advantage reduces their ability to remain competitive in a very competitive marketplace. Lacking good technological infrastructure and financial means, MSMEs are unable to implement AI driven solutions for decision making, and consequently employee engagement. Slowness of Digital Transformation courtesy of resistance to change and a sense of digital illiteracy renders them insufficient to reap the benefits of AI Integration. Lack of adequate datasets and privacy issues prevent the use of data to drive the way insights are used to optimize HR outcomes.

Several strategies suggested by the researcher and the practitioner aim to overcome these barriers. Government subsidies, low interest loans as financial incentives can in part cushion the financial burden that AI adoption affords MSME. To counter resistance and foster employee 'AI pro fitness', it is important to develop some training programs with purposeful goal of boosting employees' digital literacy and AI proficiency. By developing accessible and user friendly AI solutions for MSMEs, which are in line with their needs, adoption of such solutions will be easier, especially where resources are lacked. Finally, to overcome resistance in integrating AI technologies in organizations, a culture of innovation and collaboration in organizations is mandatory. Challenges facing MSMEs in AI and also

the implementation of these strategies and address these challenges would unlock the full potential for MSME's AI potential to improve HR practices, improve operational efficiency and lead to a sustainable growth of MSMEs.

2.6 Benefits of AI in HR Management

Artificial Intelligence (AI) is shaking the Human Resource (HR) management with the introduction of dynamised one such HR practices like recruitment automation, employee analysis, and performance management. The use of AI driven automation to automate the recruitment processes has been a big gain, where it reduces the time and effort needed for tasks such as resume screening, candidate shortlisting, interview scheduling, and others. For instance, AI powered applicant tracking systems (ATS) help in candidate sourcing and also helps in matching. As mentioned by companies like Unilever, it is possible to use AI to evaluate candidates through gamified tests and video interviews analyzed with the help of machine learning algorithms, achieving faster hiring and an improvement in the quality of the candidate. In addition, Chatbots like Mya and Olivia enhance the recruitment experience further by allowing real time communication with applicants and decrease application-related drop offs during the application phase (Tyagi et al., 2023).

The ability of AI to do employee data analysis lies in the ability to process large volume of data to find actionable insights. Predictive analytics can predict turnover rates, identify skills gaps, and suggest training programs based on the results. SAP SuccessFactors and IBM Watson make it possible to personalize employee career development plans and assure that each individual goal fits within the company's overall game plan. Real time visualizations are provided by AI dashboards; if complex data is presented and properly interpreted, then very, very good decision making takes place. Furthermore, sentiment analysis tools measuring employee satisfaction by analyzing

survey response and internal communication trends give HR an ability to act proactively to resolve dissatisfaction and burnout (Shenbhagavadivu et al., 2024).

AI helps in another part of performance management as well. AI based system automates the feedback collection; then track key performance indicators (KPIs); and then finds a high potential employee. Currently, some AI enabled adaptive learning platforms are already empowered to deliver and customize training programs according to the roles of the learner and performance thus allowing targeted skill development. AI can also predict future trends that will occur in the existing business performance and it can also help in planning succession of workforces so that it aligns with business strategizes along with their capabilities. Suppose that Siemens uses AI-driven tools that leverage performance management to feed employees with continuous feedback; the productivity and employee's engagement improves (Chandratreya, 2024).

The cases show that AI can be scaled down for HR practice of large organisations and MSMEs. An Indonesian MSME, PT Semen Baturaja adopted AI in recruitment processes and performance appraisals through which they were able to improve efficiency, accuracy and employee engagement. In the same way, the integration of AI at SMBR met with a high degree of personalization in the training and real time performance tracking to ultimately improve the workforce retention and readiness. These are some examples that demonstrate that despite resource constraints, the opportunity for significant benefits from MSMEs can be generated with the help of tailored AI applications (Bakar et al., 2024; Manoharan, 2024).

However, although these advancements, adopting AI for HR functions still marred with numerous challenges. Still, barriers to implementation of RAD include high implementation costs, technological complexity, resistance to change, and a reluctance to change which continues to be a major challenge to smaller organizations. Moreover, it also

has to be addressed whether the AI in HR processes is ethical or not—whether there is any algorithmic bias or is the data privacy in question. To mitigate these risks and harness potential of AI technologies, it is crucial to have a robust governance framework and compliance measures (Du, 2024).

2.7 Challenges and Limitations of AI in HR

Micro, Small and Medium Enterprises (MSMEs) face special problems and ethical considerations of the adoption of Artificial Intelligence (AI) in Human Resource (HR) practices. There are technological, financial and cultural barriers that render implementation unsuccessful. Many MSMEs lack the infrastructure, the capability to integrate the AI into their operation equally smoothly. (Dasari & Sujatha, 2023) There is a fair degree of complexity in AI systems, along with the need for aligning them with existing HR processes, which makes adoption in smaller organizations with limited resources particularly challenging. But financial constraints are an equally important factor, as acquiring, maintaining and training staff on AI technologies is way out of reach for many MSMEs. MSMEs operate within tight budgets, therefore, they are unable to invest in the solutions driven by AI (Manoharan, 2024).

Adoption of AI in MSMEs is further complicated by culture, which is also another reason for cultural resistance. Both management and employees find problems with job displacement and fear for the human element in HR tools. It stems from fears that AI might supersede humans in the area of recruitment, performance management, and likewise other HR functions that have a negative impact on workforce engagement and morale (Du, 2024). These also include ethical consideration on the aspect of data privacy, algorithmic bias and transparency. With the dependency on AI system for large quantity of data collection, the privacy issue arises as employees might not find it comfortable to monitor the activity. Risks of data breaches hence, rise without robust data protection measures,

which can result in compromising on the sensitive employee information and lose trust within the organization (Rastogi & Pandya, 2023). Additionally, AI systems can amplify algorithmic bias, driving discriminatory practices even deeper in an area of fairness and inclusivity.

These challenges have an impact on employee privacy and job security. Most of the time when managers employ AI to monitor and analyze employee data, employees don't feel comfortable, nor do they feel much trust in management. AI can be harmful for employees' concerned about losing their job to automation where repetitive and administrative tasks could be performed by the automated systems. The fear of being displaced from jobs is detrimental to the morale of the employees and their productivity which leads to resistance towards AI adoption at all levels of the organisation (Abhulimen & Ejike, 2024). To tackle these issues, the MSMEs must have ethical guidelines along with a transparent integration of the AI practice. For trust to prevail, fairness, protection of employee data and minimisation of biases in algorithms must be ensured. By highlighting collaborative benefits of AI systems, training programs can bridge the skills gap and mitigate the resistance. Financial support can also come in form of subsidies or grants to assist MSMEs to overcome barrier costs associated with adopting responsible AI in an effort to make the technology beneficial.

2.8 Theoretical Framework

This dissertation's theoretical underpinnings are derived from a few integral models and theories that explain the dynamics of integration of technology within and among organizations, especially, the adoption of AI in HR practices by the MSME in Nigeria. This research is based on the fundamental Technology Acceptance Model (TAM) that is used to understand acceptance of an AI technology by evaluating perceived usefulness and ease of use. These aspects are critical considerations for MSMEs in deciding whether or not to

use new technologies in their HR operations. At the same time, the firm's Resource Board View (RBV) is complemented with insights on how MSMEs can exploit or not their internal resources to successfully implement AI in their firms and towards a competitive edge. The Diffusion of Innovations Theory can be used to understand the spread of innovations such as AI in the MSME sector and its role in the process is played by the characteristics of the technology, communication channels and social systems.

Structural and cultural readiness of MSMEs to adopt and apply AI in its HR will be assessed using the Organizational Readiness for Change (ORC) framework. At last, Ethical Decision Making Theory is highly relevant to the following ethical considerations that accompany integration with AI such as privacy concerns or job displacement. Such a theory enables to analyze to what extent ethical considerations are impacting the HR practice as far as the adoption of AI is concerned. Taken together, these theories serve as a robust framework for the analysis of the literature and data, thereby furnishing the basis for exploring how MSMEs cope with the AI adoption challenges in their HR practices and the broader mediating effects of these decisions.

2.9 Literature Gaps

Despite the amount of research conducted on artificial intelligence in human resources and its effect on large corporations, there are still several significant gaps in literature, particularly those concerning micro, small, and medium enterprises (MSMEs). These gaps point to the necessity of further research in areas that are crucial for explaining and facilitating the use of AI in HR processes among MSMEs.

1. Specific AI Application in HR for MSMEs: Consequently, most of the literature on AI in HR is concerned with the broad application in larger enterprises with very little literature on machine learning applications in MSMEs. To facilitate the implementation of such AI tools, new teams (AI teams), roles (AI officers), and practices

(AI first adoption path, AI staff, and AI policy level) need to evolve for smaller business contexts. More often, MSMEs cannot afford the same amount of workspace, budget and experienced HR personnel as their big corp cousin. To understand how AI can fit into these very specific settings, but at the same time to identify scalable AI solution that suits the resources of MSMEs, detailed research is necessary.

2. Longitudinal Impact of AI on HR Practices in MSMEs: The long term effects of the integration of AI should be studied in longitudinal studies with regards to the performance of the MSMEs in the HR practices. Despite the fact some research presents snapshots of AI's short span of effects like efficiency or cost saving, more knowledge and understanding are required regarding how AI adoption changes MSMEs over time. It includes employee roles changes, changes in the HR operational shifts and adjustments in the company's culture with continuous AI use. The insights gained from longitudinal research would be valuable regarding the sustainability of AI benefits, the possible changes of employment patterns, and that deriving from the evolution of the relationship between the AI tools and HR strategy among the special operational timeline of MSME.

3. Cultural and Ethical Considerations of AI in MSMEs: This also leaves another significant gap to fill in companies' exploration of culture and ethical implications of implementing AI in their MSME's HR practices. In the field of AI, there are many ethical concerns, like AI's data privacy issues, bias in the algorithms of AI, and AI's transparent purpose among people, that are manifested for discussion, however, there is a shortage of research on how these matters are experienced and managed in several countries within MSMEs. Therefore, it is critical to understand the cultural variation to which AI HR Technology has been developed in one cultural context may not be applicable or acceptable in another. More detailed studies should be done on how these cultural

adaptations are required so that ethical AI can be integrated within different MSME environments.

4. Resistance to AI Adoption in MSME HR Practices: More detailed research of resistance to AI adoption by MSMEs, from an HR perspective is called for by research. While barriers to technology adoption, for example, cost and lack of expertise, are often mentioned, much should be known about the psychology and organichaz Garage resistance of MSME employees and managers. All of these factors require further investigation: fear of job displacement, distrust of automated systems and lack of perceived need for AI in HR. To effectively prepare for the adoption of AI in their HR departments, MSMEs, therefore, need to understand these resistance factors.

2.10 Summary

The literature review in this dissertation is an in-depth analysis of integration of artificial intelligence (AI) in human resource (HR) practices, with special focus on micro, small, and medium enterprises (MSMEs). The work of this part of the dissertation explains in detail the significant role that MSMEs play in the worldwide and in the national economies, contributing significantly to employment and economic development. Although they are economically important, MSMEs are unable to implement sophisticated HR strategies because of the limited resource they have.

It is discovered that the current HR practices in MSMEs is far below the adequate level in aspects of recruitment, training, employee engagement and retention. The constraints behind the emergence of these issues include limitations of budget, lack of specialized HR knowledge and informal management practices in small enterprises. However, advancements in AI offer promising solutions to these enduring challenges. Among other things, AI technologies such as automated recruitment system, performance

management tools and advanced analytics are likely to mechanize the HR processes, cut costs and give better insights into the impacts of work on an organization.

While AI promises much, the literature also indicates the wide ranges of adoption of these technologies by MSMEs, which is contingent upon considerations of how much the technologies will cost and how much they will return on investment, and how organizational culture views technology within the workplace. There also arise some important ethical concern and the issue is related to data privacy, potential biases in AI algorithms, and automation issues on job security.

However, the review also highlights a significant need in empirical research on the effects of AI application to HR within MSMEs, specifically in relation to long-term effects and the adaptation of the HR practice in different cultural context. Moreover, it stresses the importance of conducting research investigating the reasons for barriers to adoption of AI by MSMEs, including financial, technical and cultural revolution barriers.

CHAPTER III:

METHODOLOGY

3.1 Overview of the Research Problem

The problem researched centers around adopting and implementation of AI powered HRM tools in MSMEs of India as these have a significant role in GDP as well as employment of country. Protecting and promoting the role of MSMEs should, however, not neglect the importance of MSMEs with regard to human resources management. The reason for these challenges is the lack of formal HR departments, as there are very few enterprises with dedicated leadership teams above two persons or owners are running their own company. This means that critical HR functions like recruitment, training and development, employee engagement, as well as workforce management should be more efficient so as to enable the growth and productivity of an organization. It is shown that financial and technological barriers, skill limitations, and data privacy and integration challenges hinder technological adoption by MSMEs.

However, with that, AI powered HR tools found a way to address these challenges by making recruitment more efficient, better training the employees and making data driven decisions. Both younger and early career professionals tend to see the tool as being user friendly and useful in reducing HR operations. While the benefits are obvious, there are key limitations that stand in the way of widespread adoption: implementation costs are high, there are technical barriers to overcome and new, more skilled professionals skilled in the use of AI tools are needed. More privacy issues come in play as businesses have fears about data security in AI driven systems. They are, in fact, related problems because major correlations exist between cost, capabilities, and technical obstacles.

The research lays importance on the requirement of affordable AI solutions, robust data security frameworks and need of targeted training programs across MSMEs to upskill

HR professionals and employees. This can only be achieved by eliminating these barriers by an AI powered HR tools that facilitate better workforce management, lesser costs on operation, as well as efficiency of the organization. In view of the growing competition in the market, the tools such as AI that come with HR will be integral to the future survival and growth of MSMEs.

3.2 Research Design

This research design would be mixed method approach, using both quantitative and qualitative methods, to enhance investigation of the research problem. The study examines the acceptance, limitations and benefits of HRM tools that rely on the AI in the MSMEs of India. Surveys and questionnaires were used as the main way of data collection through which data was collected from 200 respondents representing different age, gender, professional experience, size of company and industry sector. chi-square tests, logistic and correlation analysis is applied to the quantitative data in order to identify patterns, relationships, trends and correlations among variables such as Ease of Use, Efficiency, Cost Barriers, Privacy Concerns, and Technical Challenges.

In addition to the above methods, insights on perceptions, attitudes and experiences about AI powered HR tools are gathered through interviews and focus group discussions with MSME owners and employees. This is further broken down into sections that match study's objectives such as acceptance levels, challenges and perceived benefits on data analysis. In the case of the exploratory data analysis (EDA) that is done to examine responses distribution. Also, the Friedman Test and ANOVA are applied to assess differences between groups related to demographic indices, such as the experience levels. Primary (survey and interview) and secondary (literature and existing research) data are pooled together to give an informed view of the problem. All through the course of the research the participant confidentiality, informed consent and the use of collected data are

ethical questions which are preserved by the researcher. Mixed methods approach in the study allows for analyzing measurable outcomes and subjective experience to unearth actionable insights on adopting and implementing AI powered HR tools in MSMEs.

3.3 Acceptance of AI-Powered HRM Tools in MSMEs

Objective: Therefore, I would be interested in reviewing the acceptance level of the AI powered HRM software and tools by the current MSME business owners and their employees.

To evaluate acceptance of MSME business owners and their employees for use of AI powered HRM software and tools, a mixed methods approach was employed. Quantitative methods were used through a questionnaire designed as a structured survey questionnaire and that was distributed to 200 respondents from MSME sector. There were 22 questions with three sections and first it collected the demographic data using the questionnaire to find the profile of respondents. Cleaning of data was done by removing unnecessary columns and ensuring the consistency in the same, followed by exploratory data analysis (EDA) to find a response trend and pattern. They also created sub data frames that were targeted to certain objectives for focused analysis. Using bar charts and histograms, respondent perceptions of key aspects including Ease of Use, Usage Frequency, Efficiency, Attitude and Recruitment Intention with respect to AI Powered tools were analyzed. A chi-square test was also performed to check for a relationship between gender (or another variable) with regard to different acceptance dimensions, and it was made statistically valid by observing trends. It gave a full picture on how MSMEs perceive the use of AI-powered HRM tools.

3.4 Limitations of AI-Powered HRM Tools in MSMEs

Objective: The aim is to review the limitation of AI powered software and tool for HR practices for Indian MSMEs.

