

The Role of AI-driven Sentiment Analysis in Enhancing Employee Engagement.

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Abstract—Today's businesses need to keep their employees engaged in order to be productive and improve the overall health of the workplace. Annual surveys and performance reviews are examples of traditional tools that don't really capture how people are feeling in real time. The research looks at how AI-powered sentiment analysis, which uses natural language processing (NLP) and machine learning to understand unstructured data from emails, chats, surveys, and other forms of communication, changes HR practices from being reactive to proactive. AI helps targeted interventions like pulse surveys, leadership check-ins, and wellness programs work better and more quickly by finding early signs of disengagement, burnout, or dissatisfaction. Also, real-time sentiment scores help personalised engagement strategies like customised recognition, adaptive learning, and personalised coaching. This creates a culture based on trust, responsiveness, and empathy. Importantly, this study stresses the need for moral implementation that addresses issues like data privacy, openness, and algorithmic bias to build trust and acceptance among employees. The results suggest that using AI to get sentiment insights into HR processes can greatly improve the results of engagement. Organisations must put a high priority on balanced data governance and constant testing of AI tools if they want to have a lasting effect. This study adds to the changing HR paradigm by showing how ethical, real-time, and personalised AI interventions can make workers more engaged and resilient.

Index Terms—Employee Engagement, AI-Driven Sentiment Analysis, Natural Language Processing, Real-Time Feedback, Ethical AI

I. INTRODUCTION

Employee engagement is a key factor in how well an organisation works because it affects productivity, retention, and the health and happiness of workers.

Traditional ways of evaluating employees, like yearly surveys and performance reviews, don't always capture how their emotions change over time, so the information they give is often delayed or incomplete. AI-driven sentiment analysis, made possible by natural language processing (NLP) and machine learning, has become a powerful way to understand unstructured data like emails, chats, and surveys. By finding early signs of disengagement, burnout, or dissatisfaction across teams and departments, these technologies turn reactive HR practices into proactive ones. In addition to finding problems quickly, sentiment analysis helps make HR strategies more personal. Real-time sentiment scores can help create a culture based on trust, responsiveness, and empathy through personalised coaching, adaptive learning, and tailored recognition. Still, when we have the power to understand sensitive data, you have a duty to use these tools in an honest way. To get employees to trust and accept the changes, worries about data privacy, openness, and algorithmic bias need to be addressed. Because of this, ethical frameworks and strict validation protocols are needed for the responsible use of AI sentiment tools.

The Need for Real-Time Emotional Insights in HR

Employee engagement is a key organisational lever that affects health, productivity, retention, and new ideas. Still, old-fashioned ways of doing things like yearly surveys, performance reviews, and one-time feedback don't always capture the changing emotional realities of today's workforce. These tools have problems with slow reporting, survey fatigue, and not taking into account the bigger picture. This makes the insights they give old or shallow and unable to keep up with fast changes in sentiment, especially in hybrid or remote work settings.

Also, a lot of organisations have trouble turning survey results into actions that matter. For example, frontline leaders don't always have a say in how surveys are made and don't always feel connected to the results, which makes feedback useless or out of date. This disconnect hurts the credibility and usefulness of these old tools. When employees are asked these questions, they may give "safe" answers instead of honest feedback because they want to be liked, which makes the insights less real.

AI-driven sentiment analysis, on the other hand, provides a real-time, ongoing feedback loop that changes the way HR works. AI tools can instantly pick up on emotional signals by looking at unstructured data like emails, chat logs, and digital interactions. These systems power dashboards and alerts that let you deal with problems like burnout or disengagement quickly and proactively, before they become major risks.

AI-powered platforms aren't just ideas; they actually do things that can be measured. Real-time sentiment tools have helped companies cut down on HR response times by up to 67%, build trust among employees, and spot new problems early, all of which have greatly improved employee engagement.

Some more real-life examples to show the effect:

In hybrid onboarding situations, HR could spot early signs of loneliness by adding sentiment tracking to tools like Slack. Onboarding NPS went up by 31% thanks to things like virtual buddy programs and pulse check-ins, and turnover among new hires dropped by almost half.

During a major reorganisation, AI sentiment analysis helped keep an eye on mood spikes caused by anxiety after the announcement. Right away, HR teams held town halls and listening sessions to keep employees from leaving and keep the trust.

Finally, the problems with old ways of engaging people in time, depth, and trust make it clear how important it is to have real-time emotional sensing. With AI-powered sentiment analysis, HR professionals can switch from reactive to proactive ways of engaging employees. By using naturalistic data to track how employees feel all the time, companies can react faster, more thoughtfully, and more effectively to emotional trends. This makes for more resilient and responsive workplace cultures.

What AI Sentiment Analysis Is and How It Works

AI-powered sentiment analysis uses Natural Language Processing (NLP) and machine learning to turn unstructured employee communications like chats, emails, survey responses, and open-ended feedback into actionable emotional insights. This lets HR teams "listen" in real time without making people tired of surveys or stopping work.

Gathering and combining data: Without the need for new input methods, AI tools can easily take data from communication platforms like Slack, Teams, emails, and survey tools. This continuous data collection makes it possible to track engagement in real time. For consistent analysis, it's important to organise this data across channels and make sure that all of the formats are the same.

Preprocessing for NLP: Noise removal (like special characters), tokenisation, and normalisation (lowercasing, stop-word removal, and stemming or lemmatisation) are all steps that are taken on raw text before it is sent to the computer. This step of cleaning makes sure that the text can be read by models that come after it.

Extracting features and understanding the context: Using methods like word embeddings (Word2Vec, GloVe, FastText), which capture semantic relationships and context, text is turned into numbers. Advanced systems might use n-grams or topic modelling frameworks like BERTopic to group together common themes (like workload and leadership) and find emotional nuanced words like frustration or motivation, not just positive or negative ones.

Classification and scoring of sentiment: To show intensity, mood is either labelled as positive, neutral, or negative, or it is given a score (for example, from -1 to +1). Some systems can even pick up on certain emotions, like confusion or excitement, or they can change the multi-label outputs to give you more information.

Finding and showing trends: Individual sentiment scores are added up across teams, departments, or time periods. This lets HR see patterns, like drops in sentiment after leadership announcements or reorganisation events, through real-time dashboards and automated alerts.

Quality Assurance and Keeping People in the Loop: Human quality checks (reading unclear or private content) and performance metrics like F1-scores (keeping track of model accuracy and fairness) are

common parts of systems that make them reliable. Finding and fixing bias is important for keeping trust and making sure that different employee groups get the same interpretation of feelings.

Effects on the organisation and benefits in the real world: AI-driven sentiment analysis can completely change the way an organisation works, making engagement, retention, productivity, and cultural alignment better in real ways.

