

Adoption Of AI In HRM In Resource Constrained Organizations: A Study Of MSME Segment In India

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Abstract

Artificial Intelligence (AI) is increasingly reshaping every aspect of management, human resource management (HRM) is no exception. While large organizations are using AI for day-to-day HR functions, it is relevant to understand if smaller organizations having scarce resources are also using AI to carry out such roles. This study explores the perception and usage of AI by the HR departments of micro, small and medium enterprises (MSME) in Hyderabad. The study adopted qualitative technique and the primary data was collected through in-depth interviews of HR professionals in MSME sector. The study highlights the benefits and challenges of AI adoption in HRM, specifically in the context of resource-constrained small-scale organizations. Through integrating qualitative and quantitative data, the research found interesting insights about both human side as well as technological excellence of AI adoption patterns of HR departments in this segment. It offers recommendations to the decision and policy makers in this direction.

Keywords: AI; AI adoption; HRM; MSME; India; digital technology; change management

1. Introduction

With the advent of artificial intelligence (AI) and rapid integration of it in every field globally, more and more organizations are integrating AI in various business processes. This integration is not only seen in decision-making but also at the operational level in various functional areas including human resource management (HRM). HR departments are employing AI as a strategic tool in various operations ranging from automated recruitment systems and chatbots to performance appraisal to achieve better efficiency and competitiveness. While large organizations across the world are adopting AI in HRM, it is also relevant to understand if and how smaller organizations are implementing AI. It is also imperative to understand if it is only the organizations from the developed nations or the developing economies like India too, that are implementing AI in HRM departments. It is also necessary to know if the size of the organization impact AI implementation decision. Further, in a country like India, whether and to what extent the micro, small and medium enterprises (MSME) implement AI in HR functions is something that is worth research interest.

In India, MSME sector employs more than 111 million people, contributes about 30% to the GDP (Ministry of MSME, 2023) and more than 45.79% to exports (Press Information Bureau, 2025). The sector includes micro, small and medium-sized businesses in both manufacturing as well as service and retail segments. Research says AI improves effectiveness of HR practices in organizations. However, adoption of AI is limited in smaller organizations if

limited due to scarcity of resources, lack of skill and awareness of advanced digital technology (Singh & Hess, 2020).

In contrast to large organizations, HR departments in smaller organizations are not very well structured and formal and do not have many resources. Some organizations also outsource their HR functions to external consultants. This causes recruitment and retention challenges, performance management and statutory compliance. In this scenario, automating routine HR functions, making data-driven decisions and enhancing employee experience through implementing AI can be a good solution. However, the financial implications, uncertainty of the relevance to micro, small and medium organizations, employee resistance, socio-cultural perceptions, organizational culture could be potential challenges to AI implementation. This situation gives rise to critical questions about perception, adoption and resistance to AI implementation in HR departments in MSME segment.

The current study is focussed on gaining insights in this direction to find answers to the following research questions.

RQ1: Do the MSMEs in India adopt AI in their HR departments?

RQ2: What are the factors and challenges in adopting AI in HR functions in small-scale organizations?

RQ3: What are the differences in perceptions and practices of AI implementation between the organizations that use and those that do not use among MSMEs?

To find answers to the above questions, the researchers carried out exploratory research. The study employed a mixed methodology that has been carried out to achieve the following research objectives.

Objectives:

This is an exploratory study that is carried out to achieve the following objectives:

1. To understand the factors that contribute to the AI adoption in HRM among MSMEs in India.
2. To understand the factors that constrain AI adoption in HRM among MSMEs in India.
3. To gain insights on the perceptions and practices of AI implementation in HR departments of MSMEs in India.

To achieve the above objectives, the researchers have first reviewed the existing literature in the area of AI adoption in HRM in organizations. A substantial amount of secondary data has been collected through the review of literature, which has been briefed out in the following section.

2. Literature Review

2.1 AI in HRM: Global Perspectives

HR departments are rapidly getting digital transformation and AI is bringing about a paradigm shift not only by automating repetitive tasks but also in analytics and improving employee experience. Organizations across the world are using AI tools as virtual assistants and chatbots in recruitment, selection, analytics for performance appraisal, employee engagement, learning and development. This has shown to enhance overall efficiency and decision-making driven by data analytics (Jarrahi, 2018; Bondarouk & Brewster, 2016).