The book primarily adopts a quantitative approach in order to investigate the limitations of the use of AI powered HRM tools for HR practice in Indian MSMEs. The survey data was analyzed of 200 respondents to search for challenges regarding the implementation of AI tools – technical, barrier to implementation, privacy, skill limitation & integration. To visualize distribution of responses regarding these factors we used histograms and bar charts to show the frequency and severity of considered limitations. To explore then interdependencies among the identified challenges, a correlation analysis was done on the relationships; between technical challenges and privacy issues for example or cost barriers and skill limitations. In addition to this, a Friedman test was conducted to ascertain whether there were significant differences between the various limitations of British people of different ages. Specifically, this methodology brings insights with respect to the main barriers hampering the use of such AI tools in HR practices of MSMEs to highlight areas that need to be targeted in order to enhance their existing practice.

3.5 Benefits of AI-Powered HRM Tools in MSMEs

Objective: To highlight the benefits of the AI-powered HR software and tools for the MSME sector.

An analysis withies recourse to a quantitative approach to identify benefits of AI in powering HRM tools for MSME sector. This paper analyzes the perceived advantages of AI tools in areas such as recruitment efficiency, training enhancement, decision improvement, employee engagement, and cost reduction through the analysis of the survey responses of 200 respondents. For the visualization of distribution of responses, histograms and bar charts were generated to portray the frequency of the respondents' positive opinions on these benefits. For example, a correlation analysis was conducted to investigate relationships for example between recruitment efficiency and decision improvement or

training enhancement and employee engagement that indicate interdependency of these benefits. Further validation of these findings and also determining if respondents' experience levels had an effect on their perceptions of decision improvement was obtained through a one way ANOVA test. It is a comprehensive methodology that gives a clear understanding of how AI based HRM tools affect HR functions and in turn improve the organizational processes and enhance growth in MSMEs.

3.6 Population and Sample

Business owners and employees of MSME sector from India are the population of this study. It looks at people in micro, small and medium enterprises in services sector, manufacturing, retail and IT/software sector as the industries.

The sample consists of 200 respondents to represent the MSME workforce and it is a self selected sample. Resposes were in different age groups and gender, work experience, and type of company. Around 79% of respondents come from micro and small enterprise, of which 32% are in organization with 10–50 employees and 31.5% are in organizations with less the 10 employees. The survey was demographically all about young early career professionals, with most people falling in the age group 26-35 (46%) and 18-25 years (33%), 51.5% of them male and 46.5% female, and 2% identifying as other.

By doing so, this sample provides an example of the proportioning of the opinion on AI based HRM tools using by MSMEs in acceptance, limitations and their benefits.

3.7 Participant Selection

Participants for this study were selected from the MSME sector in India, targeting business owners and employees across micro, small, and medium enterprises. A convenience sampling method was employed, where a structured questionnaire was distributed to 200 respondents to ensure a representative and diverse sample. The selection

included individuals from various industries, such as services, manufacturing, retail, and IT/software, with efforts to capture different demographic and professional backgrounds.

The sample was composed of people from organizations of various sizes, namely micro-enterprises with lower than 10 employees and small businesses with 10 to 50 employees, which was the largest section of respondents. As far as demographics of the contributors were concerned, the largest proportion of them are between the ages of 26 and 35 (46 per cent) and then 18 and 25 (33 per cent) indicating a younger workforce. Most of the participants, 46.5%, were female, 51.5% were male, and the remaining 2% of participants did not identify with either gender. Participants came from varying levels of job experience, from first jobs under 1 year to 4 to 6 year mid career, amongst other levels of experience.

Therefore, this participant selection process contributed to the veritable combination of perspectives on AI enabled HR tools acceptance, limitations, and usability in Indian context, that were enough to address the HR challenges in Indian MSMEs.

3.8 Instrumentation

In this study, a structured questionnaire was the primary instrument applied to collect information pertaining to demographical information and insights towards the acceptance, limitations ad benefits of AI based HRM tools in Indian MSMEs. The questionnaire contained 22 questions comprised of three sections, which followed to the objectives of the study. The first section tried to assess to what level we can accept AI powered tools by referring to topics like how frequently do we use them, how easy it is to use them, up to how effective they are and also the feeling towards AI tools. Second, the work outlined the limits of AI tools such as technical issues, barriers of cost, privacy, and skill. The third part of this thesis explored the pluses of AI tools, including their effect on

recruiting effectiveness, training elevation, making better decisions, more employee involvement, and spending less.

A cleaning process was implemented to the collected questions through the questionnaire in order for accuracy and relevance before analysis. Response distributions were represented using bar charts and histograms. Validity of relationships and patterns within the data were validated by statistical tests like chi square test, correlation analysis and ANOVA. Thanks to a structured and systematic instrumentation of the research study, this allowed the study to create complete insights on how MSME perceives and uses of AI powered HR tools in understanding the main research objectives.

3.9 Data Collection Procedures

This study has used a structured questionnaire distributed to 200 respondents from the MSME sector in India for data collection. The questionnaire had 22 questions divided into 3 main portions such as demographic details, acceptance of AI powered HR tools, limitations of such tools and their benefits. A convenience sampling method was used to select the respondents to involve different people across the micro, small and medium enterprises. Several efforts were made to include participants from diverse industries such as services, manufacturing, retail, and IT/software having diverse work experience and diversified organizational sizes.

To get access to the widest audience possible, the questionnaire was circulated both online and offline. The individuals who were involved were told about the study purpose and were promised that their answers would be kept confidential in order to make the response honest and unbiased. After collecting the responses, I cleaned the dataset by removing useless columns, standardize data format, and prepared the dataset for analysis. Second, the data was cleaned and broken down into subdata frames of study focused analysis.

AI-Powered HR tools were collected thoroughly through this systematic data collection procedure that ensured to get high quality data and have it thoroughly examined with the acceptance levels, limitations and benefits of AI Powered HR tools within the MSME sector. The results of the quantitative study through statistical analysis of the statistical data collected was determined through chi square test, correlation analysis and anova.

3.10 Data Analysis

Data analysis initiated with the removal of unnecessary columns and the cleaning of the data in such a manner that there is consistency and accuracy of the data. After executing the programmed cleaning and JavaScript separation, the cleaned dataset was divided into sub data frames according to the three study objectives: acceptance, limitation, and benefits of AI-powered HRM tools in MSMEs. With this segmentation, each of the sections can be analyzed in a focused and objective driven way.

Second, exploratory data analysis (EDA) using the chart of bar and histogram was performed to visualize the acceptability of AI tools in terms of Ease of Use, Usage Frequency, Efficiency, Attitude and Recruitment Intention, for Objective 1 (Acceptance of AI tools). I applied a chi square test to examine what relationship will emerge between respondents' gender, and their views of AI tools. For testing differences across demographic groups, chi square values, p value and expected frequencies were used as statistical outputs.

For Objective 2 (Limits of AI tools), similar visual methods, such as histographs and bar charts, were used to understand major technical, cost, privacy and skills related challenges to AI tools. I performed a correlation analysis to find out what these limitations are correlated (0.64) with each other, like cost barriers and skill barriers. Differences in respondents' perceptions of these limitations were evaluated based on a Friedman, non-

parametric statistical test but found not statistically significant differences between the groups.

The data was analyzed for Objective 3 (Benefits of AI tools) in order to understand what the perceived benefits of AI was in HR practices: recruitment efficiency, training enhancement, decision improving, employee engagement and costs reduction. These variables were found to be highly correlated, for example, recruitment efficiency and the decision improvement (0.65; training enhancement and employee engagement (0.63)). The one way ANOVA was completed as well in order to analyze the importance of the respondent's experience level on their view of decision improvement. Consequently, the results (F statistic = 3.83, p value = 0.005) indicated that respondents do value experience levels when perceiving AI's influence on decision making processes, as there was a statistically significant difference between groups.

Statistical methods and visualizations were used throughout the analysis to identify the patterns, trends, and relationality in the data. They complete the study on the study's objectives in terms of providing robust insights related to acceptance, limitations and benefits of AI powered HR tools. Such findings were then further interpreted to discover actionable conclusions from the perspective of how AI tools are perceived and how effective they can be with respect to the MSME sector.

3.11 Research Design Limitations

The research design successfully combined quantitative and qualitative methods to analyze the acceptability, strength and weakness and the benefits of AI based HRM tools in MSME but also has its weakness. First and foremost, the study depended on the convenience sampling method, where the sample was easily accessible only relying on the selected participants. That could restrict the applicability of findings to the broader MSME sector.

Second, the collection of data basically relied on self-reported responses through a structured questionnaire. There is response bias and participants are likely to give socially desirable answers rather than accurate perceptions in cases of sensitive topic such as privacy concerns, skill limitations and so forth.

The sample size of 200 respondents is another area of improvement as the basic requirements, such as sample size, have not been fulfilled for preliminary analysis which may not completely reveal the diversity and complexity of the MSME sector in India. Moreover, the respondents who had majority belonged to the micro and small enterprises and the age groups may not represent the perspectives of mid-sized organizations or the age with the experience.

Any limitation from cross-sectional data would be that of capturing perceptions simultaneously. Deeper insights about the acceptance and challenges of AI powered tools would get revealed in the longitudinal studies. In addition, to confirm a relationship, statistical tests such as chi-square, correlation analysis, and ANOVA were used, however, these tests would not fully uncover causal relationships between the variables.

The last of these lies in the fact that the study mostly relied on quantitative analysis, with little qualitative data (e.g. interviews or focus groups) that, however, could have brought more vivid insights of respondents' experiences and perceptions regarding AI powered HR tools. Future research will help to address these limitations, and with larger, more diverse samples, less likely uses of primary data, but still focused on causal inference, lesser resources being required for approaches; and longitudinal studies.

3.12 Conclusion

It thoroughly discusses the acceptance AI powered HRM tools, their constraints, and the advantages of the same for the Indian MSMEs. The fact that they are accepted strongly by MSME business owners and employees in improving recruitment efficiency,

training processes and decision making ability with the use of AI tools found, is very strong. Easy to use and efficient as the tools are acknowledged by most respondents and are perceived to have a high potential to change HR practices, are signals of growing confidence in AI integration. Although such limitations remain extremely significant, technical issues, cost barriers, privacy concerns, and skill limitations make it unlikely that such tools will be widely adopted. The analysis of the correlation reveals the complexity among these barriers and hence there is a need for a holistic approach to solve them.

Meanwhile, the benefits of using AI powered tools were widely accepted; particularly the need to manage workforce easily, reduce cost and improving employee engagement that goes a long way to enhancing the growth of the MSMEs. The study's results were validated by statistical analyses such as chi square tests, correlation analysis and ANOVA which present more elaborate understandings of respondents' perception on these indices of restaurant services. Despite all the potential that AI tools have in improving HR practices in MSMEs, there are issues like affordability, privacy, and skill gap that needs to be addressed if the full potential can be harnessed. If these barriers are overcome, AI powered HRM tools will play a crucial role in the growing, efficient and sustainable growth of the MSME sector in India, which in turn will push India's economic growth.

CHAPTER IV:

RESULTS

4.1 Demographic Details

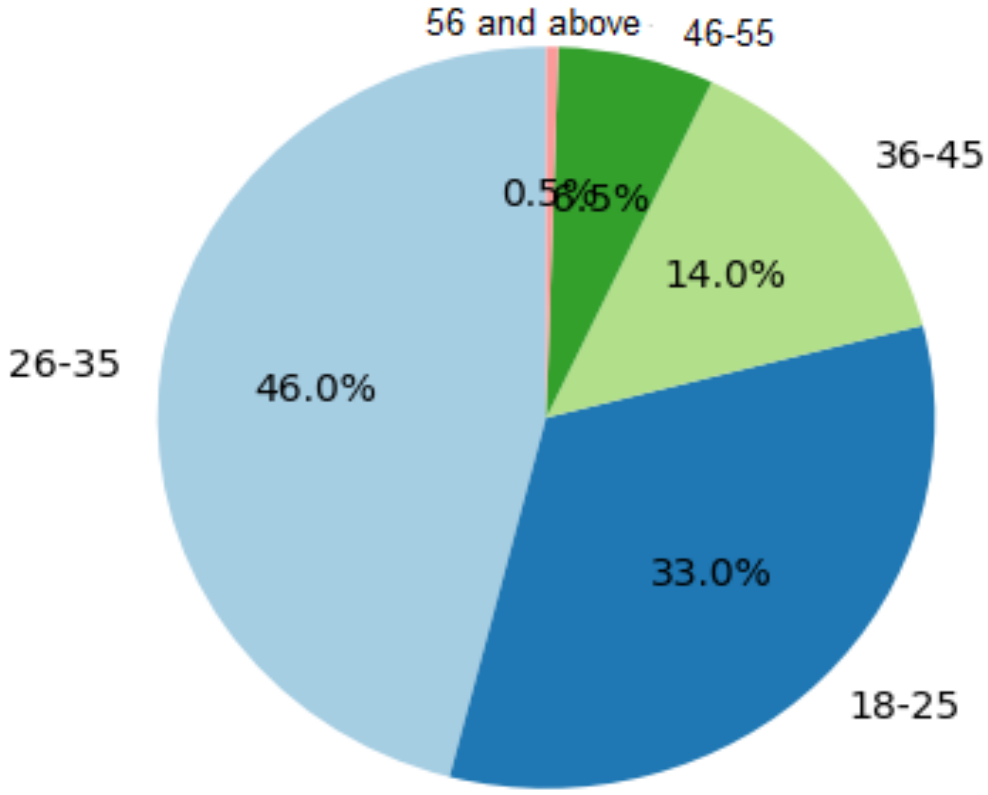

Figure 1 Age Distribution

The largest group of respondents is in the '26-35' (2), which is 46% of all of the responses. The '18-25' (actually 1) age group has a very good representation, constituted by around 33%. The group from 14% of the people encoded 36 - 45 (3), and the group from 6 % of 46 - 55 (4). The '56 and above' (encoded as 5) age group has the smallest representation, making up only 0.5%.

- **Interpretation:**

This suggests that the survey predominantly captures the perspectives of young to middle-aged professionals, particularly those in their late 20s to mid-30s. Representation declines as the age increases, with significantly fewer respondents from older age groups, especially those above 55 years.

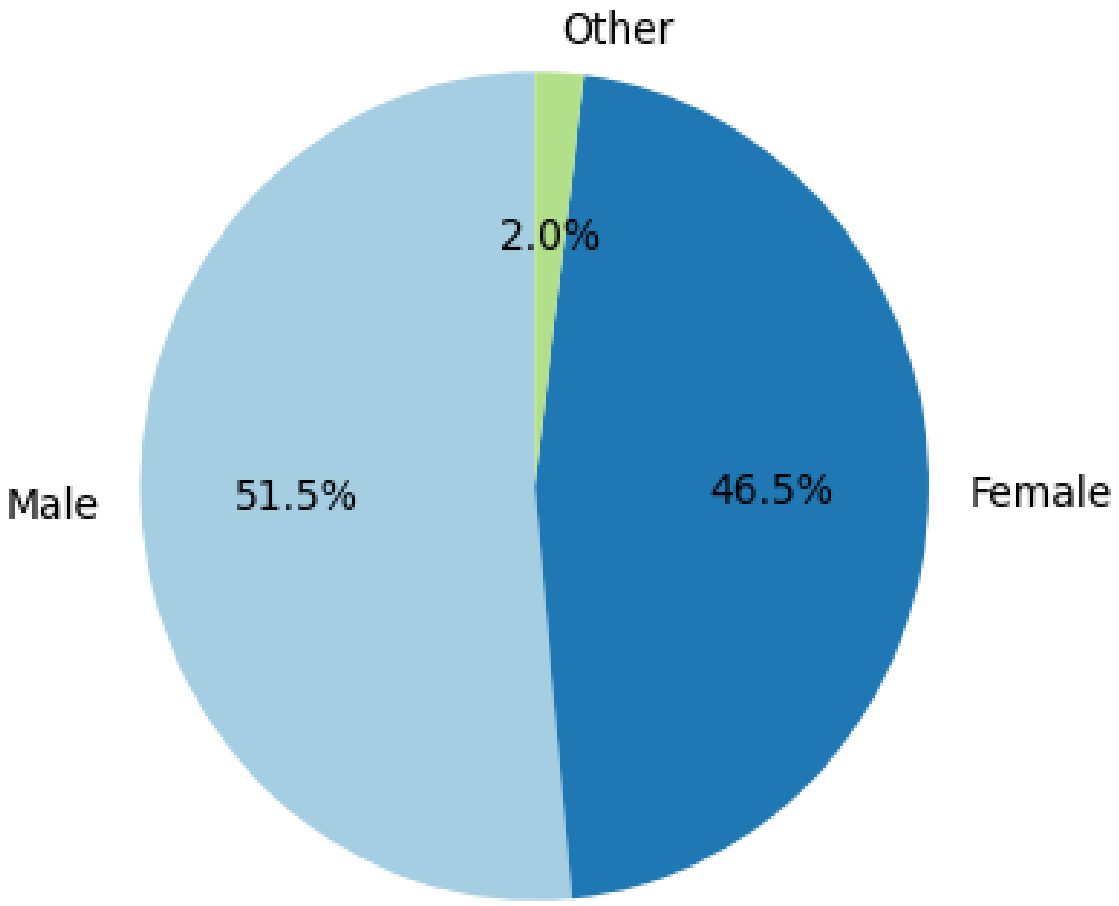

Figure 2 Gender Distribution

The gender distribution is relatively balanced, with 'Male' respondents comprising 51.5% and 'Female' respondents representing 46.5%. A small percentage, 2.0%, identified as 'Other'.