Companies that use tools for sentiment analysis report useful metrics. Aialpi says that using AI-powered feedback systems is linked to a 34% rise in employee retention rates and a 28% rise in engagement scores. Also interesting is that HR departments cut the time it took to respond to employee complaints by a huge amount—from 45 days on average to just 72 hours. These companies also have 23% more productivity, 41% better change management, and 89% better ability to find employee problems, especially in hybrid teams that work from different locations.

Also, PeoplePilot says that processing workplace communications in real time has led to a 76% increase in engagement, a 42% increase in retention, and a 38% increase in productivity.

Case studies from real life give us a look at how well implementation works:

Culture Amp, a top HR platform, uses AI to track feedback in real time and figure out how people feel about it. After putting the system into place, clients saw a 25% drop in employees quitting on their own, a 30% rise in employee satisfaction, and a better work culture through proactive engagement.

A mixed-methods onboarding plan by adding sentiment tracking to Slack, a company was able to spot signs of isolation among new employees. Through virtual buddy programs and weekly pulse check-ins, the company was able to boost onboarding NPS by 31% and cut new employee turnover by almost half.

In addition to numbers, these tools make organisations more flexible by letting HR departments be proactive. HR leaders can see how their employees are feeling in real time, which lets them act quickly to fix problems like disengagement, make transitions easier, or boost morale during times of change. This constant feedback loop makes the workplace culture more responsive, trustworthy, and strong.

Personalizing Engagement through AI

Now that one-size-fits-all engagement strategies don't work, AI is a powerful way to make the employee experience more unique by adapting recognition, development, communication, and support to each person's needs, goals, and motivations.

Customised communication and recognition: AI systems can look at employees' performance data and mood scores to give them timely, relevant praise, not just for big achievements but also for small, everyday tasks. This real-time, situational recognition makes people more motivated and emotionally connected to the organisation. In the same way, AI can change the tone and content of messages and conversations to reflect mood and personal taste, which improves communication and resonance within a group.

Adaptive growth and learning: One of the most important ways that AI helps with personalisation is through training. Adaptive learning platforms keep track of students' progress and behaviour to give them personalised content and pace, helping them with their weak spots and speeding up their strong ones. For example, AI-designed learning paths that are tailored to a worker's role, skills, and career goals make them more engaged and likely to stay with the company. By making learning experiences more relevant to each person, companies like IBM and Johnson & Johnson have seen up to a 20% rise in employee satisfaction and a 30% rise in training engagement.

AI-powered engagement partners and predictive insights: Advanced platforms use AI to keep people interested by suggesting wellness programs, recognition prompts, gamified goals, and team building activities based on each person's behaviour and preferences. Predictive analytics, on the other hand, can tell when employees are disengaged or need to grow, which lets HR give them personalised feedback or step in before problems get worse. Customised predictive strategies have helped companies like Google and IBM keep their employees happier and cut turnover by as much as 23%.

Personalisation based on segments: AI doesn't just personalise for each person; it also divides groups based on role, location, sentiment patterns, or tenure so that strategies are more likely to work. For instance, teams that need to be recognised get special

programs to do so, while other teams may benefit from better communication or chances to advance their careers.

Ethical Considerations and a Trust-Centered Approach

A lot of what makes AI-driven sentiment analysis work depends on how much trust employees have in these systems, not just how good the technology is. More and more research shows that being open is important for building trust. Without it, people might see AI tools, even ones that aren't trying to be bad, as being intrusive or manipulative.

Privacy, Giving Consent, and Data Management: Companies need to get employees' permission before collecting any information and be clear about what information is being collected, how it is being used, and why. They should also do this in a way that doesn't invade employees' privacy. To protect private communications and keep information safe, it's important to set up a strong data governance framework that includes things like anonymisation, secure storage, role-based access, and compliance with GDPR or CCPA regulations.

Truth, bias, and responsibility: AI systems learn from past data, which can lead to biases in sentiment detection, such as unequally strong emotions for different genders or names. To avoid this, businesses should:

- Train their models on a variety of datasets
- Do fairness checks on a regular basis
- Keep an eye on how well their models are doing across all demographic groups
- Collaborate with development teams from different fields and include everyone to get new ideas.

To make sure people are accountable, you need to have human oversight, write down how decisions are made, and give people a way to complain, especially when it comes to sensitive HR decisions.

Being open and able to explain: AI systems are often "black boxes," which makes people less likely to trust them. Giving detailed explanations of AI, lots of documentation, and easy-to-understand information to users about how sentiment is calculated supports both openness and responsibility.

Human-in-the-Loop and Safety for the Mind: Keeping a person in the loop (HITL) makes sure that AI is only used as a tool to help make decisions. Humans should validate critical interpretations or interventions, especially when the situation is

emotionally sensitive, according to ethical frameworks. Also, AI tools should be thought of as tools that support employee autonomy and morale and add to human judgement, not replace it.

II. REVIEW OF LITERATURE

AI is being used in all parts of Human Resource Management (HRM), from hiring to training and evaluating performance. Astawa and Mahayasa (2024) did a systematic literature review (2020–2024) that showed how AI improves efficiency by screening candidates, providing personalised learning interventions, and judging performance objectively.

Also, a 2023 review in *Procedia Computer Science* mapped AI tools across HRM, showing how they help with performance, engagement, and making decisions through advanced analytics.

Bansal et al. (2025) did a bibliometric study on 659 Scopus-indexed documents using co-citation and thematic clustering to find the main trends in AI–HRM research. A bibliometric approach was also used to look into how AI can be used in agile HR practices. Five main themes were found that show how AI can improve the health of an organisation.

Sentiment analysis has become a useful way to find out about the culture and mood of employees. Ravichandran et al. (2023) talked about how NLP-driven sentiment pipelines allow real-time insights from unstructured text (like emails, chat logs, and surveys), which helps with proactive strategies for engagement and retention.

Lee and Song's research from 2024 used sentiment mining to find 135 positive-experience keywords in four groups: work, relationships, systems, and culture. This research gave us a way to think about HR analytics.

From 2018 to 2025, a longitudinal empirical study of AI professionals' Glassdoor reviews used TextBlob and statistical modelling to track sentiment trends that showed stability and key thematic elements. Sentiment analysis has improved the detection and outcomes of patients in psychiatric care, showing how useful emotional insights powered by AI can be in many settings.

A third study published in *Artificial Intelligence Review* put together different types of sentiment analysis techniques (lexicon, ML, dataset sources,

and challenges) to create a framework for methodological reflection.

The moral and social effects of AI at work are very important. Sadeghi's (2024) review (based on arXiv) introduced a framework for interacting between AI and employees to improve their well-being. It compared the benefits of increased efficiency with risks such as privacy invasion and concerns about fairness, focussing on trust building through openness and skill development.