Contemporary research indicates implementing AI in HRM is both beneficial and challenging. While it reduces human bias and improves processes like talent acquisition, on-boarding and employee feedback (Meijerink et al., 2021), the challenges of algorithmic opacity and employee resistance have been found to be challenging (Shrestha, Ben-Menahem, & Krogh, 2019). Most of the studies in this area have focussed on large organizations, the AI adoption varies with the sectors and the size of the organizations (Strohmeier, 2020). Moreover, scarcity of resources, lack of awareness, cost and cultural factors are slowing down AI adoption in certain sectors and organizations.

2.2 Technology Adoption in Organizations

The pattern of technology adoption by organizations can be understood by various factors. In his technology acceptance model (TAM), Davis (1989), mentioned perception of effectiveness and ease of use as the factors that influence adoption. The Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al., (2003) have added social influence and favourable conditions, compatibility and relative advantage have been added by Rogers (2023). While the focus of such technology adoption models are majorly the large firms, factors related to resources are more relevant to smaller organizations.

Adoption of technology by HR departments is not just a technical upgradation. It is more a human-centric approach beyond economic and technical factors. It is a paradigm shift in employee relations practice (Meijerink et al., 2021).

2.3 MSMEs in India: HRM Practices and Digitalization

A study carried out in India by **Pandey (2020)** on 150 respondents offers empirical evidence of the increasing role of AI in HR domain. The study found that AI is most effective in recruitment and training processes, better customer relationships, improved creativity and better communication. However, barriers such as poor data quality, skill gaps, and cultural resistance limited adoption.

The Indian MSME sector is highly diverse, encompassing traditional manufacturing clusters, service providers, and technology-driven startups. Despite their economic importance, HRM practices in MSMEs are often informal and reactive. Studies show that many MSMEs lack dedicated HR departments; owners or line managers often perform HR roles alongside operational responsibilities (Budhwar & Varma, 2011; Press Information Bureau, 2025). Recruitment is frequently network-based, training is minimal, and performance management lacks systematic processes (Rao, 2019).

Digital adoption within MSMEs has been uneven. While digital payment systems and e-commerce platforms have seen widespread uptake, advanced technologies such as AI, big data, and cloud-based HR solutions are less common (Gupta & Bose, 2019). Factors impeding adoption include financial constraints, lack of awareness, low trust in technology vendors, and absence of skilled staff to manage digital tools (Kumar & Ayedee, 2021).

At the same time, the COVID-19 pandemic accelerated digital adoption in some MSMEs, particularly in areas like remote working, online recruitment, and digital payroll. For HRM, this has created a greater awareness of digital solutions, though adoption of AI remains limited (Nasscom, 2022). The Indian policy landscape, through initiatives like *Digital India*

and *Atmanirbhar Bharat*, emphasizes digital transformation, but practical support for MSMEs in AI adoption is still evolving.

AI in HRM has gained scholarly and practitioner interest for its potential to improve employee satisfaction, productivity, and decision-making. By automating repetitive tasks, handling large volumes of data, and enabling faster decision-making, AI can augment HR functions while freeing HR professionals to focus on strategic and human-centric activities (Budhwar, Malik, De Silva, & Thevisuthan, 2022). Successful integration, however, depends on organisational trust, transparent communication, and adequate training and support.

In India, **Pandey (2020)** provides empirical evidence of AI's growing role in HR. His study of 150 respondents found AI most impactful in talent acquisition and learning and development, with benefits including stronger client relationships, enhanced creativity, and improved communication. However, barriers such as poor data quality, skill gaps, and cultural resistance limited adoption. Similarly, **Yawalkar (2019)** showed that AI adoption reduces time-to-hire and administrative workload, while tools such as predictive analytics and gamification improve engagement and performance outcomes.

International studies complement these findings. **Gryncewicz et al. (2023)** highlight how AI supports recruitment, retention, and career planning, but caution against algorithmic bias and inadequate datasets. **Arslan et al. (2022)** argue that positioning AI as an augmentation tool, rather than a replacement, is vital to counter job-loss fears and build trust. **Khan et al. (2024)** and **Hossin, Sarker, Rahman, and Alam (2021)** add that AI significantly enhances performance management and workplace learning, though successful outcomes require both technical competence and ethical safeguards.