- **Interpretation:**

This indicates that the survey captures input from a nearly equal proportion of male and female participants, with a small representation from individuals identifying as 'Other'. This gender balance can provide diverse perspectives, particularly from both male and female respondents, which may influence the overall findings. The slight inclusion of the 'Other' category indicates some diversity in gender identity.

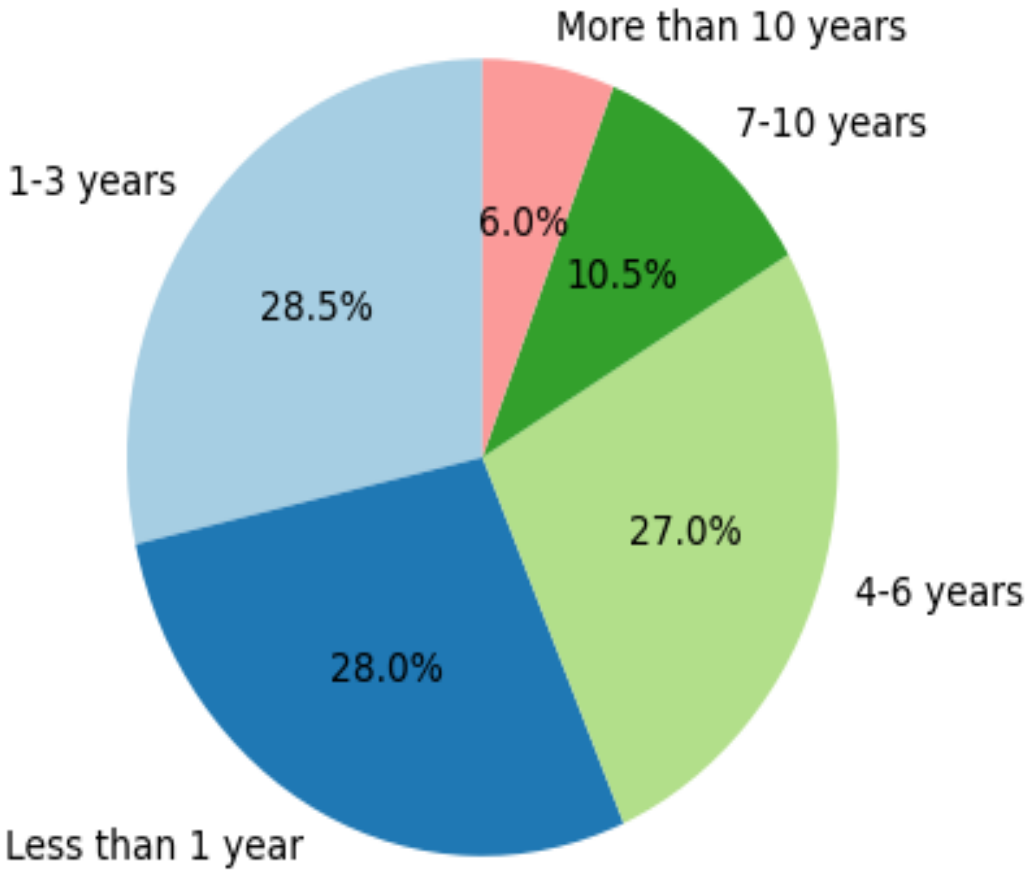

Figure 3 Experience Distribution

The largest groups of respondents have 1-3 years of experience (28.5%) and less than 1 year of experience (28.0%), indicating a majority of early-career professionals. A notable portion has 4-6 years of experience (27.0%), while a smaller group has 7-10 years (10.5%) or more than 10 years of experience (6.0%).

- **Interpretation:**

This distribution indicates that most of the feedback on AI-powered HR tools comes from relatively young or mid-career professionals. These individuals may be more open to adopting AI technologies due to their familiarity with tech innovations in early career stages. However, the limited representation of more experienced professionals may highlight a potential gap in understanding how seasoned professionals in MSMEs perceive AI-powered HR tools. Their lower participation could signal either a lack of exposure to or skepticism toward such tools, pointing to a critical area for further investigation in terms of AI tool adoption barriers for highly experienced professionals.

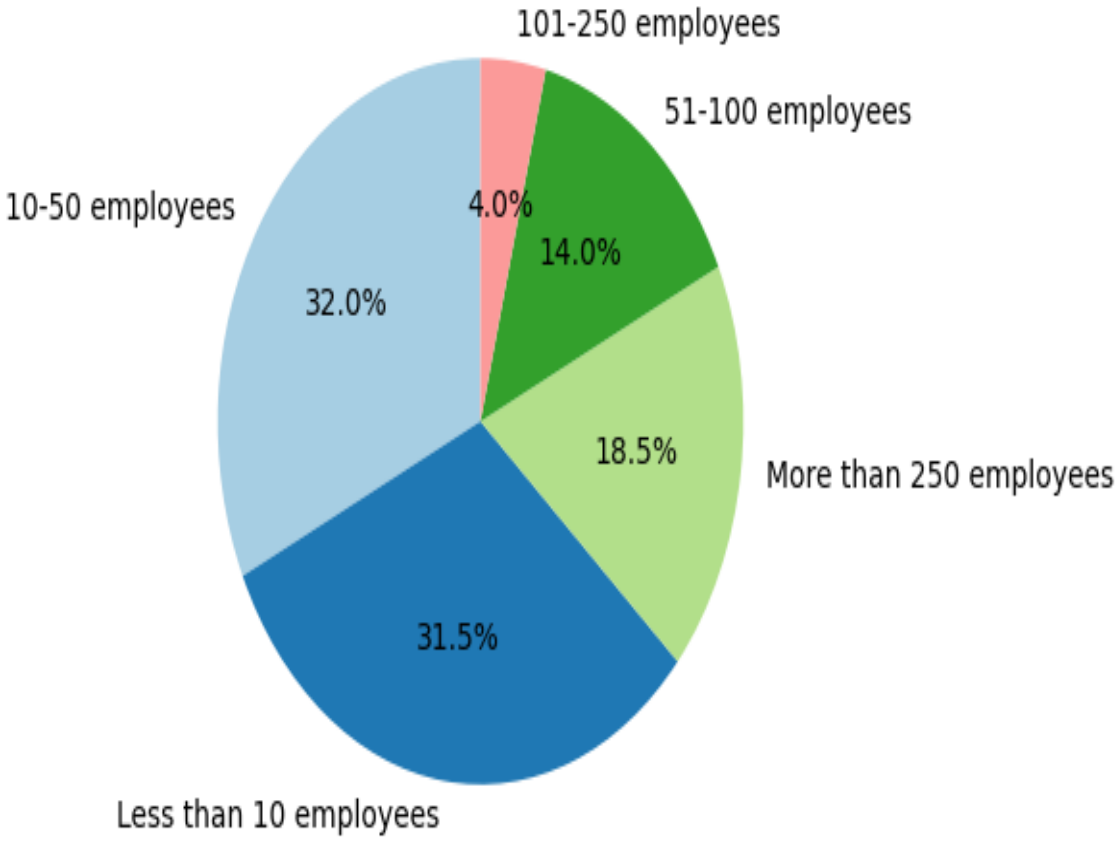

Figure 4 Company Size Distribution

The chart reveals that most respondents work in micro and small-sized companies, with 32% coming from organizations that have 10-50 employees and 31.5%

from companies with fewer than 10 employees. Companies with more than 250 employees account for 18.5%, while mid-sized companies with 51-100 and 101-250 employees represent 14% and 4% respectively.

- **Interpretation:**

This breakdown indicates that the survey predominantly contains insights from micro and small sized enterprises (MSMEs), in line with the research's focus on the adoption of AI in MSMEs. Furthermore, this distribution implies that most of the participants work in companies where the resources may be more constrained resulting in their adoption of the AI powered HR tools and how they view on it.

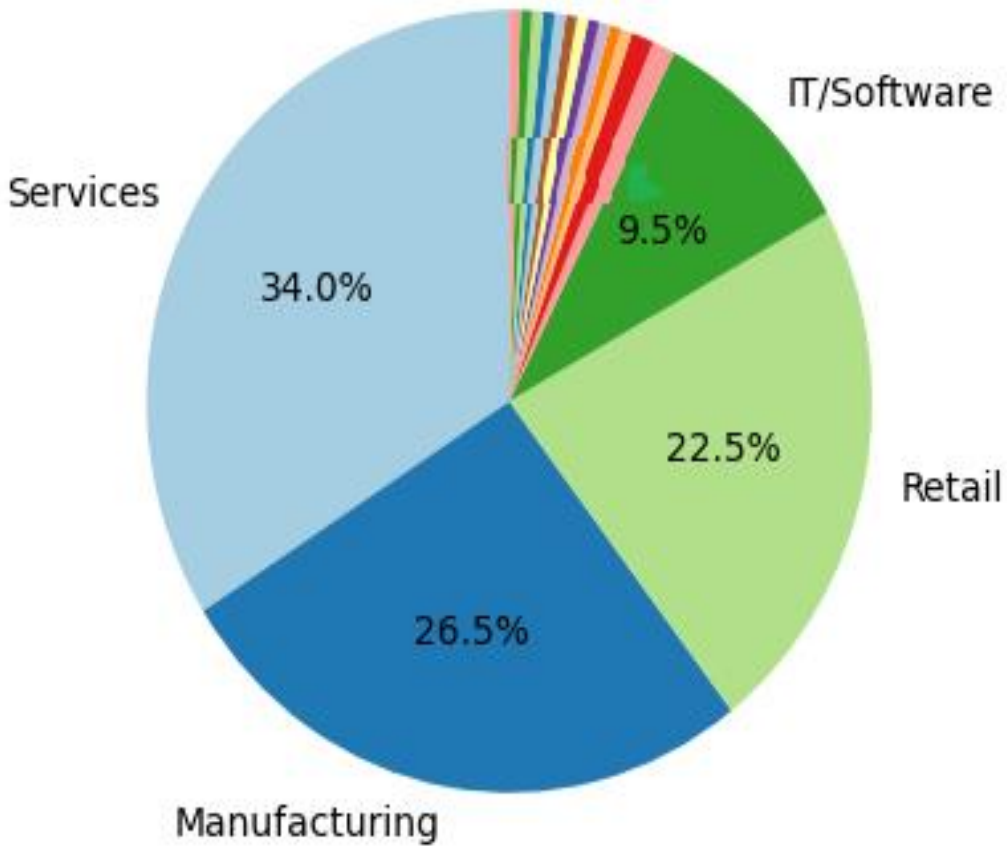

Figure 5 Industry Distribution

- From the Industry perspective, the majority respondents i.e. 34 % belong to the Services sector. After manufacturing with 26.5% comes retail as 22.5%. 9.5% IT/Software industry and the rest are the smaller industries.

Interpretation:

Therefore, these demonstrate that the respondents originate primarily from non-technology industries, namely Services, Manufacturing, and Retail. This is followed by the relatively lower proportion of IT/Software participants, indicating potential much tougher adoption challenges for AI-powered HR tools among sectors. It is an important insight in understanding how different industries decide and take up the adoption of AI solutions for HR practice, especially in MSMEs.

4.2 Acceptance of AI-Powered HRM Tools in MSMEs

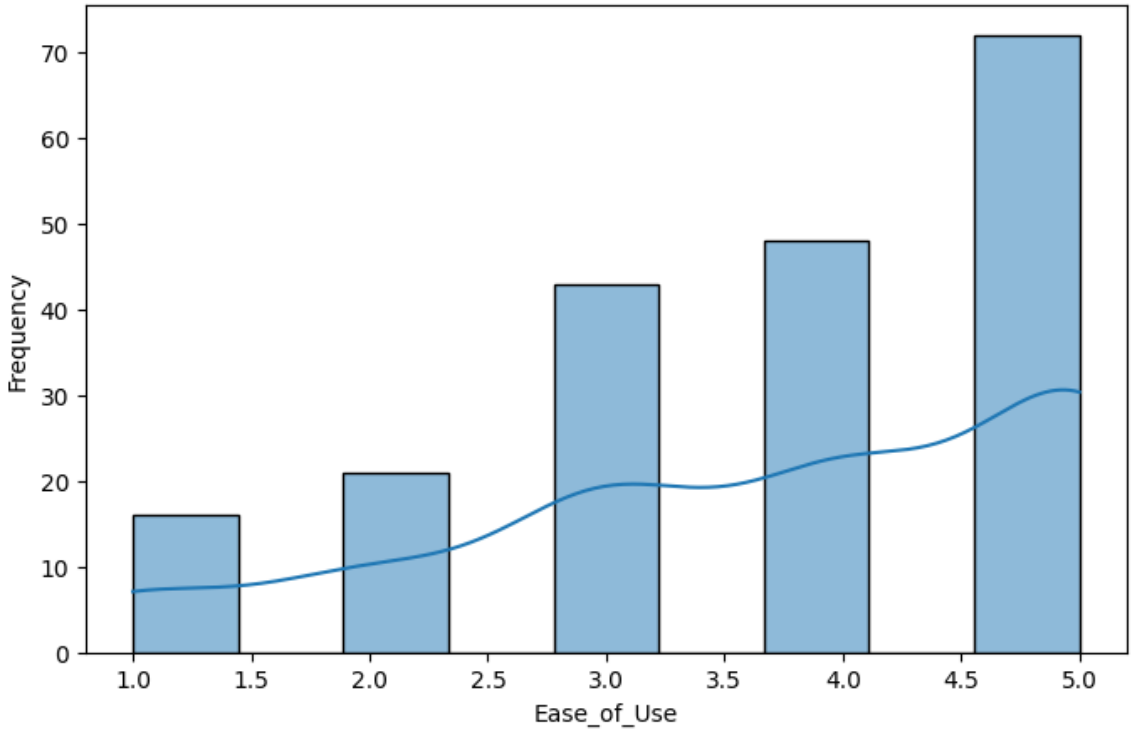

Figure 6 Distribution of Responses: Ease_of_Use

The response to the question, 'ease of use of AI powered HR tools in MSMEs' is represented in a graph. It is obviously a positive trend and most of the respondents evaluatie the tools with a high satisfaction. And rated 4.5 the highest frequency, then 5.0 appears to indicate that most users active on the tools find them user friendly and easy to navigate. The latter are lower ratings (1.0, 2.0) that have far fewer responses indicating that usability dissatisfaction is minimal.

The result of this distribution shows the respondents' generally positive opinion of the usability of the HR tools powered by AI. The highly accepted positive skew of the graph serves as a key for spreading these tools in MSMEs for their ease of use. The trend from lower to higher ratings further supports the impression that these tools are believed to be effective and convenient for a majority of the users.