Malik et al.'s critical review (2022) in HRMR emphasised the ethical issues, especially fairness, dignity, and due process, that come up when AI is used in people management situations. A specific systematic literature review published in the SA Journal of HRM in 2025 looked at how employees can be involved in AI decisions. It pushed for co-creation models to help people accept AI and trust it more.

Ekhande and Khanuja (2024) look into how predictive analytics can be used to get employees more involved in their work. Their research shows how AI-powered models can be used in Human Resource Information Systems (HRIS). It focusses on scalable architectures, multi-modal data integration, and how important ethics are in designing and deploying systems. This review helps the current study by focussing on infrastructure and privacy issues. It gives a solid base for using AI-powered sentiment modules in real-time engagement systems. Lee and Song (2024) use sentiment analysis to create a conceptual model of the employee experience. They put together 135 positive experience keywords into themes of work, relationships, systems, and culture by looking at what employees have said. This model gives us a structured way to look at sentiment data, which helps us turn unstructured emotional insights into HR strategies that can be used.

Lenka and Chanda (2025) do a bibliometric analysis of the growing use of Generative AI to predict and improve employee engagement. They find thematic gaps and suggest future research paths for GenAI in HR. This points to a cutting edge area in AI-enabled engagement strategies that this work can build on or compare itself to.

The article by Taslim, Rosnani, and Fauzan (2025) is a systematic review of the literature on AI-driven HR decision-making. It focusses on ethical concerns and employee participation. They bring up issues of

fairness, acceptance, and long-term cultural effects by grouping 193 articles (2019–2023). These are important things to think about if you want to use sentiment-based HR tools in an ethical way.

Porkodi and Cedro (2025) talk about the moral problems that come up when Generative AI, like ChatGPT, is used to help HR make decisions. To make sure oversight and ethical protections, they suggest a framework that combines human and AI elements. This source adds a governance dimension to the existing literature, which makes the point that AI-enhanced engagement systems need to be able to be explained and have human oversight.

Researchers who looked into AI models for the whole employee lifecycle (from hiring to firing) used PRISMA methods to map algorithmic applications and performance trends, pointing out how common models like Random Forest and SVM are. In their 2023 conference chapter, Hinge et al. talked about sentiment analysis as a part of algorithm-based HR, which gave a view of continuous feedback.

In terms of sustainability, an in-depth study published in ESG-integrated HR discovered that AI helps with personalised learning but also brings up ethical issues related to bias and the need for better governance. In a different review published in *Educational Administration: Theory and Practice* (2024), the use of AI in HR during digital transformations was warned to be handled with care.

Lastly, Taherdoost and Madanchian (2023) looked at how sentiment analysis can be used in fields other than HR, like competitive intelligence and market research. This showed that the field has a lot of methodological value in a wider range of areas.

III. RESEARCH GAPS

There is more and more writing about AI-powered sentiment analysis in Human Resource Management (HRM), but there are still some important gaps. These gaps show where important future research can be done:

Data Integration and Infrastructure Readiness: AI-enabled sentiment systems rely on well-structured, accessible data. Yet, organizations often face fragmented communication platforms, incompatible systems, and inconsistent metadata classification, which undermine the effectiveness of AI analysis. According to Aialpi, structured governance can

reduce integration issues by 61% and speed adoption by 72%. However, empirical studies exploring practical implementation in varied HR contexts are scarce.

Workforce Adoption and Change Management: Adoption of AI tools is hindered by resistance from HR professionals and employee skepticism, driven by concerns around surveillance and misuse of data. ETHRWorld's 2025 survey found that 58% of L&D leaders cite skill gaps and slow AI adoption as major challenges. Research on change management strategies tailored specifically to AI-based sentiment tools is limited.

Nuanced Language Understanding: AI systems frequently misinterpret nuance such as irony, sarcasm, or ambiguous language in open-ended feedback, which affects sentiment accuracy. HR Grapevine points out these limitations in real-world organizational applications. Yet domain-specific evaluations of these weaknesses in employee data remain underexplored.

Trust and Leadership-Employee Sentiment Gaps: There is often a substantial disconnect between leadership and employee perceptions especially around engagement, flexibility, and inclusivity. Gartner's research revealed a wide divide, with 75% of leaders believing they consider employee perspective in decision-making, compared to only 47% of employees. Studies analyzing how sentiment tools can surface and address these communication gaps are lacking.

Fairness, Bias, and Ethical Assurance: While sentiment tools offer valuable insights, they may carry algorithmic biases due to skewed training data or lack of demographic diversity. Madaio et al. highlight challenges in conducting fair, disaggregated evaluations in AI systems. There is a clear need for frameworks that validate fairness and enable stakeholder-inclusive design in HR use cases.

Real-Time Performance Correlation: AI sentiment systems can theoretically detect early signs of disengagement before they escalate identifying, for instance, "quiet quitting" or localized sentiment shifts. However, few longitudinal or causal studies empirically link these early signals with meaningful outcomes such as turnover, productivity, or morale in real-world settings.

Limited Sectoral and Size-Variied Representation: Much of the current evidence stems from large, tech-

savvy organizations. We lack research assessing sentiment analysis deployment in small-to-medium enterprises (SMEs), public sector organizations, or cross-cultural contexts. Adoption patterns in resource-constrained environments remain virtually unexplored.

1.6 Statement of the Problem

While the benefits of AI sentiment analysis are increasingly documented, gaps remain in understanding:

- Its precise role in identifying and mitigating employee burnout and disengagement.
- How AI-integrated, real-time HR strategies alter engagement dynamics, compared to traditional methods.
- What ethical strategies ensure trust and maintain well-being during implementation.

IV. OBJECTIVES OF THE STUDY

1. To explore and assess the effectiveness of AI-driven sentiment analysis through primary data (via questionnaires) in understanding and enhancing employee engagement within organizational settings.
2. To evaluate employee perceptions of engagement dimensions such as accomplishment, goal attainment, workload, and strategic clarity—through structured, questionnaire-based responses.
3. To examine the correlation between sentiment expressed in open-ended feedback and quantified engagement indicators (e.g., satisfaction, retention intent), using qualitative coding and quantitative ratings.
4. To develop a conceptual model of employee experience by identifying key sentiment themes such as work environment, recognition, managerial support from open-ended responses,
5. To investigate how sentiment-derived insights can inform HR interventions and strategies through employee interviews and feedback—focusing on behavior like timely recognition, workload adjustments, or pulse check-ins.
6. To assess the ethical considerations and trust factors associated with collecting and analyzing employee sentiment data, including privacy, transparency, and bias mitigation.

Need of the study

The study is required to address critical limitations in traditional HR practices and to leverage emerging technologies for a more effective and ethical approach to employee engagement.