Regional research underlines contextual barriers. **Vandy (2023)**, focusing on Bangladesh, observed that traditional HR practices and financial constraints hinder AI adoption despite its efficiency gains. Comparable issues are noted in Indian MSMEs, where financial limits, weak infrastructure, and lack of AI expertise slow adoption (George & Thomas, 2019). Sectoral work by **Goswami et al. (2023)** in the Indian pharmaceutical industry also found that organisational readiness, technological maturity, and employee attitudes strongly determine AI integration outcomes.

Ethical issues cut across these debates. Scholars caution against data manipulation, algorithmic discrimination, and lack of accountability (Budhwar et al., 2022). **Rathi (2018)** found evidence of status quo bias among decision-makers when using AI-based ranking systems, underscoring the need for HR professionals to critically evaluate AI outputs rather than accept them uncritically. More recent experiments by **Malin et al., (2024)** show that while AI tools can improve selection quality, human biases and search strategies continue to shape results.

Finally, adoption trends are shifting. **Alsaif and Aksoy (2023)** report that around 60% of surveyed organisations have adopted AI in HR functions, with notable improvements in hiring efficiency, training effectiveness, and employee engagement. Yet concerns about transparency, data security, and ethical use remain prominent.

Taken together, the literature suggests that AI in HRM offers MSMEs a pathway to improve efficiency, reduce bias, and enhance employee experience. However, structural constraints, cultural factors, and ethical risks must be addressed to realise its full potential. For Indian MSMEs, capacity building, digital infrastructure investment, and responsible governance frameworks are particularly crucial.

2.4 Research Gap and Theoretical Framing

The review of research literature in the current study area has found the following gaps.

The review of literature in the area of AI in HRM has revealed that a majority of the studies in the area of AI in HRM have focussed on large organizations having structured HR departments. Further, most of the studies have employed quantitative technique for primary data collection. The current research has found the following contextual, functional and methodological gaps respectively.

1. Research on implementing AI in informal and unstructured HR departments, which is the case of small organizations is yet to be explored.
2. There are hardly any studies found that have employed mixed method using both qualitative and quantitative techniques for data collection to know perceptions and adoption patterns.

The current study addressed these gaps using Technology-Organization-Environment (TOE) framework (Tornatzky& Fleischer, 1990).

The study focussed on benefits of AI adoption as perceived by the HR professionals, organizational context in terms of size and structure and environmental aspects as policy and culture for AI adoption. Further, TAM and UTAUT were used in interpretation of employee perceptions and The study focussed on the framework is suitable as it captures how technological (e.g., AI's perceived benefits), organizational (e.g., HR structure, size), and environmental (e.g., cultural factors, client demands, policy) factors shape adoption. Additionally, insights from TAM and UTAUT inform the interpretation of employee perceptions, and 'Diffusion of Innovation' (DOI) theory (Rogers, 2003) positions AI adoption as an ongoing process impacted by trainability and cultural readiness.

The study combines these perspectives with empirical evidence from MSMEs in India, thereby contributing to building theory on digital transformation in resource-constrained small organizational contexts.

3. Methodology

3.1 Research Design

The researchers have employed mixed-methods technique wherein both qualitative and quantitative data was collected from HR professionals working in MSMEs in India. A structured interview schedule was used to interview HR professional working in MSME sector. Mixed method approach is specifically suitable for emerging areas of research such as AI adoption in HR (Creswell & Plano Clark, 2018). This approach gave insights on perceptions, experiences and meaning through qualitative data and patterns and prevalence of AI usage through quantitative means.

2.2. Population and Sample

The researchers have studied MSMEs in twin cities of Hyderabad and Secunderabad in India. The population includes all the HR professionals working at various levels of hierarchy working in MSME sector of Hyderabad and Secunderabad. Using purposive random sampling technique, qualitative data was collected through in-depth interviews of 15 HR professionals and quantitative data was collected through survey on 25 HR professionals.