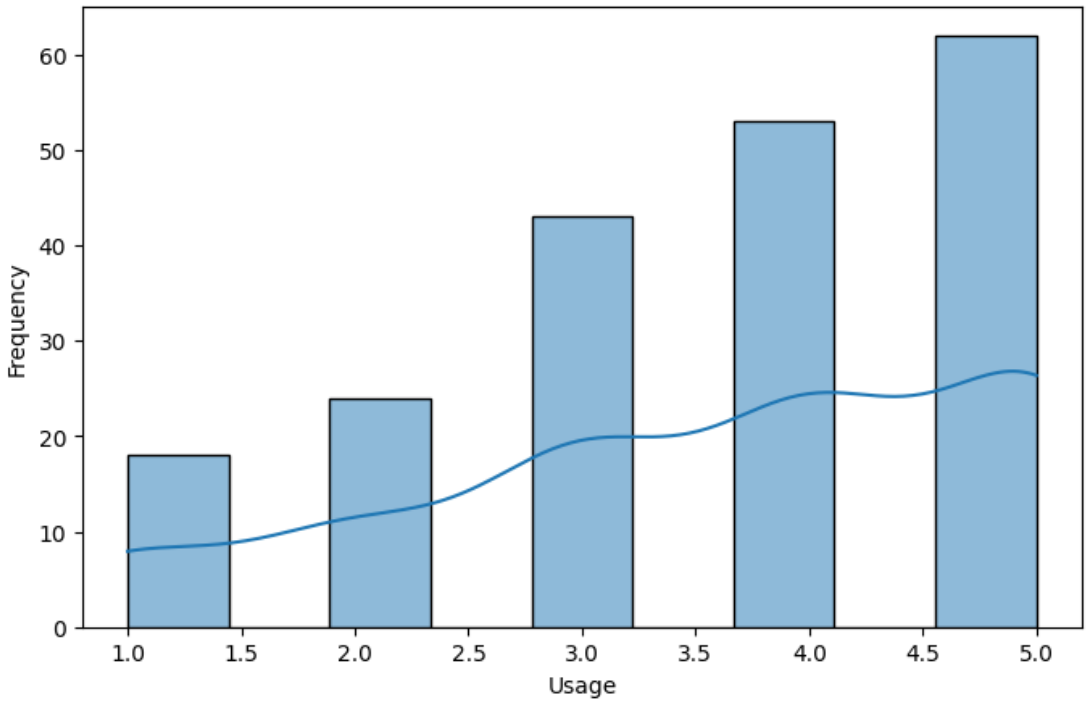

Figure 7 Distribution of responses: Usage

The above graph depicts the responses expressed with regard to AI generated HR tools usage by MSMEs. The data shows the trends are positive, and the respondents give high ratings of their usage experiences. There is the highest frequency of response at the ratings of 4.5 and 5.0 showing that a large part of the respondents frequently use that tool and find it helpful to their HR operations. The ratings of 1.0 and 2.0, generally have less responses; therefore they indicate that the less dissatisfaction or utilization.

Such distribution illustrates the extent to which AI enabled HR tools are becoming a part of daily MSME operations. A downward pattern of from higher to lower ratings indicates the usefulness of the tools to meet the needs of the users. The high positive ratings represent our confidence and trust in use of these tools to streamline HR functions in MSMEs making it a part of HR practice.

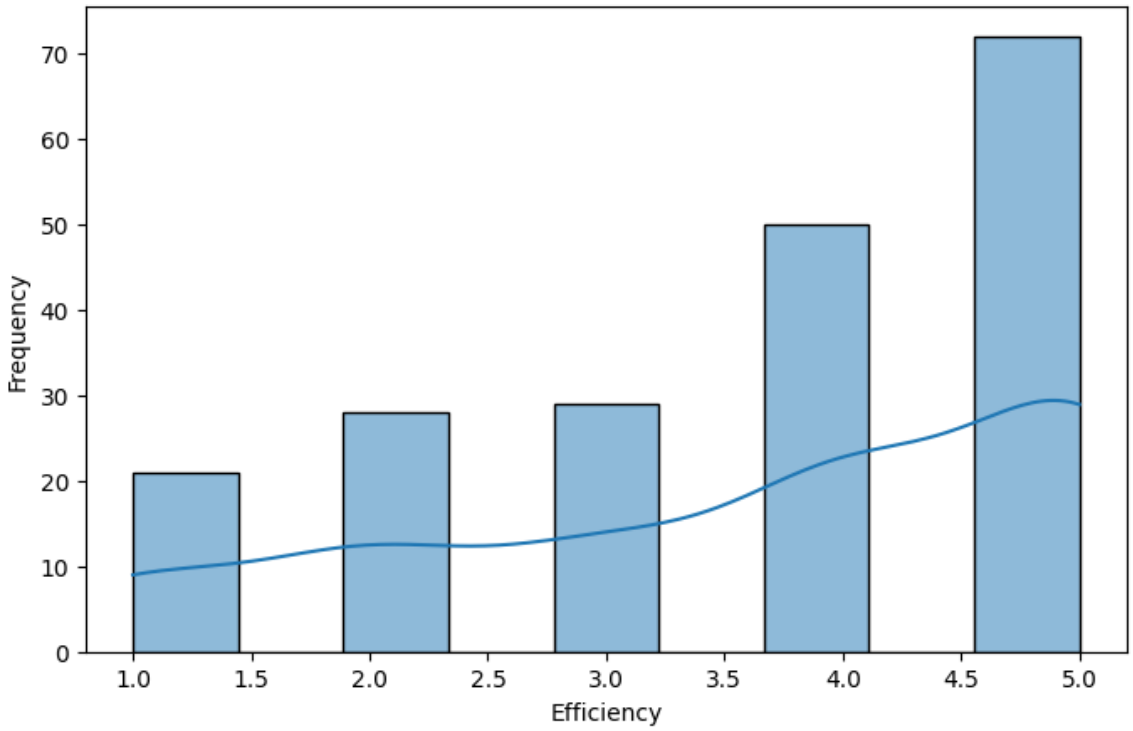

Figure 8 Distribution of responses: Efficiency

Distribution of responses to the question about how 'Efficient' AI HR tools are in use in MSMEs is shown in the graph. The trend is clearly positive, and the highest frequencies of responses are at the ratings of 4.5 and 5.0. Therefore, a major majority of respondents understand these tools very well to be extremely effective techniques for improving HR processes. These ratings have fewer responses, indicating that there is little dissatisfaction with the efficiency of these tools, as lower ratings such as 1.0 and 2.0 would indicate.

The distribution of this depicts that AI based HR tools are highly used in improving the operational efficiency of MSMEs. This upward trend from lower to higher ratings implies a solid belief on the value of these tools in cultivating the process of streamlining tasks, saving time and achieving productivity objectives. These results are a watershed for AI solutions, as more and more organizations in the MSME sector are being convinced that these solutions can optimize their HR operations and generate real business value.

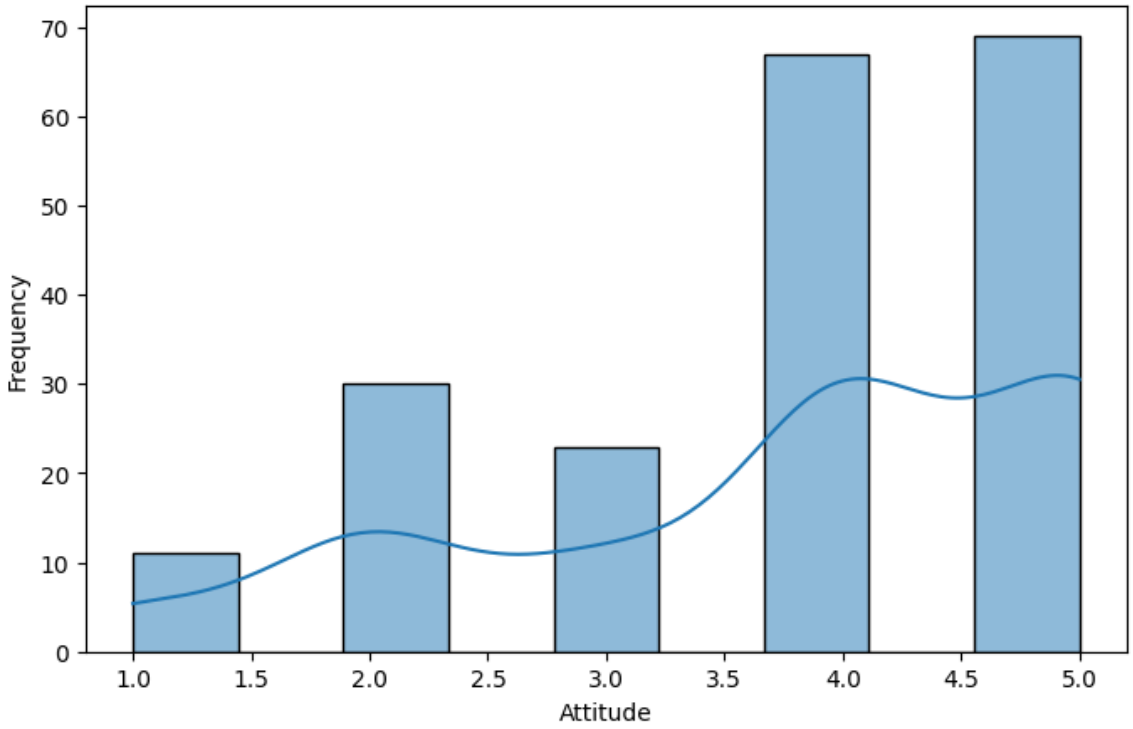

Figure 9 Distribution of responses: Attitude

Distribution of responses to the question of "Attitude" toward AI powered HR tools in MSMEs are shown in the graph. There is a clustering of responses that appear to be ratings between 4.0 and 5.0 suggesting a majority of respondents have a mostly positive attitude. The response frequency continues to increase gradually from the lower scale end and peaks at the upper end of the scale. As you can see, 1.0 and 2.0 have very few responses, which has a very small amount of people who were against the use of these tools.

Such distribution shows a hope of adoption and the possibility of AI HR tools. The dominance of higher ratings implies that users are confident of the potential of these tools in improving HR processes and appreciate them for streamlining organisations. The attitude toward these tools is positive and this is supported by their belief of ease of use,

efficiency, and effectiveness, which contributes to acceptance and integration of these tools into MSMEs.

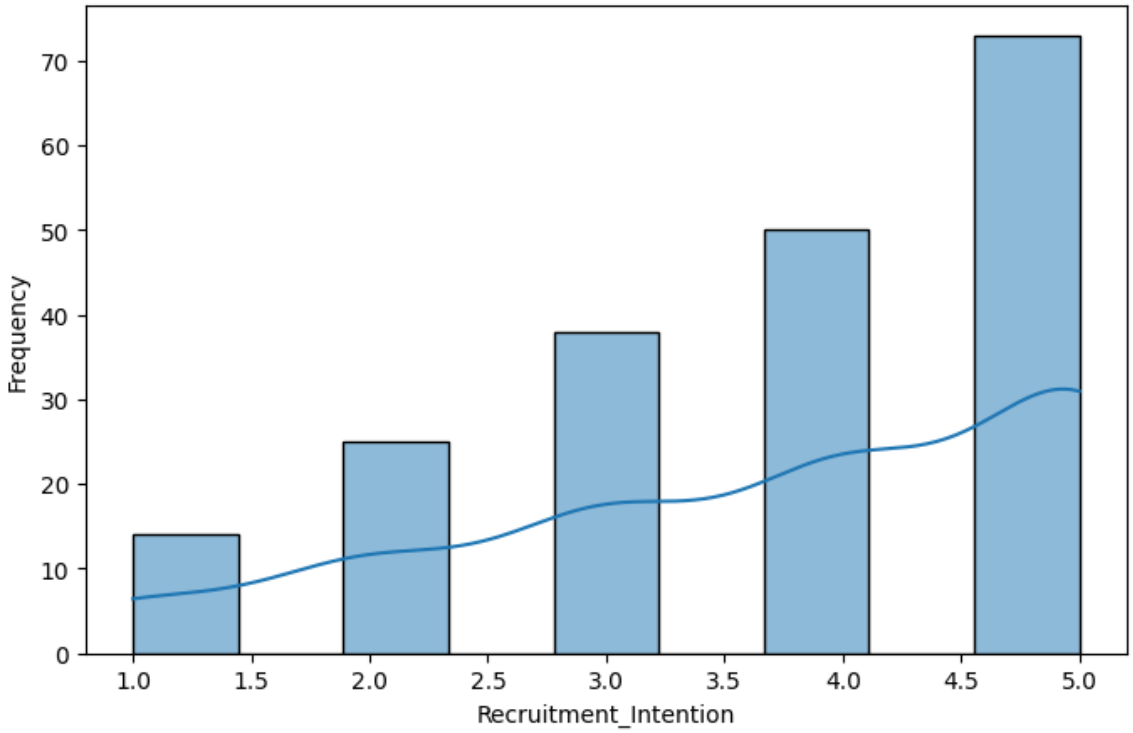

Figure 10 Distribution of responses: Recruitment_Intention

Distribution of responses with respect to 'Recruitment Intention' for AI powered HR tools for MSMEs is represented in the graph. The responses clearly show an increasing trend with 5.0 as the maximum frequency and 4.5 at the next highest frequency. It shows that the people are ready to use the AI powered tools for the recruitment purposes. As milder lower ratings like 1.0 and 2.0 have far fewer responses, it's safe to say that people are not putting up much of a fight against using those tools in recruitment processes.

This distribution indicates the amount of MSMEs interested on integrating their recruitment strategies by AI-powered tools at that time. The skewed data shows the perceived value of these tools to make the process more efficient, bias free and reduce the

time involved in hiring. The findings show that AI assisted HR's are warmly received by most respondents as the add on in their recruitment practices.

4.3 Limitations of AI-Powered HRM Tools in MSMEs

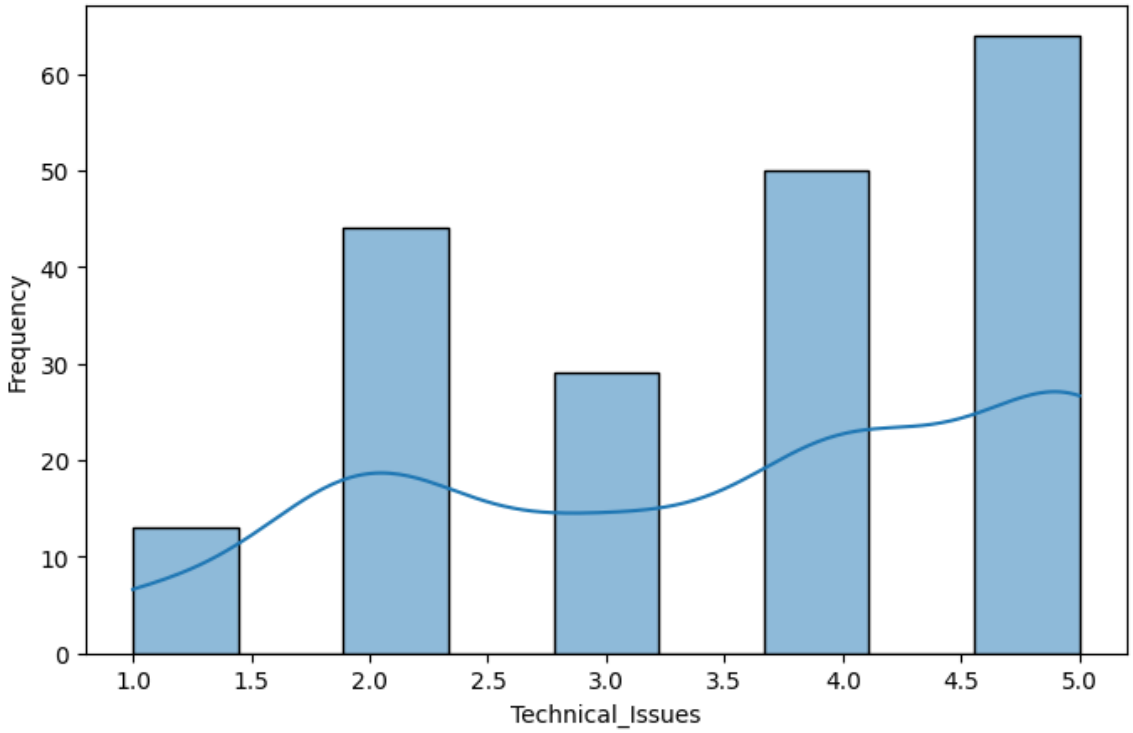

Figure 11 Technical_Issues

This graph shows us the distribution of responses related to 'Technical Issues' in the use of HR tools based on AI in MSMEs. This is noticeable with the highest frequency of responses at 5.0, 4.5, showing that there is a large percentage of respondents experiencing very hard technical hurdles with these tools. The ratings of lower amounts of technical issues such as 1.0 and 2.0 indicate that the response population became slightly less frequent since not many respondents could perceive technical issues as negligible or non-existent.

The result of this distribution is highlighted that technical difficulties, for instance, errors in the system, insufficient integration capabilities or, operational inefficiency, are

perceived as a major barrier to the acceptance of AI tools in HR practices. It highlights the upsurge in ratings that require such issues to be addressed in order to enhance user experience and smooth integration of AI smart products in MSMEs. These technical problems could be easily resolved and improve the usability and adoption of these tools in the sector.