To get around the problems with traditional ways of getting people involved: Performance reviews and surveys done once a year or so are often reactive and only show how employees feel at one point in time, rather than over time. This method might not work to deal with problems like burnout and dissatisfaction right away because it is out of date.

To get information in real time so that actions can be taken quickly: The way organisations work needs to change from being reactive to being proactive. The study meets this need by using AI-powered sentiment analysis to find early signs of disengagement. This lets problems be fixed quickly and effectively before they get worse.

To make HR interventions more accurate: The old ways of doing things give us broad, general ideas. This study is needed to show how AI-driven analysis gives more accuracy, which makes it possible for personalised engagement strategies like personalised coaching, adaptive learning, and personalised recognition.

To create customised strategies for getting employees to work together: In a diverse workplace, a one-size-fits-all method doesn't work anymore. The study is needed to find out how personalised, real-time sentiment scores can help make strategies that fit the needs of each employee, which builds trust and empathy.

To come up with moral guidelines for using AI in HR: Concerns about data privacy, openness, and algorithmic bias are growing as AI is used more and more. The study is very important because it shows how important it is to implement new technologies in an ethical way so that companies can gain the trust and acceptance of their employees.

To help HR practices catch up with new AI technologies: The study fills in a gap in the evolving HR paradigm by looking into how AI-powered sentiment insights can be used in HR workflows to improve engagement. The goal is to create a strong and engaged workforce in fast-paced workplaces. Companies need new tools to keep their workers healthy in a world where things change quickly and can be stressful. This research looks into how AI can

help build a stronger workforce by letting people be more proactive and understanding.

Scope of the study

The limits of this study are set by its scope, which is limited to certain aspects of AI-powered sentiment analysis in HR.

Focus on AI-driven sentiment analysis: The study only looks at how AI, using Natural Language Processing (NLP) and machine learning, can be used to make sense of unstructured data about employees.

Sources of data: To figure out how people are feeling, the study will look at a certain type of unstructured data, like emails, internal chats, and employee surveys. How these data sources are chosen will be a big part of the scope.

Changes in HR practices: One of the main points of the study is to explain how AI changes HR practices from being reactive to proactive, especially when it comes to employee engagement.

Types of interventions: The study focuses on specific, targeted interventions that can be made possible by AI insights. Some examples are pulse surveys, leadership check-ins, wellness programs, personalised coaching, adaptive learning, and personalised recognition.

Ethical issues in AI implementation: The scope includes a critical look at the ethical issues of using AI in HR, with a focus on data privacy, openness in algorithmic processes, and reducing bias.

Organisational context: The study takes place in "contemporary organisations," which means that its results should be useful in modern workplaces that use technology.

Limitations and governance: The study also talks about the conditions for long-lasting effects, such as the need for fair data governance and AI tools that are constantly tested.

Limitations of the Study

While AI and NLP are powerful, they can struggle with the nuances of human language. The models may misinterpret or completely fail to understand complex sentiments, sarcasm, irony, cultural idioms, or figurative language in emails, chats, or survey responses.

An NLP model trained on general text data might not be effective for specific organizational contexts. The language used in a tech company's internal chat differs significantly from communications within a hospital or financial firm. Domain-specific language, acronyms, and internal slang can confuse generic models.

The accuracy of the AI model is highly dependent on the quality and quantity of the training data. If the initial dataset used to train the sentiment model is small or not representative of the organization's workforce, the AI may produce biased or inaccurate results.

Relying on existing unstructured data poses a risk that data may be unbalanced, overrepresenting some groups and underrepresenting others. This can lead to skewed conclusions about engagement levels within different departments or demographic groups.

Findings from a study in one organization may not be generalizable to all "contemporary organizations". The corporate culture, management style, and industry context of the studied organization could heavily influence engagement outcomes and employee communication patterns.

Even if the AI model is accurate, the employees whose communications are analyzed might not be a representative sample. For example, some may opt-out of monitoring, or certain demographics might use company communication tools differently.

V. RESEARCH METHODOLOGY

Research Design

This study adopts a descriptive, cross-sectional survey design, employing a quantitative approach using structured questionnaires hosted on Google Forms to collect real-time employee feedback. The design allows for efficient data collection and statistical analysis to examine the relationship between AI-driven sentiment insights and employee engagement.

The survey includes closed-ended (Likert scale) questions. Closed-ended items capture measurable engagement factors. Google Forms is used to administer the questionnaire. The survey was open for a fixed period (e.g., 2 weeks), with reminders sent to boost participation. Participation is voluntary, with assured anonymity and confidentiality. No personally identifiable data is collected, and the results are reported only in aggregated form to prevent individual identification.

Secondary Data Overview

Secondary data collection constituted the foundational qualitative component of this study. A comprehensive review was undertaken of existing literature including peer-reviewed research papers, scholarly journals, and topical articles on AI-driven sentiment analysis and employee engagement. Additionally, case studies featuring leading organizations that successfully implemented these technologies were analyzed to inform the context and derive practical insights. These sources collectively contributed to shaping the theoretical framework, guiding hypotheses, and enriching interpretation of the findings.

Primary Data Overview

Primary data is collected via semi-structured interviews to capture firsthand insights on employee engagement dynamics. The interview guide focused on key themes such as engagement, achievement, goal alignment, strategic clarity, and workload. Data were gathered from 100 employees in total from different operational departments. The interviews were conducted over a three-week period, using group formats of 7–8 participants each.

Sampling Strategy

Population & Sampling: The survey targets employees across departments within the organization. A convenience sampling approach is adopted for accessibility, with efforts to ensure diversity across roles and demographics.

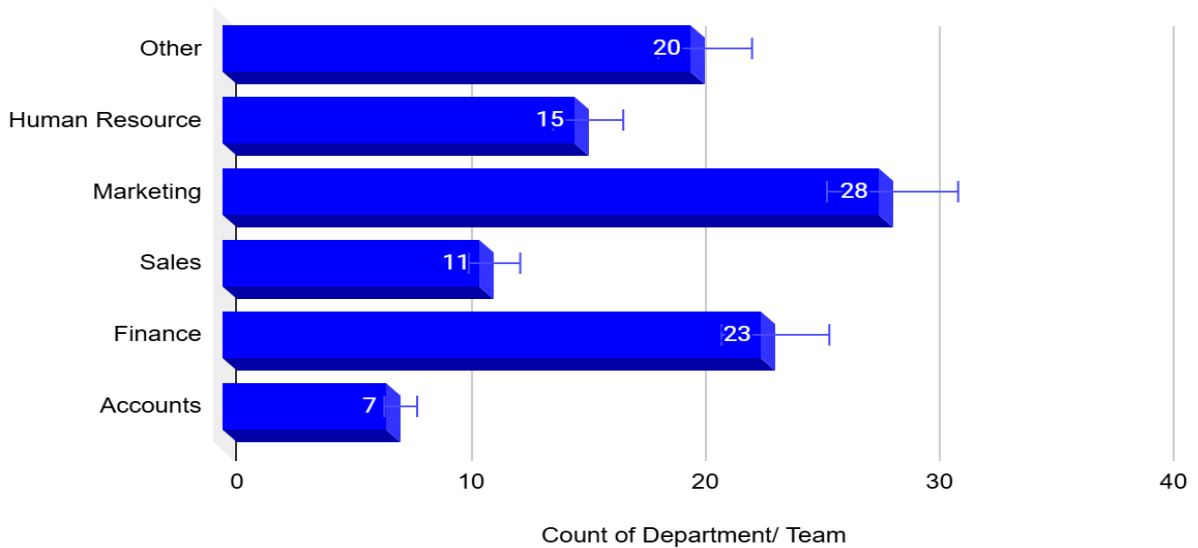
Sample Size & Response Rate: We anticipate distributing the survey to approximately 100 employees, aiming for a minimum 50–60% response rate to maintain statistical robustness.