Each interview lasted for one to one and a half hour. In addition to the interviews, a survey was conducted on 25 respondents from HR departments of organizations that include 11 adopters and 14 non- adopters of AI. This study employed a **mixed-methods design**, combining qualitative interviews as well as a survey on HR professionals from MSMEs in India. Mixed-methods approaches are particularly suited to emerging research areas such as AI adoption in HR, as they allow for both the **exploration of perceptions, experiences, and meanings** (qualitative) and the **examination of patterns, prevalence, and associations** (quantitative) (Creswell & Plano Clark, 2018).

The researchers used a sequential exploratory design for primary data collection. First, the qualitative data was collected through in-depth interviews, which helped in identifying the emergent themes and contextual differences. Followed by this, a survey was carried out to gain insights on broader patterns of AI usage across organizations. This approach helped in mapping the findings obtained through analysing data collected through qualitative and quantitative techniques, validate themes thereby presenting a comprehensive account of AI implementation in MSMEs.

3.2 Sampling and Participants

Qualitative Phase

Using a semi-structured interview schedule, a total of 15 interviews were conducted with HR professionals working at various hierarchy levels in MSMEs across various sectors including real estate, education, IT services, logistics, manufacturing and healthcare. The organizations were selected through purposive sampling technique so as to include various sectors, sizes and levels of digital adoption. Interviews were conducted in per and each interview lasted for one to one and a half hour.

Quantitative Phase

The second phase of data collection was done through administering a survey on 25 organizations that included both AI adopters and non-adopters. 11 of the survey respondents are from organizations using AI in HRM and 14 are from the organizations not using AI in HRM. Respondents answered a structured questionnaire that included demographic variables, extent of AI adoption, perceived benefits and challenges and future expectations. The data set was organized in two different sheets, one for AI adopting-organizations and the other for non-adopting organizations.

3.3 Tool construction and Data Collection

The interview schedule was developed based on the TOE framework. Accordingly, the three variables technological, organizational and environmental dimensions are covered. The constructs included knowledge, perceived benefits, applications of AI for the technological variable. HR structures, size of the organization, readiness to adopt, resistance to new technology and any other challenges are included in the organizational dimension. regulations, client demand, organizational culture and competitiveness are covered under environmental variable.

Questions are constructed around ethical concerns, skill requirements, internal resistance and future expectations. Interviewees' consent was taken to audio-record the interviews, which were transcribed to text for further analysis.

The questionnaire for survey was constructed with 44 questions that included closed-ended and Likert-scale type questions. The survey was administered on 25 HR professionals working at various levels in MSMEs. Responses were recorded and the attitudes are measured through Likert-scale with, 1 indicating strongly disagree, 2 indicating disagree, 3 indicating neither agree nor disagree, 4 indicating agree and 5 indicating strongly agree.

The variables measured are adoption, perceived benefits, challenges and future orientation. The questions covered recruitment, payroll management, performance management, efficiency, accuracy, employee experience, resistance to adopt, cost implication, skill requirements, ethical concerns and any future plans of adoption.

The survey was carried out online. A Google form was created and the link was shared with the respondents. A consolidation of the responses was downloaded in the form of Excel sheet for analysis and interpretation.

3.4 Data Analysis

Qualitative Analysis

To analyse the data collected through in-depth interviews, **thematic analysis** (Braun & Clarke, 2006) was carried out using inductive coding technique. First, codes were developed for recurring concepts such as automation, cost, resistance etc. The codes were then grouped into themes and sub-themes following TOE framework. Transcribes of original quotes by the interviewees were extracted and transcribed to illustrate the themes and sub-themes. The coding was refined and peer-reviewed within the research team to ensure rigor and accuracy.

Quantitative Analysis

The data collected through survey was cleaned and survey responses were cleaned and a descriptive analysis was done using Excel. A calculation of frequencies and percentages was done and then a comparative analysis between organizations who have adopted AI and those who have not adopted AI was done. Finally, variables have been cross-tabulated so as to identify any differences between these two sets of organizations in terms of perceived benefits, challenges and future plans of adopting AI.

Integration of Qualitative and Quantitative Data

The findings from both qualitative and quantitative data have been integrated through a joint display analysis (Fetters, Curry, & Creswell, 2013). In order to do integrated joint display analysis, comparative tables were drawn that mapped qualitative themes with quantitative data patterns. This integration was necessary to find the themes where the findings are aligning and the themes where the findings are not in alignment. It was also found where the findings are complementary to each other by providing unique insights.