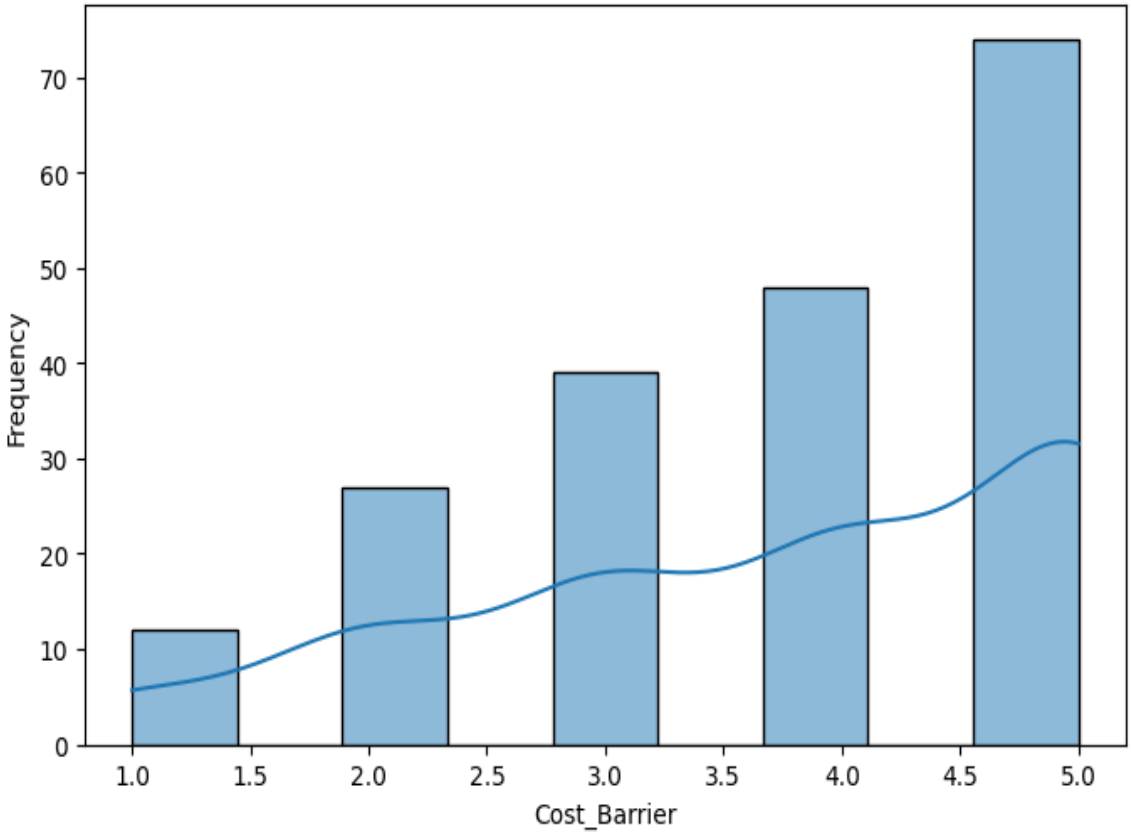

Figure 12 Cost_Barrier

Through this above graph, we can see the distribution of responses around the 'Cost Barrier' that the AI HR tools encounter in MSMEs. The responses have strong concentration in 4.5 and 5.0 ratings, which means that a majority of respondents considered cost a major barrier to adoption of these tools. With lower ratings such as 1.0 and 2.0, there

are significantly less responses, which implies only a very small percentage of people consider cost to be a minor problem.

By highlighting the fact that constraints leave financial side as a key challenge of MSMEs in using the AI based HR tools, this distribution makes clear. The high frequency of responses at the upper end of the scale indicates a concern over the black hole problems of affordability of these tools, especially for the smaller more limited budget entities. More affordable pricing models and flexibilities in how to pay could go a long way in increasing adoption and usage of human resources aided by AI tools among MSMEs.

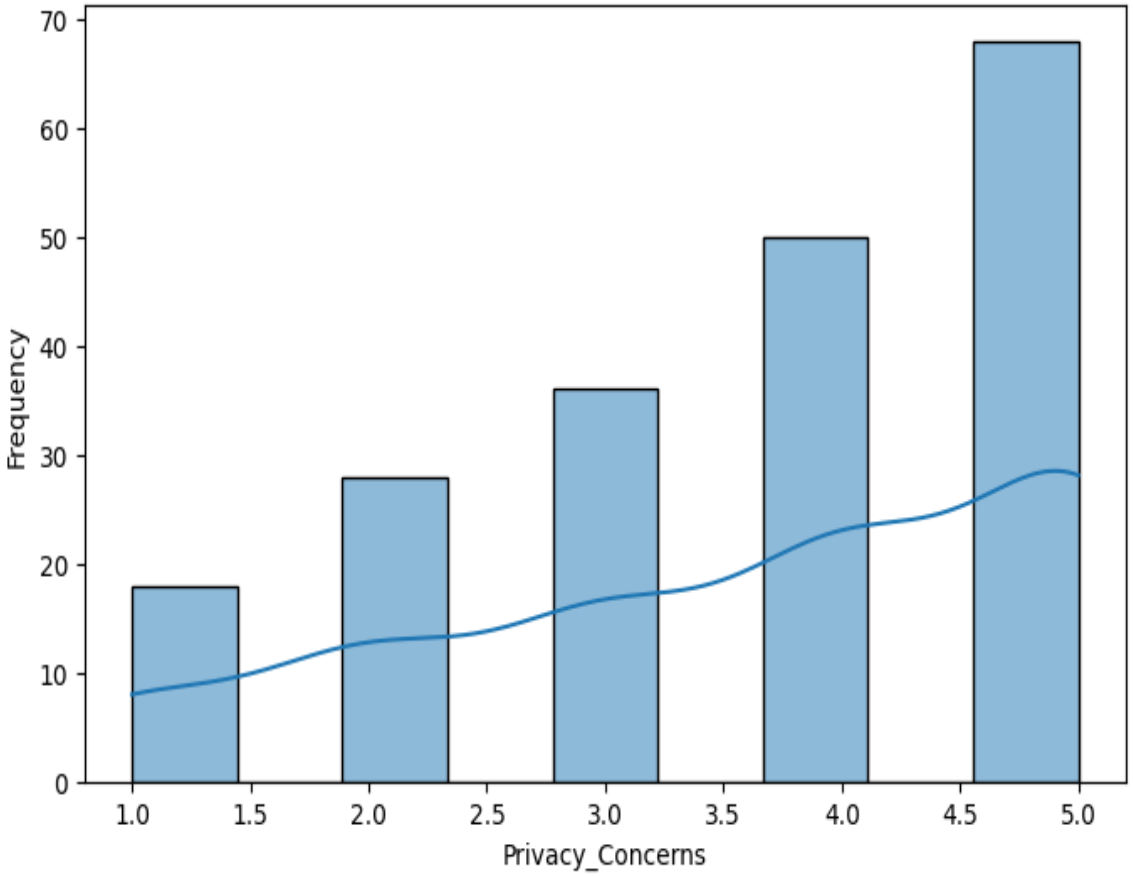

Figure 13 Distribution of responses: Privacy_Concerns

The picture below shows the distribution of responses for "Privacy Concern" with respect to MSME's AI powered HR tools. There is a clear positive trend and there are the

highest frequencies of response at ratings of 4.5 and 5.0. What this shows is that a substantial majority of respondents consider privacy concerns a very serious obstacle to taking up these tools. Ultimately, lower ratings like 1.0 and 2.0 have less responses which imply that users consider privacy to be of very little importance.

This distribution characterizes a degree of apprehension around data security and confidentiality in using AI tools in HR. It appears that these tools are viewed on the basis of how they handle, store, and protect employee sensitive data. While the best solution would be for governments to pass strong data protection policies, implement transparent practices and employ appropriate security measures for addressing privacy related challenges, yet the adoption of AI based HR tools in the MSME sector will be dependent on the degree of trust they champion.

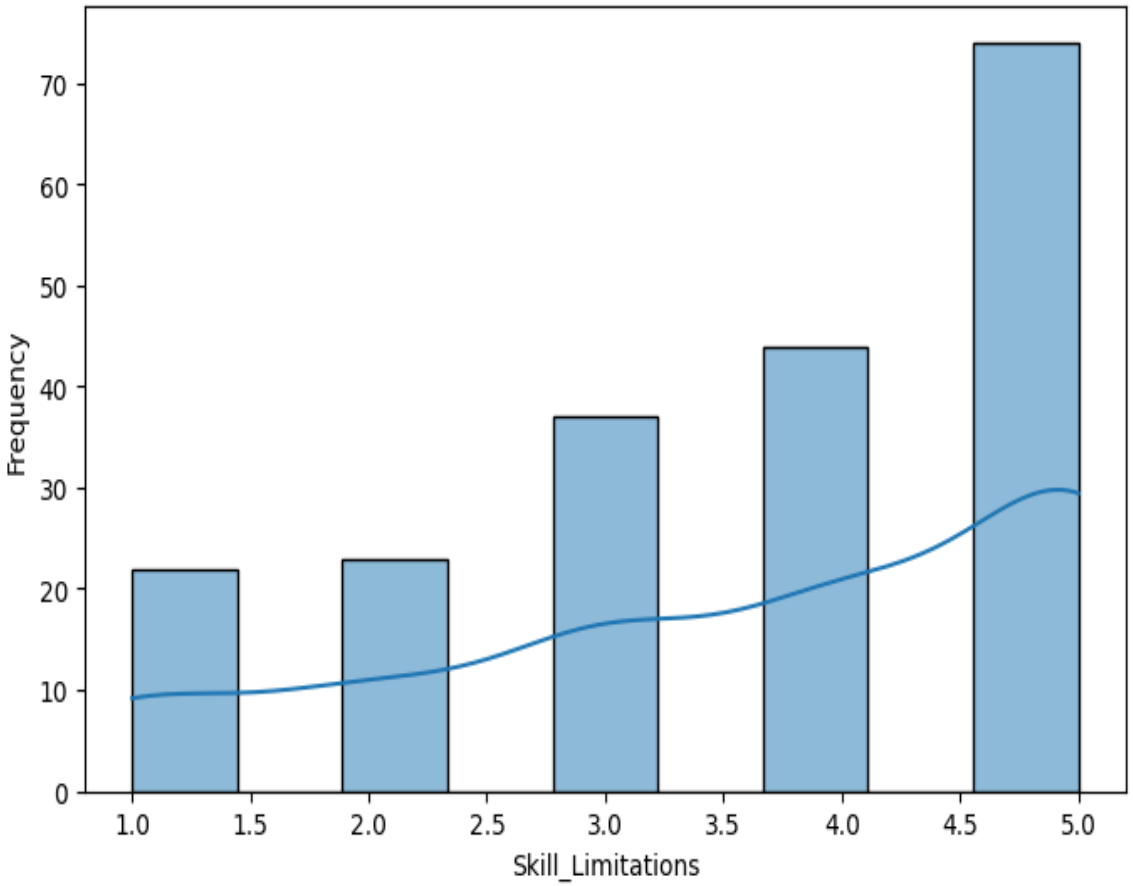

Figure 14 Distribution of responses: Skill_Limitations

Respondents' views of "Skill Limitations" in the use of AI power HR Tools in MSMEs are represented through the graph. The majority can deliver responses of 4.5 to 5 indicating that many respondents believe that the use of these tools is constrained due to skill limitations, and these responses represent the highest counts of responses of all. While not common, ratings in the lower half such as 1.0 and 2.0 indicate that relatively few respondents see skill gaps as a minor problem.

This distribution also offers insight into the seriousness of fulfilling the gaps insofar as skill is concerned that hinder the full adoption of AI in HR tools. The upward trend indicates that a lot of the HR professionals in MSMEs have not the required technical expertise and familiarity to fully leveraged these tools' capabilities. Structure in the training

programs offered by these AI powered HR Tools and the simplicity of the tool design can make a significant difference to the usability and impact these Gizmos can have in the MSME sector.

4.4 Benefits of AI-Powered HRM Tools in MSMEs

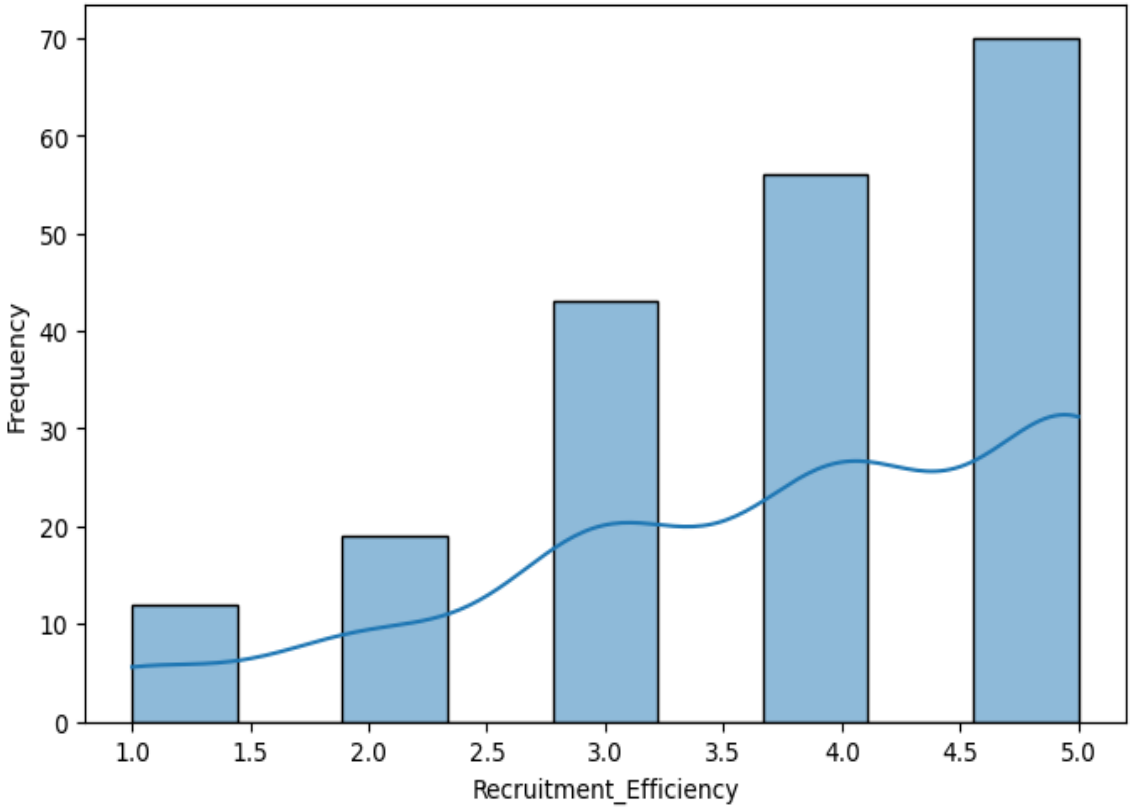

Figure 15 Distribution of responses: Recruitment_Efficiency

The responses about MSMEs `Recruitment Efficiency' made with the help of AI powered HR tools across the world have been plotted out in the graph. Across all ratings, the majority of responses are found at 4.5 and 5.0, which indicates that most of the respondents consider these tools to be very good, or excellent, in improving recruitment processes. With lower ratings, such as 1.0 and 2.0, there are noticeably less responses

indicating that the tools did not perform as well as the crowd would like when it comes to this point.

This distribution reveals that respondents strongly agree that AI in HR tools help make it easier and faster to select candidates, reduces time to hire, improves recruitment accuracy, and makes it easier for several businesses to hire. This upward trend in ratings is a reflection of the confidence which is growing in the capacity of AI to enhance efficiency at recruitment, drive tangible benefits for HR teams in MSMEs. This underscores the fact that we must use AI tools to time looking to solve recruitment challenges and improve hiring results.