VI. DATA ANALYSIS AND INTERPRETATION

Results:

1. The Department/ Teams of the Respondents at Axio.

Count of Department/ Team



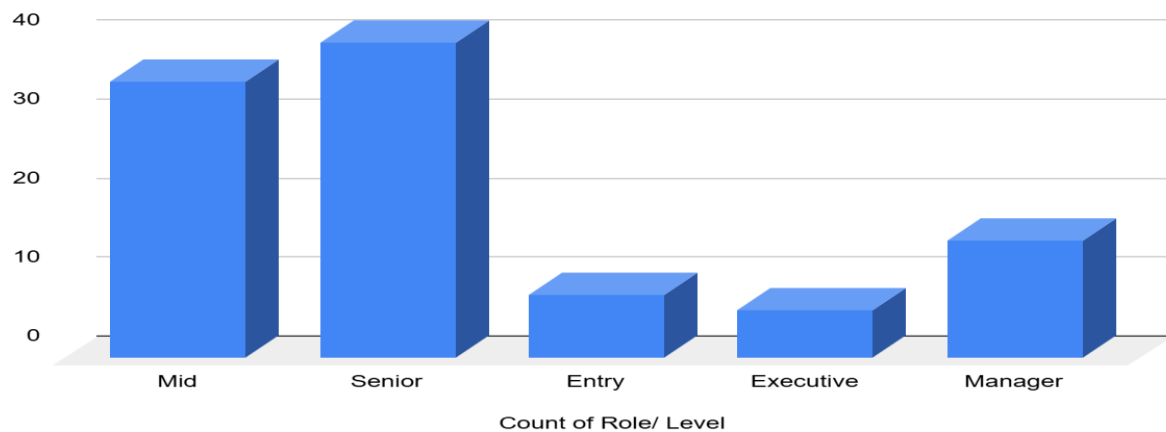
The results suggest that the Marketing and Finance departments are the most engaged or most represented groups in the survey or study. This may indicate that these teams are either more directly involved with the topic (for instance, AI-driven sentiment analysis or employee engagement) or more

proactive in responding to organizational research initiatives.

Conversely, the lower participation from Sales and Accounts could suggest limited relevance of the topic to their work areas or a need to encourage greater cross-departmental involvement in future surveys

2. The Role/ Level of the Employees in Axio

Count of Role/ Level

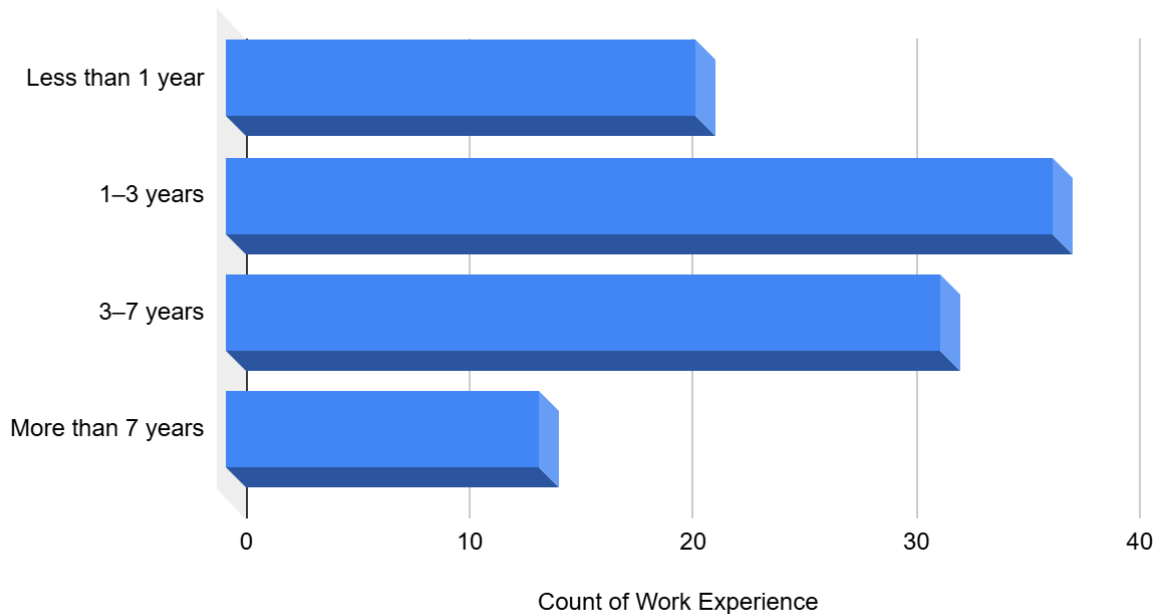


The above chart represents the distribution of respondents based on their role or level within the organization. Out of 104 respondents, the majority belong to the senior level (38.5%), followed by mid-level employees (33.7%). Managers constitute 14.4% of the total responses, while executives (7.7%) and entry-level employees (5.7%) represent smaller portions of the sample.

This distribution indicates that a significant portion of participants hold mid to senior-level positions, suggesting they possess substantial professional experience and are directly involved in managing teams and driving organizational initiatives. Their perspectives are therefore crucial in understanding how AI-driven sentiment analysis influences employee engagement, communication, and decision-making across different hierarchical levels.