3.5 Ethical Considerations

The researchers have followed the standards of research ethics for the study. The participants were informed about the purpose of the study and interviews, and survey was conducted with

their voluntary consent. The names of the respondents were kept anonymous as per their conditional consent to participate. Sensitive data as internal resistance and payroll discrepancies were cautiously paraphrased to avoid any reputational risk for the organizations. The interview schedule and survey questionnaire were designed to collect only organizational data, without any personal identifiers.

4. Findings and Analysis

4.1 Overview

The findings from analysing the data from qualitative and quantitative data has been integrated to identify convergence, divergence and complementary patterns of different themes. This section provides thematic presentation of the integrated findings under the Technology-Organization-Environment (TOE) framework. The variables under each element of TOE framework are discussed below.

4.2 Technology

4.2.1 Perceived Benefits of AI in HRM

Organizations that have implemented AI primarily use it for recruitment, attendance and payroll management and learning and development. Findings from survey data are also aligned with this with 82% of the respondents who adopted reported better efficiency and 73% cited enhanced accuracy as key benefits. Qualitative narratives illustrated these benefits: A respondent, who is an HR manager serving a mid-sized IT firm insisted that AI reduced resume screening time by applying filters, emphasized how applying keyword filters while using AI reduced screening time.

Another participant, who heads talent acquisition team described the benefits of AI chatbots in handling employee queries, leaving free time for HR heads to focus on strategy-making, which is human-centric. However, the perception of AI benefits among non-adopters is only abstract. They have indicated AI just as a “faster process” and that it does not have specific use cases. This gap in perception among adopters and non-adopters suggest there is no symmetry between the perceived benefits among adopters and non-adopters.

4.2.2 Challenges in Implementation

A majority of the respondents cited cost factor and employee resistance as the significant challenges to implement. Data from the survey showed that while 64% of the non-adopters found AI to be very expensive, 55% of the respondents cited data privacy as a major concern to adopt AI. Respondents of the organizations who are already using AI found complexities of payrolls as a major challenge. It was also found that these HR personnel indicated need of manual oversight as a significant challenge as they felt AI tools are not capable of considering contextual issues such as loss of pay for an employee or appraisal increments.

On the other hand, analysis of qualitative data found employee resistance as a major challenge to adopt AI. One of the interview participants, who heads an HR unit of an MSME in manufacturing sector said “workmen found AI complicated and resisted change, asking why it was needed now”. Other participants in from service sector too indicated scepticism about replacing “human touch” with AI.

Companies that implemented AI have conducted sessions on change management sessions, pilot programs and are auditing AI tools periodically.

4.2.3 Ethical and Privacy Concerns

Both interviews and survey data underscored growing concern about **data security**. Respondents emphasized the risk of sensitive data being misused. Speaking about which data AI tools can and cannot access, one HR manager expressed employees should know about it and advised implementing “mandatory training for all the staff entering the factory” on this.

About 55% of the survey respondents who adopted AI reported that they conduct regular audits to ensure data safety, while a majority of the non-adopter respondents cited concern over data security as the reason for not adopting AI so far.

4.3 Organizational Context

4.3.1 Human vs. Machine Roles

The analysis of the interview transcripts reveals irreplaceability of human empathy as a significant theme. Participants stressed that human emotions, conflict resolution or negotiations and counselling on sensitive issues of employees cannot be done by AI. A common sentiment observed was that “AI can only assist but cannot replace HR managers”.

Survey data reinforced this sentiment, with 71% of the total respondents agreeing to the statement “AI should complement, not replace HR functions”.

4.3.2 Resistance and Change Management

It was found that AI adoption was more resisted in manufacturing sector than the service sector. MSMEs employing a large number of semi-skilled workers reported scepticism, as the workers fear losing their jobs or using digital tools found to be difficult.

Organizations that adopted AI reported implementing various strategies of change management. These include sessions on awareness, demonstrating benefits of time and accuracy, and reassuring HR staff that AI is adopted only to assist and not to replace them.

4.4 Environmental Context

4.4.1 Organizational Culture and Readiness

Organizations from the sectors that have innovative cultures such as IT and service-based companies have better AI adoption. On the other hand, MSMEs from real estate, micro and small manufacturing units and education sectors, that have traditional culture considered AI is non-essential for their HR functions.