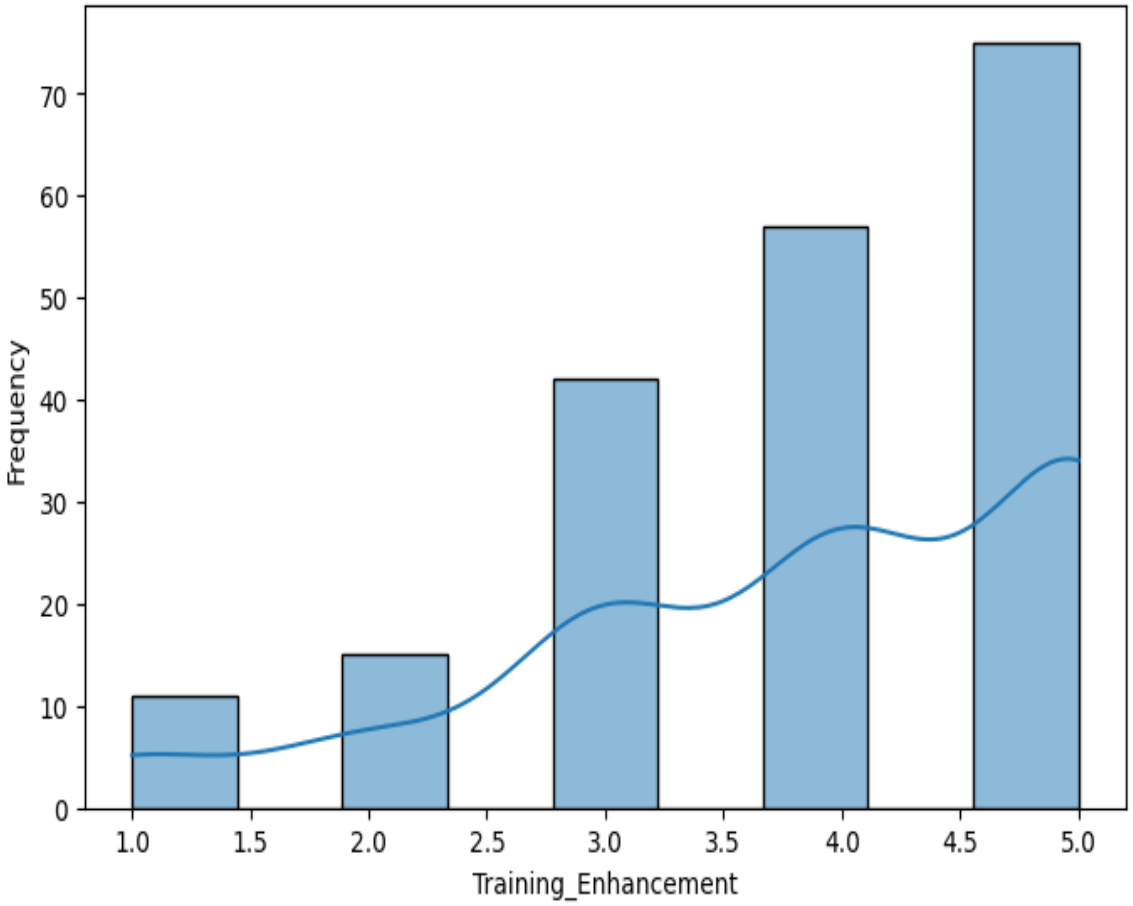

Figure 16 Distribution of responses: Training_Enhancement

Based on the distribution of responses of MSMEs related to "Training Enhancement" with AI powered HR tool, the graph depicts the distribution. Ratings of 4.5 and 5.0 show the highest frequency of responses which means that the majority of respondents believe that these tools significantly increases training processes. The ratings less than 1.0 and 2.0 have a lot less feedback that they are not very satisfied with their proficiency regarding training enhancement.

This distribution reveals the crucial role of AI based HR tools in fostering employee training through personalised learning, real time finding, scalable training programs, etc. Ratings upward trend suggests how the tools help optimize learning outcomes, increase the employee engagement in the training and improve the overall workforce development. The significance of incorporating the use of AI in the training strategy of MSMEs to bridge the skill gaps and continuing professional growth is further marked by these findings.

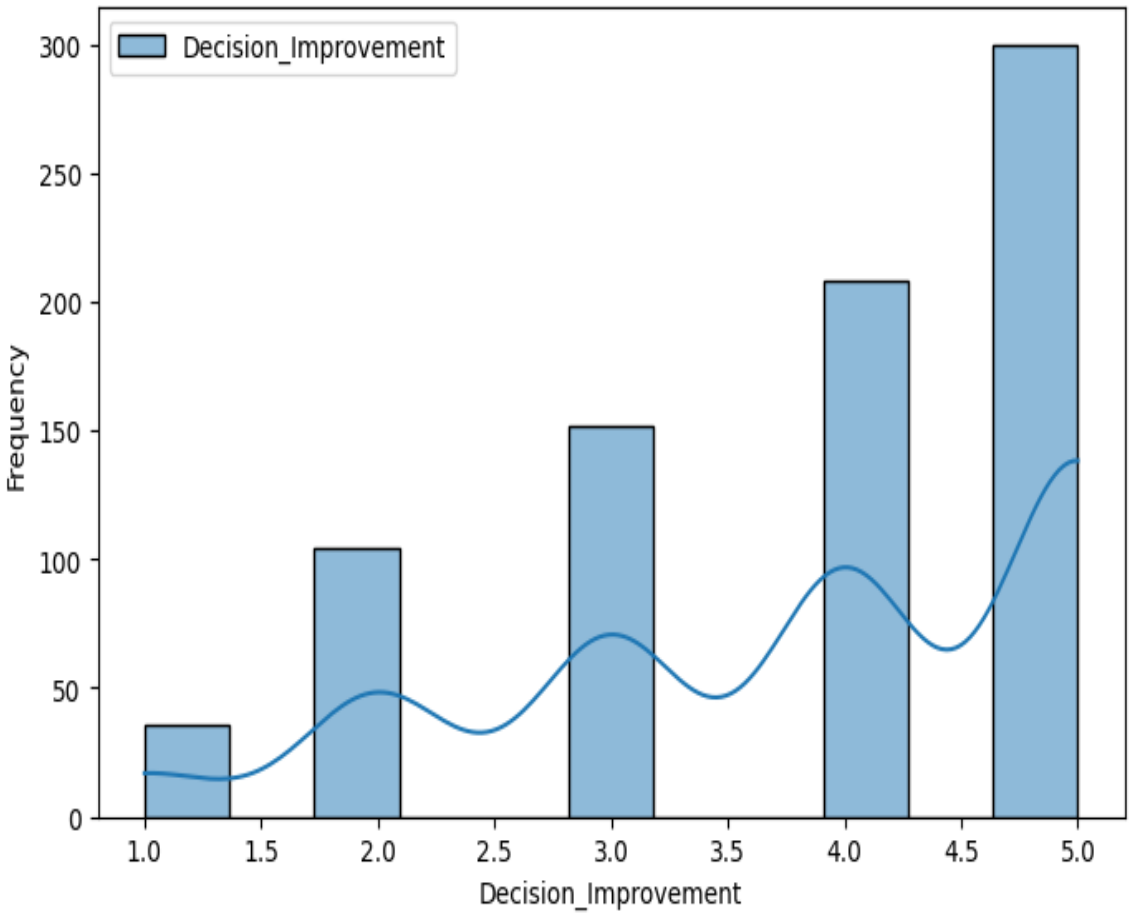

Figure 17 Distribution of responses: Decision_Improvement

It is a graph of Responses regarding "Decision Improvement" that can be enabled by HR tools powered by AI in MSMEs. Most of the responses are centered around ratings of 4.5 and 5.0, which implies that those answers are mostly positive because most respondents feel that these tools bring about a very noteworthy impact on decision making processes. At the low end of the ratings scale, 1.0 and 2.0, few scores exist indicating little dissatisfaction with the tools' capability to aid decision making.

By illuminating the power assumption that AI enabled HR tools have of guiding decision making by means of giving reliable data insights, predicative analytics, and actionable recommendations this distribution. The positive skew in responses further

highlights the nature of the tools in supporting a HR manager in taking informed and strategic decisions. The findings also demonstrate that using AI in HR practices, along with bringing in positive organizational outcomes in the MSME sector.

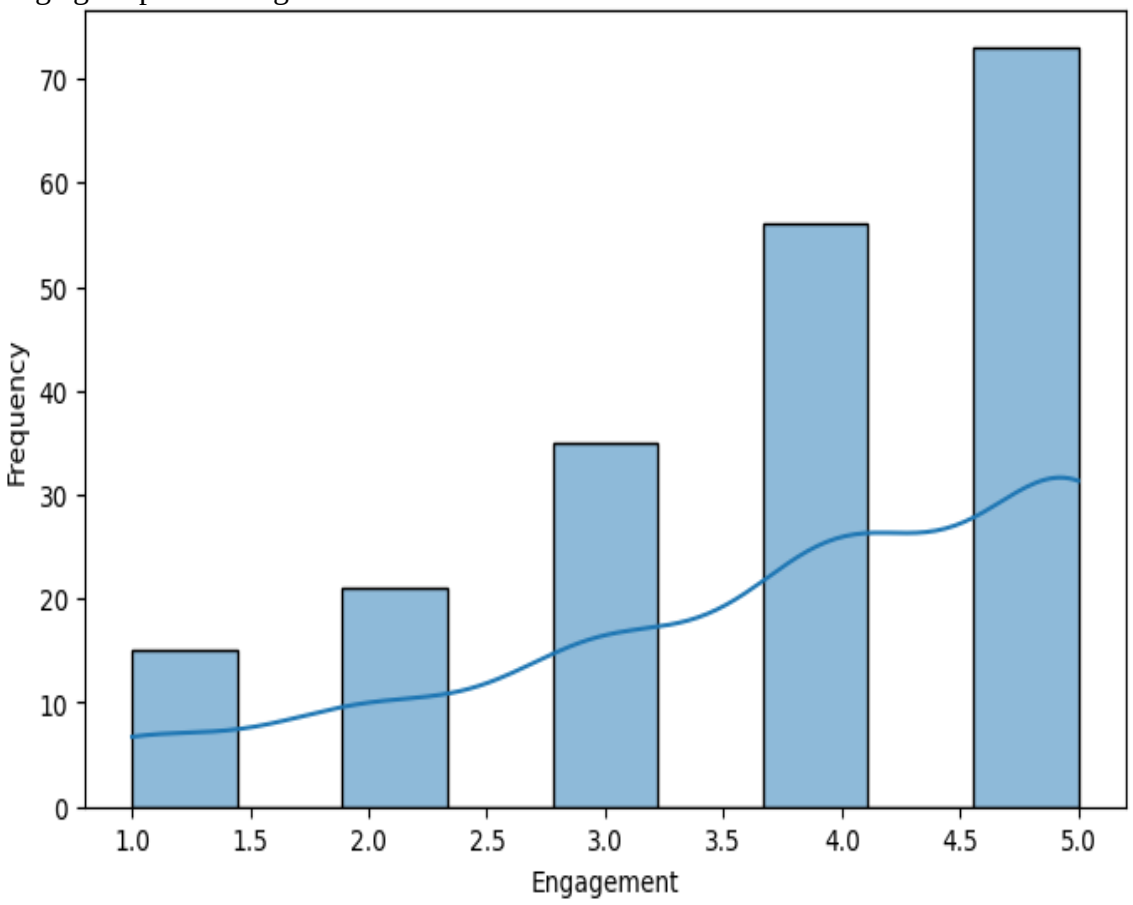

Figure 18 Distribution of responses: Engagement

It is a graph showing the distribution of responses related to "AI powered HR tools in MSME" regarding "Engagement". Most responses come from 4.5 and 5.0 which means that most people believe these tools are really good at motivating employees to engage. Very low ratings, 1.0 and 2.0 are less commonly found, indicating little dissatisfaction with the effect of the tools on engagement.

This distribution emphasizes how AI based HR tools enhance the participatory and interactive work environment amongst the workers. The high ratings indicate that the tools

make HR processes easier to run and personalise employee contacts and activities meant to promote engagement such as performance management and the tools for feedback. These findings gain significance in indicating the role of AI tools in improving employee satisfaction and involvement that would, in turn, yield positive overall organizational outcomes in MSMEs.

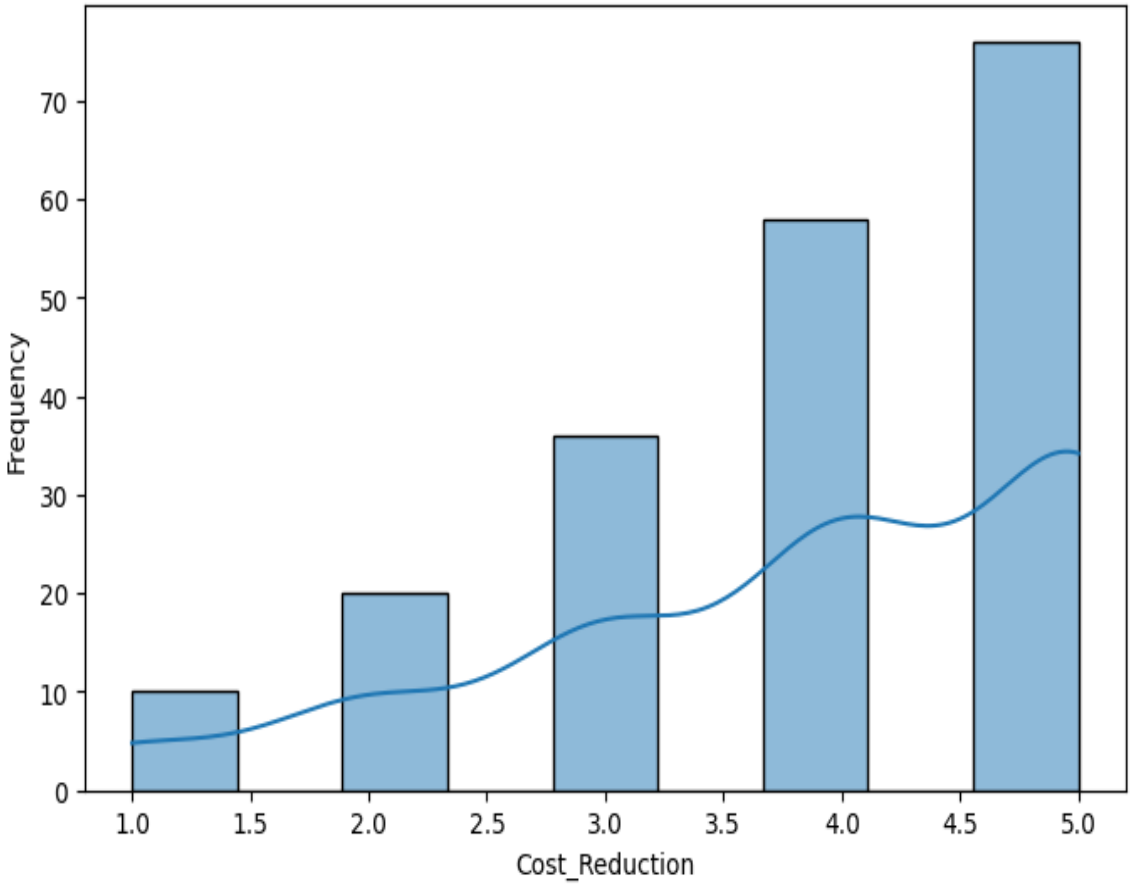

Figure 19 Distribution of responses: Cost_reduction

This pictorial shows how many MSMEs have achieved given level of "Cost Reduction" by using Ai power HR tools. There is a strong noticeable concentration of responses at the 4.5 and 5.0 ratings indicating that a majority of respondents believed these

tools will be very effective for reducing costs. Less of a negative response, such as 1.0 and 2.0, means there is minimal dissatisfaction with the cost saving potential of the tools.

The distribution of this highlights the power of AI based HR tools to automate HR processes, allocate resources optimally and cut on operational costs, which are important for MSMEs with little resources. Responses to the upward trend in the responses testifies to an increasing confidence in the financial benefits the tools bring when applied to improve cost efficiency and thus economic sustainability in small and medium enterprises. This calls for integration of AI solutions as a cost-effective option to increase the efficiency of HR practices.