3. The work experience of the Employees in Axio

Count of Work Experience



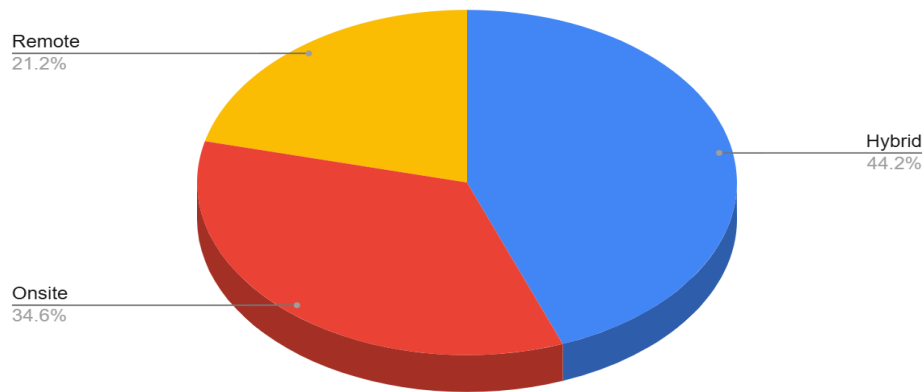
The above chart illustrates the distribution of work experience among 104 employees at Axio. The data is segmented into four categories:

1. Less than 1 year (20.2%) – About one-fifth of employees are relatively new, indicating a fresh influx of talent or recent hires.
2. 1–3 years (35.6%) – The largest group of employees falls within this range, showing that a significant portion of the workforce is in the early stages of their tenure, possibly reflecting strong retention in the initial years.
3. 3–7 years (30.8%) – Nearly a third of employees have moderate experience, suggesting a stable mid-level workforce that could contribute to
4. The Work Location of the Employees in Axio

organizational continuity and knowledge retention.

4. More than 7 years (13.5%) – A smaller proportion of employees have long-term experience, which might indicate either a relatively young company or limited long-term retention at senior levels.

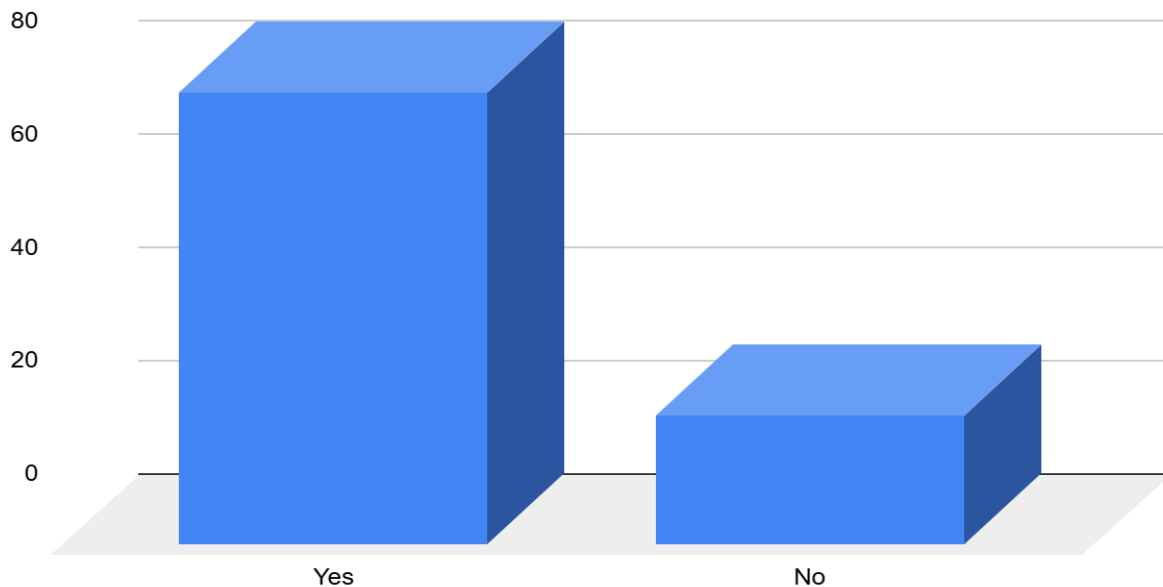
The workforce at Axio is skewed toward early- and mid-level experience (1–7 years), comprising more than 65% of employees. This balance suggests a dynamic team with room for mentorship programs to support newer employees and knowledge transfer from the more experienced staff.



The pie chart titled "Work Location" shows the distribution of work locations based on 104 responses. Hybrid is the most common work location, with 44.2% of respondents working in a hybrid

model. Remote work is the second most common, accounting for 34.6% of the responses. Onsite is the least common work location, with 21.2% of respondents working exclusively from the office.

5. Whether AI tools are being used, or considered, to analyze employee feedback in Axio

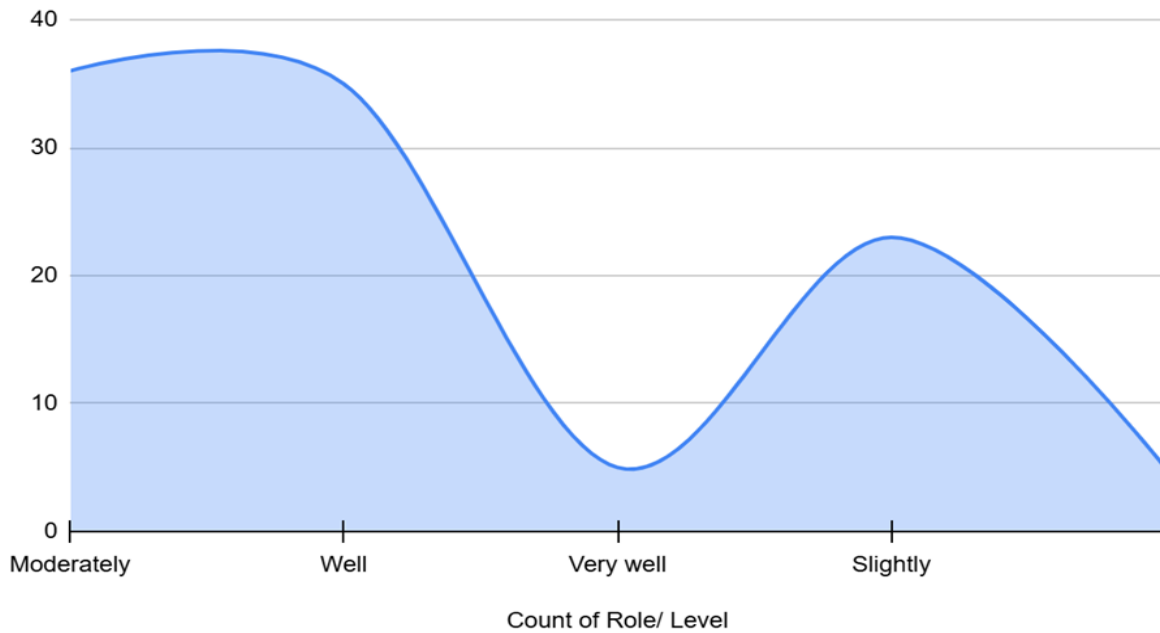


A significant majority of the respondents, 77.9%, answered "No," indicating that they are not aware that AI tools are being used or considered for analyzing employee feedback within their organizations. A much smaller portion of respondents, 22.1%, answered "Yes," meaning they

are aware that AI tools are being used or considered for this purpose.