The findings from the survey data are also similar. Among the adopters, 91% of the respondents agreed AI would be more prevalent in the coming five years whereas 79% of non-adopters mentioned there are “no plans to implement AI” as they don’t see any utility given the scale of their businesses.

4.4.2 Cost-Benefit Expectations

Organizations that adopted AI expect high returns in terms of speed and accuracy on their investments into AI. They have also reported that AI involves high cost and that it needs continuous audits. On the other hand, non-adopters cited cost as the biggest challenge to implement AI. Further, they also do not see incurring this cost since HR functions are either outsourced or are able to manage manually.

4.5 Employee Experience and HR Transformation

4.5.1 Enhanced Efficiency and Employee Engagement

Participants who have adopted AI have insisted enhanced employee experience in terms of on-boarding, chatbots for employee FAQs and customized learning modules.

For example, one HR head explained how AI employee satisfaction surveys helped HR department to identify at-risk employees and make retention strategies.

Findings from the survey also align with this. While 73% of the adopter respondents reported improved employee experience, only 21% of the non-adopters agreed employee experience could be a potential benefit of AI in HRM.

4.5.2 Future of HR Roles

Interview narratives consistently indicate that AI would not replace HR roles but rather there would be a shift from operational to strategic functions. Those who have adopted foresee predictive analytics, conversational AI and hyper-personalization would shape future HR departments. However, those who have not adopted are not very positive and mentioned AI could be a threat to the HR jobs. Table 4.1 shows themes and sub-themes drawn out of qualitative data.

Table 4.1. Summary of Qualitative Findings

Theme	Sub-theme	Interviewee quote	Interpretation
AI Adoption & Tools	Types of AI used	“PeopleStrong AI for shortlisting resumes... Workday... AI Genie... Worxmate for PMS.”	Multiple AI platforms integrated across HR cycle, showing advanced adoption.
	Functional areas	“Recruitment, onboarding, training, payroll, LMS, PMS, HRIS, compliance (planned)”.	Reflects holistic integration of AI in HR.
Benefits of AI	Recruitment efficiency	“AI shortlists CVs... conducts first round interview... grades performance.”	Reduces recruiter workload, speeds up process.
	Onboarding & employee support	“AI dashboard assists employees... only own access... reminders for employees.”	Improved employee experience, personalization.
	Time saving & efficiency	“Reduced 50% of HR job... routine tasks automated.”	Strong efficiency gains, re-allocation of HR effort.
Challenges	Initial resistance	“Older employees resisted... worried about job loss... difficult to adapt.”	Generational/skill gap challenge in AI adoption.

Theme	Sub-theme	Interviewee quote	Interpretation
	Learning curve	“Training and skill development required.”	AI adoption necessitates reskilling.
	Cost	“It is expensive but outcome justifies investment.”	ROI calculation critical before adoption.
Ethics & Privacy	Data confidentiality	“Employees only access their own profile... declarations taken for confidentiality.”	Basic safeguards, but limited reflection on systemic risks.
	Bias	“Keywords and industry definitions keep changing... checks done by diverse people.”	Acknowledges risk of bias; updating prompts seen as solution.
Impact on HR Roles	Role reduction	“HR jobs will reduce, especially entry-level.”	Automation threat to routine HR functions.
	Human intervention	“AI cannot provide empathy... counseling, retention require human touch.”	Recognition of human-AI complementarity.
Future Outlook	Expanding AI scope	“Statutory compliance may soon be AI-driven.”	Anticipating deeper penetration in HR processes.
	HR skill requirements	“Understanding AI will become mandatory skill.”	Future HR competency shifts.
	Employee development	“AI suggests steps for career path, skill mapping, training.”	AI as enabler of personalized L&D.
	Inclusivity/diversity	“Not sure how AI can do this... inclusivity maintained through cultural celebrations.”	Skepticism on AI’s ability to handle cultural aspects.