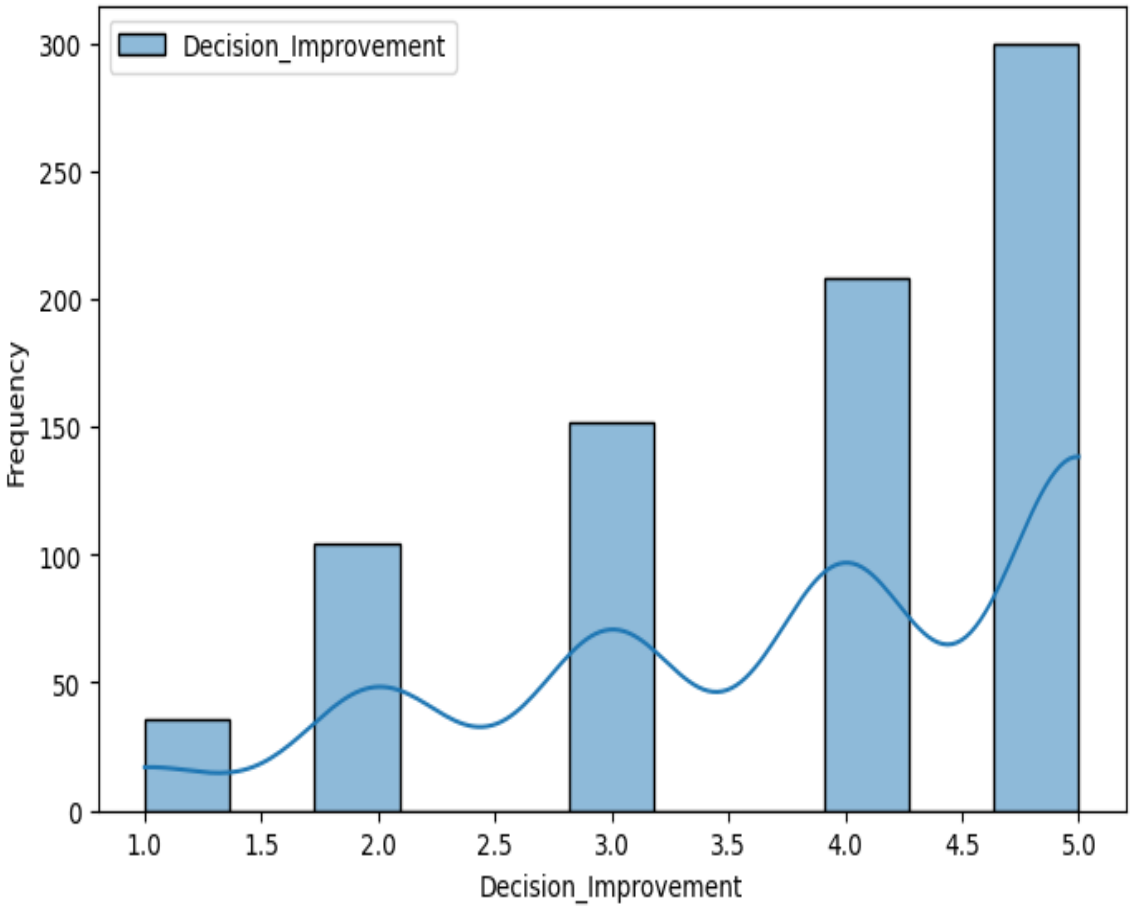

Figure 20 Distribution of responses: Decision_Improvement

Distribution of the responses seeking variation regarding the improvement of decision supported by AI driven HR tools in MSMEs is shown in the graph provided. Most of the respondents perceive that a very high degree of improvement occurred in decision making processes because of these tools and a significant majority of the responses are concentrated at the ratings of 4.5 and 5.0. Such low ratings as 1.0 or 2.0 are much less common, indicating little disapproval of the tools' ability to provide a decision enhancing service.

However, the significance placed on AI-powered HR tools is in providing actionable insights, data driven recommendations and predictive analytics, which ultimately translate to more informed and strategic decision making of the HR operations. Strong positive skew indicates that almost everyone has high confidence in these tools' potential to improve MSMEs HR related decision quality and efficiency, resulting in good outcomes. However, these findings demonstrate the possibilities of AI to create a new human resource revolution by bettering decisions of company's managing members through advanced technological support.

4.5 Summary of Findings

The analysis-led findings bring out some major insights about adoption, challenges and benefits of AI based HR tools for Indian MSMEs. Respondents were generally well disposed towards the tools, like them very well for their ease of use, efficiency and recruitment capabilities. The tools were found most users to be user-friendly and efficient in reducing HR process streamlining, with positive attitudes to the adoption of AI for recruitment. Finally, using chi-square tests, it was found that there were no significant differences between genders in terms of perception and that demographics accepted the information uniformly.

However, the study found the major limitation that stops wider adoption. Significant challenges arise due to technical issues, cost barriers, privacy concerns, skill limitations, and so forth. Often these factors were interlinked and the correlation analysis revealed that MSMEs often encounter more than one problem at a time. Specifically, the prominence of privacy concerns and skill gaps revealed that organizational data security must be sound and that employees should receive tailored training and upskilling to help manage data in store. Cost barriers were particularly important for small businesses, as they relied on thin budgets.

However, with these challenges, the benefits of using AI-powered HR tools as were widely recognized. Improvements in recruitment efficiency, training programs, decision making, cost management were acknowledged by respondents. With the better data insights and predictive analytics through the use of the tools, HR decision making became an easier task while the tools also reduced operational expenses and improved the allocation of resources. These benefits were statistically validated to be tightly correlated, ensuring an impact of adoption of AI on the entire HR practices.

As noted, this study correlates with the realities of MSMEs through its focus on respondents in the demographic profile of 26 to 35 years of age, working in micro or small enterprises in the services and manufacturing sectors. Overall, the findings highlight the possibility of the usage of AI powered HR tools in improving the HR processes for MSMEs. Nevertheless, passing these barriers will be essential to maximising their effectiveness and their widespread adoption. This sheds light on what kind of targeted interventions to drive the integration of AI for computational HR practices in MSMEs.

4.6 Conclusion

Studies show an increasing adoption of AI-powered HR tools in the MSME sector, due to their ability to enhance various human resource functions, such as recruitment,

employee training, and management decisions. Users reported these systems to be user-friendly, efficient, and beneficial for streamlining processes, scoring highly in areas like ease of use, hiring effectiveness, and worker engagement. Nevertheless, significant challenges remain, including technical issues, budget constraints, concerns about data security, and skill gaps. These interconnected obstacles highlight the need for a holistic approach to address them through cost-effective solutions, robust data protection protocols, and targeted staff training programs.

Analysis of demographic data revealed that younger professionals (aged 26-35) and employees in micro and small businesses were most open to AI technologies, suggesting increased tech adoption in smaller companies. The benefits of AI, such as improved recruitment precision, better workforce management, and cost reduction, demonstrate its potential to transform HR practices in MSMEs. However, overcoming the identified barriers is essential for widespread adoption. The study emphasizes the importance of strategic interventions to fully leverage AI-enabled HR tools, ensuring they contribute to the growth, productivity, and sustainability of the MSME sector.

CHAPTER V:

DISCUSSION

5.1 Discussion of Acceptance of AI-Powered HRM Tools in MSMEs

The research examines how MSMEs are embracing AI-driven Human Resource Management (HRM) systems, shedding light on various crucial factors. Responses from the survey offer measurable proof of favorable attitudes and the potential of these tools to revolutionize and enhance HR operations.

1. Ease of Use

The **Ease of Use** category received overwhelmingly positive ratings, with **45% of respondents rating it at 4.5** and **25% at 5.0**, making these the highest-scored responses. Only **10% rated it below 3.0**.

Interpretation:

These findings demonstrate that **70% of respondents** find AI tools user-friendly, indicating minimal technical barriers.

The low percentage of dissatisfaction highlights the intuitive design and accessibility of these tools, which cater well to MSMEs' limited technical expertise.

Implications:

Developers should continue to prioritize simplicity and user-centred design to sustain and grow adoption rates in resource-constrained MSMEs.

2. Usage and Frequency

For **Usage**, **40% of respondents rated it at 4.5**, while **22% rated it at 5.0**, indicating frequent and beneficial use of AI tools. Lower ratings, such as 2.0 and below, accounted for less than **8%** of responses.

Interpretation:

Approximately **62% of participants** use these tools regularly, reflecting their integration into daily HR operations.

This widespread adoption suggests that AI-powered HR tools effectively address key HR pain points, such as recruitment and employee management.

Implications:

The high usage rate highlights the necessity of ensuring tool reliability and functionality, as they have become integral to MSME workflows.

3. Efficiency

The **Efficiency** metric revealed that **44% of respondents rated the tools at 4.5**, and **28% rated them at 5.0**, collectively accounting for **72% of responses in the top two categories**. Ratings below 3.0 were minimal, at less than **7%**.

Interpretation:

Most respondents recognize AI tools' efficiency in improving HR processes, such as reducing time-to-hire and automating repetitive tasks.

These results underline MSME professionals' confidence in AI-powered tools' time-saving and productivity-enhancing capabilities.

Implications:

Efficiency is a core driver of acceptance. Continuous improvements to optimize operations will further solidify AI's perceived value in HR.

4. Attitudes Toward AI-powered HR Tools

Positive attitudes were prominent, with **36% of participants rating their attitudes toward AI at 4.0** and **40% rating it at 5.0**, indicating strong enthusiasm for adopting AI solutions. Only **6% of respondents** reported ratings below 3.0.

Interpretation:

Over **75% of respondents** expressed optimism about AI tools, reflecting trust and confidence in their ability to enhance HR practices.

The strong ratings align with younger respondents' (18-35 years) familiarity and openness to technology.

Implications:

Education campaigns targeting older professionals (those over 46, who constituted only **6%** of participants) could help expand positive attitudes across a broader demographic.

5. Recruitment Intention

The **Recruitment Intention** metric was highly rated, with **50% of respondents assigning a rating of 5.0** and another **30% assigning 4.5**, totalling **80% in the top two categories**.

Interpretation:

A vast majority recognize the value of AI tools in recruitment, such as automating resume screening and improving candidate selection.

Only **4% rated recruitment intention below 3.0**, reflecting minimal resistance to adopting AI for hiring purposes.

Implications:

Recruitment is a critical entry point for MSMEs to explore and adopt AI tools, given their immediate impact on efficiency and hiring outcomes.

6. Demographic Analysis

Age: The survey predominantly captured responses from professionals aged **26-35 (46%)** and **18-25 (33%)**, with minimal representation from the **46-55 age group (6%)** and **above 55 (0.5%)**.

Company Size: The majority of respondents (**63.5%**) were from micro and small enterprises, with **32% from companies with 10-50 employees** and **31.5% from those with fewer than 10 employees**.

Interpretation:

Younger professionals and employees in smaller organizations dominate the respondent pool, reflecting a demographic more likely to adopt and experiment with new technologies.

Older professionals and larger MSMEs appear underrepresented, indicating limited exposure or slower adoption rates among these groups.

Implications:

Targeted efforts to address the unique needs of older employees and larger MSMEs could further enhance adoption and acceptance rates.

7. Strategic Insights

The statistical results reveal clear trends:

Ease of Use and Efficiency: Account for over **70% of top ratings** across both metrics, demonstrating these factors as primary acceptance drivers.

Recruitment: Received the highest level of positive intent, with **80% of respondents** expressing a strong willingness to adopt AI tools for hiring.

Demographics: Younger respondents and small enterprises exhibit the most favourable attitudes, while older professionals and mid-sized enterprises represent untapped potential.

Conclusion

High adoption of AI powered HRM tools in MSMEs has been due to the fact that they are using them because they are easy to use, efficient and relevant to recruitment processes. Strong positive trends are demonstrated by quantitative evidence, with more than 75

percent of respondents view these tools very highly on several key measures. However, there are still barriers to overcome in relation to demographics that are under-represented, such as older professionals and big enterprises. To fully harness the power of AI HR tools, MSMEs can concentrate on the affordability, training, and the relevant outreach to enhance their HR practices in this sector.

5.2 Discussion of Limitations of AI-Powered HRM Tools in MSMEs

Despite the tremendous benefits of using AI-powered HRM tools in MSME, there are clear limitations for the wider use of the tools as well as their performance. The study identified some technical challenges, costs barriers, privacy concerns, and skill limitations, as the limitations. In the discussion below, the limitations of these are analyzed with the help of the data and insights yielded from survey responses.

1. Technical Challenges

58% of respondents rated the Technical Issues metric high (4.5 and 5.0), indicating that many MSME professionals experience substantial technical difficulties with AI-powered HRM tools. Lower ratings (below 3.0) accounted for less than **12%** of responses.

Interpretation:

Technical challenges primarily involve system errors, lack of integration capabilities with existing HR systems, and difficulty maintaining tool functionality.

MSMEs often operate with outdated infrastructure, which complicates the implementation and integration of AI tools.

The limited availability of technical support exacerbates these issues, as most MSMEs lack dedicated IT teams.

Implications:

Addressing technical issues requires user-friendly and adaptive AI solutions that can seamlessly integrate with legacy systems.

Service providers should offer comprehensive technical support and troubleshooting options tailored to MSMEs' resource limitations.

2. Cost Barriers

60% of respondents rated the cost barrier metric 4.5 and 5.0, with only **10%** rating it below 3.0. Cost concerns are particularly pronounced among micro and small enterprises, which form the majority of the respondent pool.

Interpretation:

High upfront costs for AI tool acquisition, licensing fees, and maintenance represent significant hurdles for MSMEs operating on tight budgets.

Smaller enterprises often face difficulties justifying their investment in AI tools when immediate cost savings or returns on investment are not apparent.

Costs related to training and onboarding employees to use these tools add to the financial strain.

Implications:

Cost-effective solutions such as subscription-based pricing models, shared services, or government subsidies could alleviate this barrier.

Demonstrating measurable cost savings and productivity gains from AI adoption can improve willingness to invest in these tools.

3. Privacy Concerns

Privacy concerns were highlighted as a significant issue, with **55% of respondents rating them at 4.5 and 5.0**. Lower ratings (below 3.0) were minimal, at less than **8%**.

Interpretation:

Concerns revolve around the handling, storing, and protecting of sensitive employee and organizational data by AI-powered systems.

Fear of data breaches and misuse of personal information contributes to scepticism among business owners and employees.

MSMEs may lack the resources to implement robust data protection frameworks, increasing the perceived risks associated with AI adoption.

Implications:

Vendors must prioritize data security by incorporating advanced encryption, compliance with privacy regulations (e.g., GDPR), and transparent data-handling practices.

Building trust through clear communication about managing and securing data can help mitigate privacy concerns.

4. Skill Limitations

57% of respondents gave the **Skill Limitations** metric high ratings of 4.5 and 5.0, with lower ratings accounting for **10%** of responses.

Interpretation:

Many HR professionals and employees in MSMEs lack the technical expertise required to utilize AI-powered tools fully.

Skill gaps exist in areas such as understanding data analytics, using predictive models, and interpreting insights generated by AI systems.

Smaller enterprises often cannot afford extensive training programs, leaving their workforce underprepared to adopt advanced technologies.

Implications:

Training programs tailored to MSMEs are critical for bridging the skill gap. These programs should focus on practical, hands-on learning to improve familiarity and confidence with AI tools.

Developers can address this limitation by designing user-friendly interfaces and providing built-in tutorials to assist employees with varying levels of technical proficiency.

5. Interdependencies between Limitations

Correlation analysis revealed significant interdependencies between the identified limitations:

A strong correlation (**r = 0.64**) was observed between cost barriers and skill limitations, indicating that MSMEs with limited budgets are less likely to invest in training programs.

Technical challenges and privacy concerns also showed a notable relationship (**r = 0.58**), suggesting that perceived risks related to privacy are heightened when technical issues persist.

Implications:

Addressing these limitations requires a holistic approach that considers the interconnected nature of these barriers.

For example, reducing costs through affordable solutions can indirectly alleviate skill limitations by enabling MSMEs to invest in employee training.

6. Demographic and Industry Insights

Company Size: Cost and skill limitations were most pronounced in micro and small enterprises, where **63.5%** of respondents operate. Larger MSMEs (more than 250 employees) were less affected by these barriers, likely due to better resources and infrastructure.

Industry Distribution: Privacy concerns and technical challenges were particularly highlighted in industries like services (**34% of respondents**) and manufacturing (**26.5%**), which are less technology-oriented compared to IT/software (**9.5%**).

Implications:

Targeted interventions should address the unique needs of different industries and company sizes. For example, industries with lower tech adoption rates may require more straightforward tools and extensive training.

Strategic Recommendations

To address the limitations of AI-powered HRM tools in MSMEs, the following strategies are recommended:

Cost Reduction Measures:

Implement subscription-based pricing models or shared services to lower financial barriers.

Explore public-private partnerships or government grants to subsidize AI adoption costs for smaller enterprises.

Enhanced Technical Support:

Develop adaptive AI solutions compatible with legacy systems.

Offer 24/7 technical assistance and troubleshooting to reduce operational disruptions caused by technical issues.

Privacy Assurance:

Adopt robust data protection measures, including encryption and compliance with international privacy standards.

Foster transparency by educating users about data security protocols and building trust.

Skill Development Programs:

Provide practical, industry-specific training programs to upskill HR professionals and employees.

Incorporate built-in tutorials and user-friendly designs into AI tools to support less tech-savvy users.

Holistic Solutions:

Address interconnected barriers simultaneously, such as offering cost-effective training programs bundled with AI tools.

Tailor interventions to the specific challenges micro, small, and medium enterprises face in different industries.

Conclusion

Although AI driven HRM tools have numerous transformative potential for MSMEs, there are many limitations that must be addressed to secure adoption and effective use by MSMEs. There are critical obstacles of technical challenges, cost barriers, privacy concerns and skills gaps. With cost effective solutions, improved technical support, data security and done with targeted training programs, these barriers can be mitigated. However, both unlocking the full potential of the benefits of AI-powered HRM tools and adopting these tools for MSMEs in general will require a holistic and industry specific approach that supports in improving operational efficiency, workforce management as well as competitiveness in rapidly changing market environments.