The interpretation suggests a low level of employee awareness regarding the use of AI for sentiment analysis and feedback processing in the surveyed organizations.

5. The level of Understanding of AI-driven sentiment analysis among the employees of Axio.



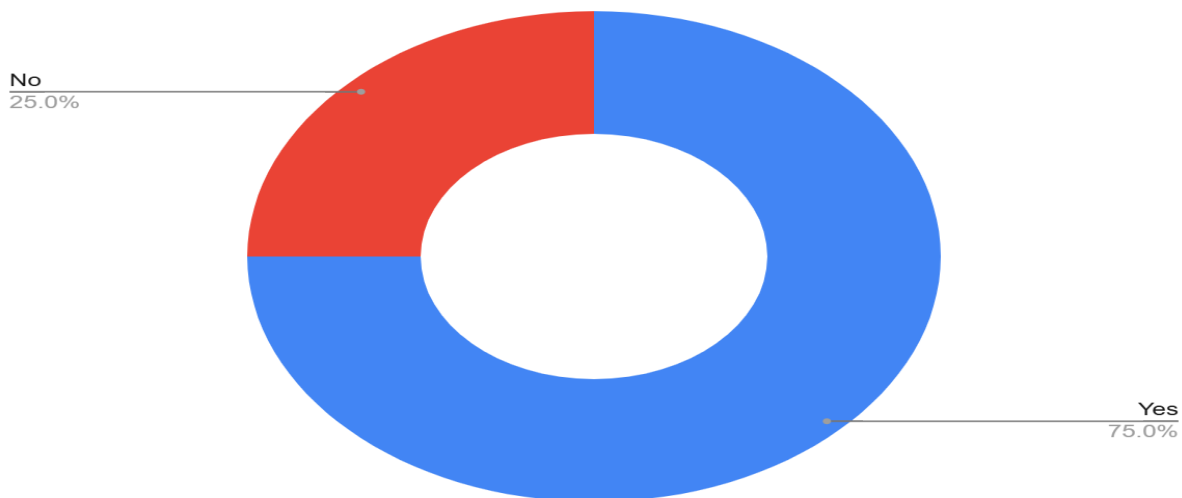
The chart displays the results of a survey question asking, "How well do you understand 'AI-driven sentiment analysis'?" The survey received a total of 104 responses.

Moderate understanding: The largest group of respondents, 33.7%, have a "Well" understanding of AI-driven sentiment analysis. A significant portion of the respondents have a limited understanding, with

24.0% selecting "Not at all" and 22.1% selecting "Slightly." A smaller percentage of respondents have a strong understanding, with 13.5% selecting "Moderately" and 6.7% selecting "Very well."

The interpretation suggests a wide range of understanding among the respondents, with a notable portion having a basic to no understanding of AI-driven sentiment analysis.

7. The use of AI tools (e.g., writing assistants, analytics dashboards) in Axio.

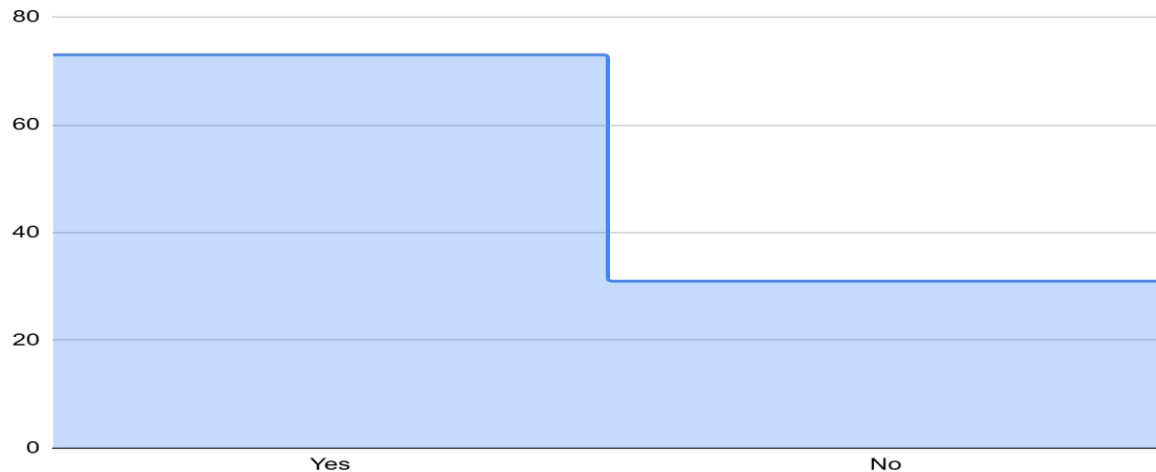


The chart displays the results of a survey question asking, "Have you ever used AI tools (e.g. writing assistants, analytics dashboards) in your work?". A clear majority of the respondents, 75%, answered "Yes," indicating that they have used AI tools in their

work. A smaller portion of respondents, 25%, answered "No," meaning they have not used AI tools in their work.

The interpretation suggests a high level of adoption of AI tools among the survey respondents.

8. Can AI, help HR detect issues before they escalate.



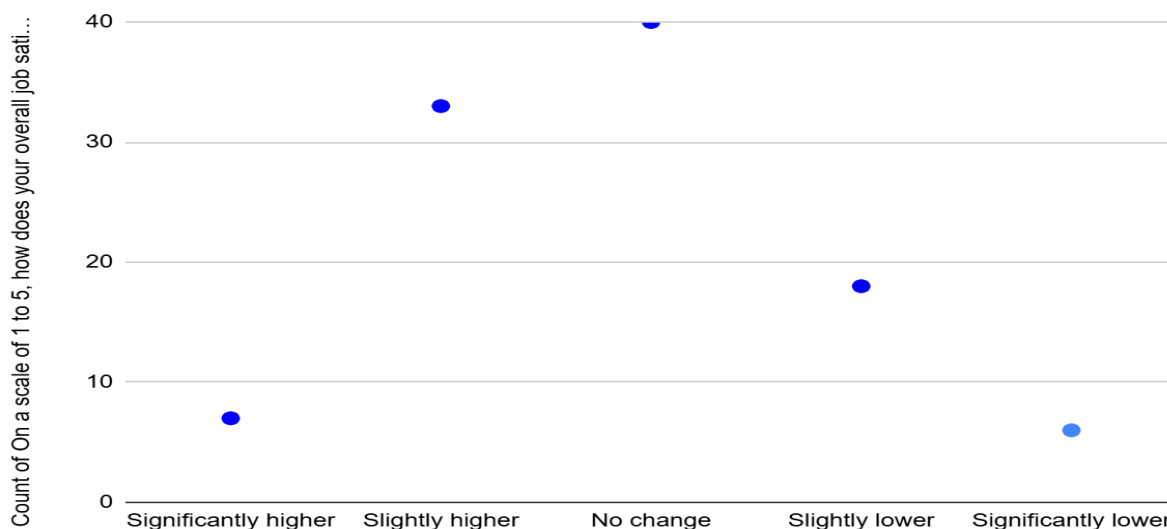
The chart displays the results of a survey question asking, "Do you think, AI can help HR detect issues before they escalate."