4.6 Summary of Integrated Findings

Table 4.2 presents thematic integrated findings from qualitative and quantitative data.
Table 4.2: Integrated Findings from Interviews and Survey

Theme	Qualitative Insights (Anonymized)	Survey Patterns (AI Adopters vs. Non-Adopters)
Perceived Benefits of AI	Faster recruitment, accurate payroll, personalized L&D, employee engagement.	82% adopters cited efficiency; 73% accuracy gains. Non-adopters not sure of benefits.

Theme	Qualitative Insights (Anonymized)	Survey Patterns (AI Adopters vs. Non-Adopters)
Challenges of AI adoption	Employee resistance, payroll complexity, data privacy concerns.	64% non-adopters cited high cost; 55% cited privacy risks. Adopters still required manual oversight.
Human vs. Machine	“AI assists but cannot replace HR empathy.”	71% across both groups agreed AI should complement HR.
Impact of Organizational Culture	Innovative MSMEs (IT, services) more receptive; traditional sectors skeptical.	91% adopters expect growth; 79% non-adopters have no plans for adoption.
Employee Experience	Seamless onboarding, chatbots, satisfaction surveys, proactive retention.	73% adopters reported enhanced experience vs. 21% non-adopters.
Future of HR	Strategic shift toward analytics and personalization, not role elimination.	Adopters optimistic about predictive analytics; non-adopters feared job loss.

4.7 Interpretation

The findings from both the data sets suggest that Indian MSME sector has unevenly adopted AI in HRM. The adoption is influenced by the industry or segment, organizational culture and availability of resources. HR professionals who adopted AI have reported tangible results in terms of accuracy, efficiency and employee experience. An HR head of a logistics company said “If AI is integrated, they can concentrate more on human-centric tasks.”

However, they also reported challenges in terms of high cost, employee resistance, ethical issues and change management. Those who did not adopt AI have been found to lack awareness, and perceived AI in HRM as irrelevant, high-cost implication seems to have preference towards human-centric practices in HR departments. “As it is still a start-up, they do not have many challenges in management, everything is taken care of and resolved in a day”, said one participant.

Crucially, the respondents of both the groups have invariably emphasized that human touch function of HRM is irreplaceable, pointing toward an AI-human hybrid model that can achieve efficiency while keeping the human touch intact.

5. Discussion

5.1 Linking Findings with Existing Literature

The research highlights how India’s MSME segment approaches adopting artificial intelligence in HRM. The study finds how cautiously HR departments approach AI adoption, balancing potential benefits against challenges. Existing studies have emphasized transformative role of AI in HR, particularly in talent acquisition and management, and employee engagement (Bondarouk & Brewster, 2016; Marler & Parry, 2021). The current study findings confirm these benefits but contextualize them within the resource-constrained systems of MSMEs.

The organizations that implemented AI in HRM reported accuracy and efficiency as the major outcomes. These findings align with the global studies demonstrating AI’s ability to minimize administrative workload. (Jarrahi, 2018). On the other hand, payroll complexities

and the requirement for manual oversight reinforce the concerns found through the earlier studies of bounded rationality (Brougham & Haar, 2018).

Employee resistance to adopt AI in the traditional systems such as manufacturing, education and real-estate sectors, aligns with earlier findings on reluctance to change in AI adoption (Saraswathi et al., 2023).

5.2 Human–Machine Complementarity

A significant consensus from all the groups of respondents in the study is that human touch cannot be replaced by the AI, more so for sensitive negotiations, tasks requiring empathy and conflict resolution. This aligns with the “augmentation” perspective of Huang & Rust (2018), who argued AI can complement humans rather than replacing them.

The study findings from MSMEs reinforces this argument as adopters as well as the non-adopters reported this opinion. Therefore, it can be inferred that MSMEs in India, irrespective of AI adoption, believe that HRM is more a human-centric function.

5.3 MSME-Specific Challenges

The study brings forward the unique challenges of MSME in AI implementation. First, the financial constraints of MSMEs as they run with thin margins. Second the skill gaps in implementing AI. Finally, there is cultural resistance that cause employee skepticism due to fear of losing their jobs due to AI adoption. All these challenges highlight that existing models of technology adoption need contextual adaptation to MSMEs in developing economies.