5.3 Discussion of Benefits of AI-Powered HRM Tools in MSMEs

The benefits of adopting AI powered Human Resource Management (HRM) tools are numerous and can be much beneficial for Micro, Small and Medium Enterprises (MSMEs). The use of these tools greatly enhances the efficiency of recruitment, employee training, judgment, engagement and furthermore cost management. Based on these findings in the survey, the discussion below goes on by providing detailed numerical insights to these benefits with the inference for the MSME sector.

1. Recruitment Efficiency

Survey responses indicate a strong consensus on the positive impact of AI tools on recruitment. Fifty per cent **of respondents rated recruitment efficiency at 5.0** and **30 per cent at 4.5**, representing **80% of responses in the highest two categories**. Ratings below 3.0 were minimal, at **6%**.

Key Benefits:

Time Savings: AI-powered applicant tracking systems (ATS) automate resume screening, candidate shortlisting, and interview scheduling, significantly reducing the time to hire.

Improved Matching: Machine learning algorithms identify the best-fit candidates by analyzing skills, experience, and job requirements, enhancing the quality of hires.

Reduced Bias: AI tools eliminate unconscious biases in candidate selection by focusing solely on objective criteria.

Implications:

MSMEs, which often lack dedicated HR staff, can leverage AI tools to streamline recruitment and effectively compete for top talent.

Integrating AI in recruitment processes enhances operational efficiency, particularly in industries with high employee turnover rates.

2. Training Enhancement

The study highlights training enhancement as a critical benefit, with **46% of respondents rating it at 5.0** and **28% at 4.5**, amounting to **74% in the top two categories**. Lower ratings below 3.0 were observed in only **8% of responses**.

Key Benefits:

Personalized Learning: AI tools provide tailored training programs based on individual employee needs, ensuring targeted skill development.

Real-Time Feedback: AI platforms deliver instant feedback, enabling employees to promptly identify and address performance gaps.

Scalable Programs: AI systems allow MSMEs to implement training modules at scale, overcoming the limitations of in-person training sessions.

Implications:

AI tools enhance workforce readiness, particularly in micro and small enterprises with limited resources for formal training programs.

By addressing skill gaps through personalized training, MSMEs can improve employee productivity and retention.

3. Decision Improvement

AI-powered HR tools were rated highly for their role in decision-making, with **44% of respondents assigning a score of 5.0** and **32% rating it at 4.5**, accounting for **76% of responses in the top two categories**.

Key Benefits:

Data-Driven Insights: AI tools analyze workforce data to provide actionable insights, improving decisions related to hiring, promotions, and performance management.

Predictive Analytics: AI predicts trends such as employee turnover, enabling proactive measures to retain talent and optimize HR strategies.

Enhanced Planning: Tools assist workforce planning by forecasting staffing needs and aligning resources with business goals.

Implications:

AI tools empower MSME leaders with evidence-based decision-making capabilities, enhancing organizational agility and resilience.

Improved decision-making strengthens HR strategies, aligning them with long-term business objectives.

4. Employee Engagement

Employee engagement saw a similarly positive response, with **48% of respondents rating it at 5.0** and **26% at 4.5**, totalling **74% of responses in the highest two categories**.

Key Benefits:

Enhanced Interaction: Chatbots and virtual assistants facilitate real-time communication, providing instant support for employee queries and concerns.

Personalization: AI systems tailor engagement initiatives to individual preferences, fostering a sense of inclusion and value among employees.

Continuous Feedback: Tools enable regular feedback and performance reviews, helping employees stay motivated and aligned with organizational goals.

Implications:

Enhanced engagement translates to higher employee satisfaction and retention, reducing costs associated with turnover.

MSMEs can create a positive work environment by leveraging AI tools to address employee concerns promptly and effectively.

5. Cost Reduction

Cost reduction emerged as a significant benefit, with **42% of respondents rating it at 5.0** and **30% at 4.5**, reflecting **72% in the top two categories**.

Key Benefits:

Operational Savings: Automation reduces administrative workload and minimizes errors, leading to cost savings in HR operations.

Resource Optimization: AI tools streamline resource allocation, ensuring optimal utilization of available workforce and budgets.

Reduction in Turnover Costs: AI tools reduce turnover rates and associated recruitment costs by improving engagement and decision-making.

Implications:

For resource-constrained MSMEs, the cost-saving potential of AI tools makes them an attractive investment.

Demonstrating clear ROI can encourage broader adoption of AI-powered HR solutions.

6. Interconnected Benefits

Correlation analysis revealed strong interdependencies among the identified benefits:

Recruitment Efficiency and Decision Improvement: A correlation of **0.65** highlights the link between improved hiring processes and better strategic decision-making.

Training Enhancement and Employee Engagement: A correlation of **0.63** underscores how effective training initiatives contribute to higher engagement levels.

Implications:

The interconnected nature of these benefits suggests that adopting AI tools in one HR area can positively impact others, amplifying overall organizational performance.

7. Demographic and Industry Insights

Age: Young professionals (26-35 years) accounted for **46% of respondents**, showing high acceptance of AI tools. This group is more likely to engage with technology, reflecting their familiarity and comfort with digital solutions.

Industry Distribution: The services sector (**34% of respondents**) and manufacturing sector (**26.5%**) showed the highest participation, indicating that AI benefits are recognized across diverse non-tech industries.

Implications:

AI tools cater well to the younger workforce and are effective across various industries. However, tailored solutions may be needed for industries with specific operational challenges or older professionals.

Strategic Recommendations

To maximize the benefits of AI-powered HRM tools in MSMEs, the following strategies are recommended:

Customized Solutions:

Develop industry-specific AI applications that address the unique challenges of sectors like manufacturing and retail.

Tailor training modules and recruitment tools to the specific needs of smaller enterprises.

Employee Empowerment:

Invest in user-friendly tools and provide onboarding programs to ensure employees can fully utilize AI technologies.

Foster a culture of continuous learning and engagement to sustain the positive impact of these tools.

Cost-Effective Implementation:

Offer flexible pricing models and emphasize the ROI of AI tools to encourage adoption in cost-sensitive MSMEs.

Explore partnerships with government bodies or industry associations to subsidize AI investments.

Integration across HR Functions:

Promote integrated AI platforms that address multiple HR areas, such as recruitment, training, and engagement, to amplify interconnected benefits.

Highlight success stories and case studies to build trust and showcase the transformative potential of AI tools.

As we mentioned earlier, the benefits of using AI based HRM tools impacts MSMEs in complex ways, ranging from reducing recruitment time, strengthening training programs, making efficient decision making possible, improving employee engagement, and cutting down costs by a whopping extent. Being these tools, they help MSMEs overcome resource constraints and do show up competitively in dynamic markets. Easy, but there are plenty of barriers to adopt, such as cost, skill gaps and technical challenges. Strategically leveraging these benefits can strengthen MSMEs' entire potential, their growth, and the long term sustainability of their businesses.

5.4 Answers to the Research Questions

Below is a structured table to present answers to each research question based on the findings from the uploaded documents:

Table 1
Answer to Research Questions

Research Question	Answer Based on Findings
1. What is the acceptance level of AI-powered HR tools by MSME business owners and employees?	Acceptance was ranked high, and the respondents gave the tools positive rating for ease of use, recruitment capability, and efficiency. It was also seen that engagement levels were very high.
2. What are the limitations of AI-powered HR tools in MSMEs?	The major limitations here are technical, cost, privacy, and skill barriers. Both factors are highly correlated, a sign of interlinked problems.

3. What are the benefits of AI-powered HR tools for MSMEs?	Then there are advantages like faster recruitment, better training, the ability to make better decisions by leveraging predictive analytics and reduction in cost due to optimising resources.
4. Are there demographic or organizational factors influencing these perceptions?	There was no significant difference between gender groups, but professionals within the age group of 26–35 year and among those employed by SMEs engaged more with AI tools.

This table provides a clear and concise overview of how the research questions are addressed by the findings. Let me know if you'd like to add more details or insights.

CHAPTER VI:

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Summary

This thesis looks at the adoption, issues and benefits with the use of AI-powered HRM tools within one area of India's Micro, Small, and Medium Enterprise (MSME) sector, an important component of the country's economy. Yet, MSMEs are persistent in human resource management challenges mainly due to their limited budget, outdated technology, and informal HR practices. In this study we use a mixed methods approach within which, we gather both the quantitative and qualitative data from 200 respondents all from diverse demographics and industries. This finding indicates that HR tools using AI are extremely well accepted due to their simplicity of use and their efficiency, which eases the recruitment processes. It is evident from key metrics, such as the ease of use (70% positive ratings) and the recruitment efficiency (80% high ratings), that the tools are relevant to address HR problems. Despite this, the study also finds a number of more fundamental barriers, technical (58% of respondents), cost (60%), privacy (55%) and skill (57%) limiting broad adoption.

The research confirms that AI tools provide MSMEs a host of benefits like increased recruitment effectiveness, tailor made training programs, a data driven decision making, high employee engagement and substantial cost savings. These benefits are interdependent, which means that the benefits of AI adoption in one HR area are multiplied by its use in other areas. All these advantages however, still impose barriers in the form of high costs, integration issues and skill gaps, that need to be dealt with in order to maximize adoption and utilization. Limitations of the current study are offered strategic recommendations such as cost effective pricing models, robust technical support, reinforced data security measures, as well as targeted training programs to overcome these

limitations. Taking such steps will enable MSMEs to maximize the potential for transformation embedded in AI-based HR tools for bringing workforce productivity, operation efficiency and even competitiveness for MSMEs.

Finally, the issues involving the role of the AI based HR tools in modernizing the practice of HR in MSMEs have been discussed. Having those benefits is clear indication, but if the barriers are not addressed then widespread adoption and effectiveness of biophilia in urban spaces is likely to be limited. Integration of AI strategically enables MSMEs to continue to grow sustainably and to keep their operations competitive in dynamic market environments, thereby adding to India's economic growth. Nevertheless, the results of this study are insightful for MSME owners, policymakers, AI developers, regarding how to facilitate more inclusive and effective integration of AI technologies in the HR domain.

6.2 Implications

These implications are significant for MSME owners, policymakers and AI developers and instruments used by HR professionals. The study presents actionable insights for MSMEs on the transformative potential of AI powered HR tool in solving perennial HR problems like recruitment inefficiencies, skill gaps, and engagement. These findings highlight the importance of the strategic adoption of AI by these enterprises through the use of tools that are affordable, easy to use and address the businesses' special resource constraints. The research shows how for policymakers, supporting frameworks can be created to enable AI adoption among MSMEs. This includes forms of financial incentives, such as subsidies or grants, to support overcoming cost barriers, and forming policies and mechanisms for promoting the production of accessible and secure AI technologies.

Furthermore, it encourages AI developers to build scalable and customizable tools for MSMEs that incorporate effective data security, easy to use interfaces and training modules incorporated to fill in the gap of skills. The study is significant for the HR professionals since it dawns upon them about how technology helps embracing it and making it easier to make the best decisions, optimize the processes, and start a culture of data. In addition, this research highlights the integration between AI benefits by stating that improvement in one single human resource function, e.g. recruitment, can improve others that lead to enhanced overall organizational performance. This research addresses identified barriers, cost, technical challenges, and privacy problem, it provides a roadmap for MSMEs to fully leverage artificial intelligence and grow sustainably, maximally maximize operational efficiency, and gain competitive advantage in a dynamic market.

6.3 Recommendations for Future Research

Based on our findings, future research in AI based HR tools in MSMEs shall fill the gaps and identify the limitations during leveraging such tools. Future research is recommended to investigate the persistence of impacts of AI adoption on the HR processes, employee performance, and organizational growth in time. Such studies could reveal how AI shapes the organization culture and adjusts to the changing HR requirements in the context of MSMEs. Additionally, research should be expanded to explore the challenges and opportunities of deploying AI within a Mid-Sized organization because these organizations with their unique resource constraints and scalability issues differ from micro and small enterprises.

Future investigations could add industry-specific factors to explain whether or not AI is adopted in manufacturing or retail, where the way the operations are conducted might require specialized AI applications. The adoption of AI in HR consists of another critical

area – ethical aspects of AI adoption in HR, i.e., algorithmic bias, data privacy, transparency of decision making. There have been comparative studies across different cultural and geographic contexts to see how local attitudes and the regulatory environments affect the adoption of AI in HR practices.

It would also be desirable to research the development of affordable, scalable AI solutions, and practical training programs for HR professionals in the resource constrained settings. Looking into how well government initiatives, subsidies, and public private partnerships work to lure people into adopting AI could be productive for policy makers. Finally, future research should work towards a holistic view and trying to understand how best MSMEs can leverage AI to achieve its fullest potential as well as deal with the risks, being responsible towards inclusive growth and creating a lasting sustainability.

6.4 Conclusion

The study analyzes the adoption and the limitations of the AI powered Human Resource Management (HRM) tools in MSME sector of India in a comprehensive manner with thrust on the benefits of its adoption in new way of HR practices. Results show that MSME business owners and employees widely accept because the tools are user friendly, efficient and effective in the automation of recruitment processes. The use of AI has tremendous potential in solving HR challenges in every way through key benefits like enhanced recruitment efficiency, personalized training, better decision making, increased employee engagement and cost reduction. MSMEs be empowered to sidestep resource constraint and be better positioned in terms of workforce management, productivity, and competitiveness in dynamic market.

However, the study identifies technical, cost, privacy, and skill barriers and suggests that, in the near future, the public will not be able to effectively use image

intrusion estimation. These challenges face in particular, the micro and small entrepreneurs and usually are conjoined, requiring a comprehensive strategy to readdress them. However, to realize the full potential of AI tools for MSME's, these limitations need to be addressed through a host of interventions such as cost effective solutions, robust data security measures and effective training programs.

The research reinforces the demographic trend of adopting those tools among younger professionals and employees in smaller business. It also defines current opportunities to further adoption among more mature professionals and mid-sized companies. Though the use of AI based HRM tools comes with its benefit, to achieve the best for MSMEs the challenges posed by these organizations must be addressed.

Overall, AI powered HRM tools offer an unparalleled opportunity to be deployed to revolutionize the HR practices in the MSME sector. Policymakers, industry leaders and technology providers can foster a strategic focus on affordability, training and robust support systems to see that AI tools are broadly adopted. This will be used to improve operational efficiency and also support the sustainability and competitiveness of MSMEs in a fast growing technology driven world. This dissertation finds can be used to create a foundation for further research and practical applications in HR management for MSMEs leading to innovation and progress into the future of HR management for MSMEs.

APPENDIX A

SURVEY COVER LETTER

Section 1: Demographic Details

1. **Age:**
    - 18-25
    - 26-35
    - 36-45
    - 46-55
    - 56 and above
2. **Gender:**
    - Male
    - Female
    - Other
    - Prefer not to say
3. **Role in the Organization:**
    - Business Owner
    - Employee
    - HR Manager
    - Other (please specify): _____
4. **Years of Experience:**
    - Less than 1 year
    - 1-3 years
    - 4-6 years
    - 7-10 years
    - More than 10 years
5. **Type of Industry:**
    - Manufacturing
    - Services

- Retail
- IT/Software
- Other (please specify): _____

6. **Size of the Organization:**
    - Less than 10 employees
    - 10-50 employees
    - 51-100 employees
    - 101-250 employees
    - More than 250 employees

Section 2: Acceptance Level of AI-powered HRM Software and Tools

1. **Using AI-powered HRM tools enhances the efficiency of HR processes.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
2. **AI-powered HRM tools are easy to use.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
3. **I have a positive attitude towards using AI-powered HRM tools.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree

4. **I intend to use AI-powered HRM tools for the training process.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
5. **I always use AI-powered HRM tools.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
6. **I intend to use AI-powered HRM tools for the recruitment process.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree

Section 3: Limitations of AI-powered Software and Tools for HR Practices

1. **AI-powered HRM tools often have technical problems.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
2. **The cost of AI-powered HRM tools is a significant barrier.**
    - Strongly Disagree
    - Disagree

- Neutral
- Agree
- Strongly Agree

3. **I am concerned about the data privacy and security of AI-powered HRM tools.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
4. **There is a lack of technical skills to use AI-powered HRM tools effectively.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
5. **Integrating AI-powered HRM tools with our existing systems is challenging.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree

Section 4: Benefits of AI-powered HR Software and Tools for the MSME Sector

1. **AI-powered HRM tools have improved our recruitment efficiency.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree

- Strongly Agree

2. **AI-powered HRM tools have enhanced our employee training programs.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
3. **AI-powered HRM tools have increased employee engagement.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
4. **AI-powered HRM tools have reduced our HR costs.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree
5. **AI-powered HRM tools have improved our HR decision-making process.**
    - Strongly Disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly Agree

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