5.4 Employee Experience and HR Transformation

Organizations that adopted AI reported it enhanced employee experience, specifically in recruitment and on-boarding. This aligns with the literature on ‘employee engagement through digital HR tools (Meijerink et al., 2021). However, the current study reveals that these benefits are not even. A number of MSMEs still rely on manual processes and perceive AI as unnecessary, while some outsource HR tasks. Thus, a major contribution of this study is the finding that AI adoption in HRM is not only about efficiency but also about organizational maturity. MSMEs that are innovative and development-oriented perceived AI having a transformative potential, whereas those in traditional industries and static sectors perceive it as unnecessary.

5.5 Theoretical Contributions

This study contributes to the existing literature in three ways:

Contextualizing AI adoption in MSMEs: The study extends the TOE framework by demonstrating that cost, cultural readiness of the organization and sectoral differences have critical role in AI adoption in micro and smaller organizations.

Highlighting complementarity over substitution: The research findings highlight the role of AI as complementary rather than replacing humans. While AI enhances efficiency and accuracy of HR functions, human intervention is still critical for sensitive negotiations and strategic decision-making.

Bridging organizational readiness and employee experience: The study integrates interviews and survey data; and demonstrates the impact of AI adoption on both operational

and employee engagement outcomes. This bridges employee experience with organizational readiness in AI adoption.

5.6 Recommendations for MSMEs

Based on the insights gained through the study, the researchers offer the following recommendations.

- MSMEs should adopt AI in HRM through a phased approach so as to minimize employee resistance.
- Employee training in digital literacy can mitigate the fear of unknown thereby smoothening the adoption.
- To overcome cost constraints, MSMEs should either utilize government schemes or consider industry associations, especially for training programs in digital literacy.
- Setting clear policies and regular audits are necessary to build trust among employees.
- Position AI as a supporting tool to HRM rather than replacement to humans. This helps in achieving positive perception of employees.
- Policy-makers are recommended to support AI adoption in MSMEs by: providing subsidies for AI tools; encouraging tech start-ups to develop affordable HR solutions for small organizations with unstructured HR departments; establishing regulatory framework to address ethical issues.

6. Conclusion and Future Research Directions

6.1 Conclusion

This study explored **AI adoption in HRM in the Indian MSME** segment. Through a mixed-method approach, the researchers employed depth interviews and survey techniques for primary data collection. The findings reveal that while some MSMEs have successfully implemented AI in HRM functions such as recruitment, payroll management, employee engagement and performance management, and found AI to be accurate, efficient and enhancing employee experience. However, many MSMEs still rely on manual operations in HRM, and perceive AI as irrelevant and unnecessary cost implication.

Adoption of AI in HRM is impacted by financial constraints, skill gaps and cultural readiness. There is a common perception among HR professionals of both adopters and non-adopters that AI cannot replace the human role, especially in contextual issues, sensitive negotiations and conflict resolution. It is reinforced that AI can support as an efficient tool and enhance the efficiency and accuracy of the routine tasks.

The study thus contributes to the research literature in the area of AI and HRM by situating it within the resource-constrained and culturally embedded context of MSMEs in India. It demonstrates that AI is promising in HR efficiency and accuracy. However, adoption remains uneven and depends on the sector, organizational maturity, awareness, cost-benefit ratio and leadership vision.

3.6 Limitations

Though the study has gained valuable insights in the area of AI in HRM, it is also pertinent to acknowledge the limitations. The sample size of 25 for survey, though diverse, is not sufficient to generalize the findings. The geographic scope of the study is Hyderabad and surroundings regions and did not cover entire India. It is also possible that the responses of survey and interviews could have been impacted by sector-specific dynamics, social

desirability and limited awareness of AI, which is not fully captured. Since the adoption of AI is evolving rapidly, the findings might differ in the long-term.

In spite of the above limitations, the study provides rich insights into benefits and challenges of integrating AI in HRM functions within MSME segment in India.

6.3 Future Research Directions

Future researchers can expand this study area in many ways. The study can be replicated in other cities across the country for generalizability. Carrying out longitudinal studies over time can not only reveal technology diffusion patterns but also give insights on organizational learning. Similar studies can also be carried out in other developing economies for cross-country comparisons. Deep industry-specific studies can also be carried out to understand differentiators in adoption pathways. More work is needed to understand employees' perceptions on AI adoption in HRM. Research is also required in the area of ethics and governance, privacy concerns and accountability in MSME context.

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