Positive view on AI's role: A clear majority of the respondents, 70.2%, answered "Yes," indicating that they believe AI can help HR detect issues before they escalate. Negative view on AI's role: A smaller

portion of respondents, 29.8%, answered "No," meaning they do not believe AI can help in this capacity.

The interpretation suggests a strong belief among the survey respondents that AI has a positive and useful role in proactive HR management.

9. The Overall job satisfaction compared to before AI tools were introduced, rated on a scale of 1 to 5.



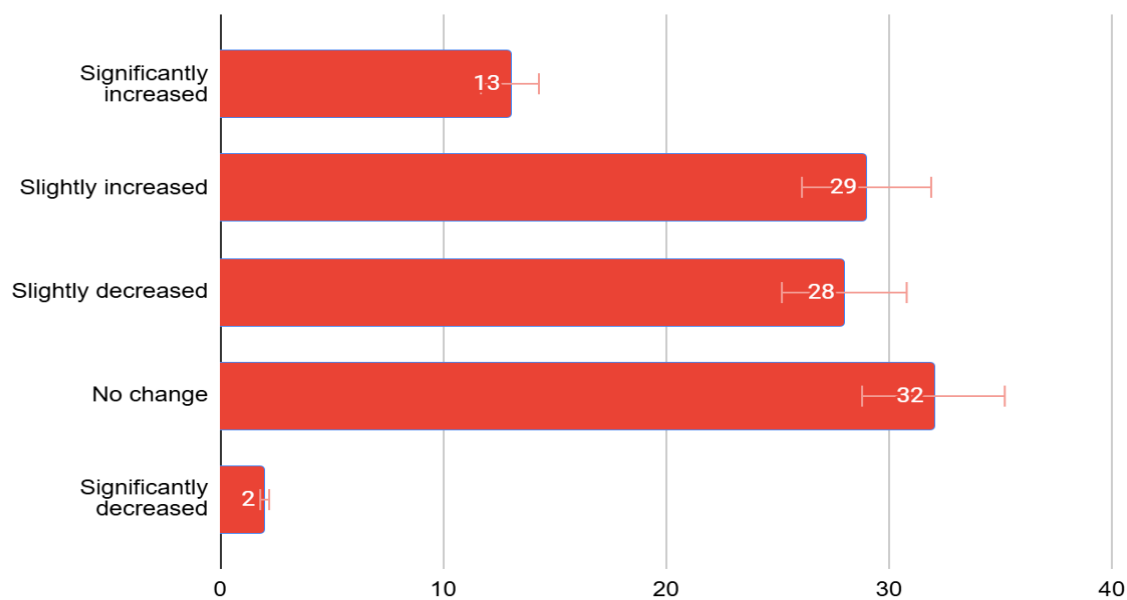
The chart displays the results of a survey question: "On a scale of 1 to 5, how does your overall job satisfaction compare to before AI tools were introduced?"

The data suggests that the introduction of AI tools has had a largely positive impact on the overall job satisfaction of the respondents. The largest group of respondents, 38.5%, reported feeling "Significantly higher" job satisfaction. Another substantial portion, 31.7%, experienced "Slightly higher" job satisfaction. Together, nearly three-quarters of respondents

(70.2%) have seen an increase in their job satisfaction since AI tools were introduced. A smaller segment of the workforce experienced a decline in satisfaction. 17.3% reported feeling "Slightly lower" satisfaction, while 12.5% felt "Significantly lower." The positive feedback outweighs the negative, indicating a net gain in job satisfaction across the surveyed group.

The findings align with the study's premise that AI-powered insights, when implemented effectively, can improve engagement outcomes and potentially enhance employee satisfaction.

10. The impact of AI tools on your sense of engagement in your work.



The chart shows the results from 104 responses to the question: "How has the introduction of AI tools affected your sense of engagement in your work?"

The data indicates that the introduction of AI tools has had a mixed, though predominantly positive, impact on employee engagement. More than half of the respondents reported an increase in their sense of engagement. Specifically, 27.9% indicated that their engagement has "Significantly increased," and 12.5% felt it has "Slightly increased." This amounts to 40.4% of employees experiencing a rise in engagement.

A significant portion of the respondents reported a decrease in engagement. 26.9% experienced a "Slightly decreased" sense of engagement, while

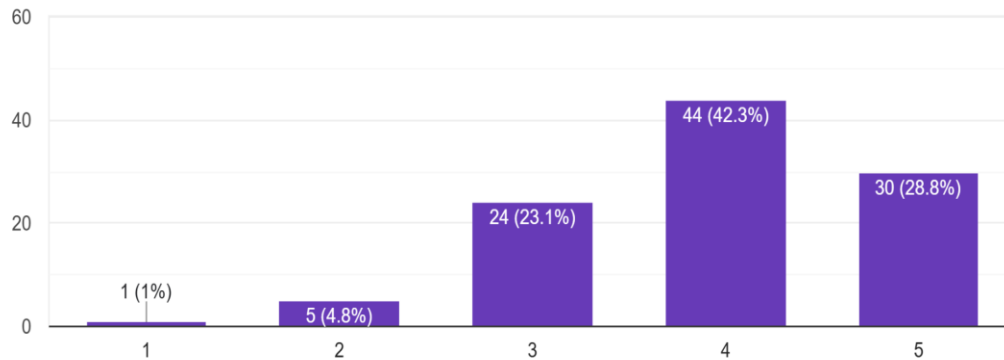
2.9% felt it "Significantly decreased." Combined, this represents 29.8% of employees. A substantial portion, 30.8%, reported "No change" in their engagement levels. The largest single group of responses falls into the "No change" category, suggesting that for a considerable number of employees, AI has not yet had a noticeable effect on their engagement levels.

There is a clear split between positive and negative perceptions. While many see an engagement boost from AI, a nearly equal number experience a slight or significant drop. A strong concentration of employees (over a quarter) feel a "Significant increase" in their engagement, which could be an encouraging sign for organizations looking to leverage AI.

11. The extent to which feedback received through AI systems helps improve your performance (Scale 1–5).

To what degree do you feel the feedback received through AI systems helps improve your performance? (Scale 1-5)

104 responses



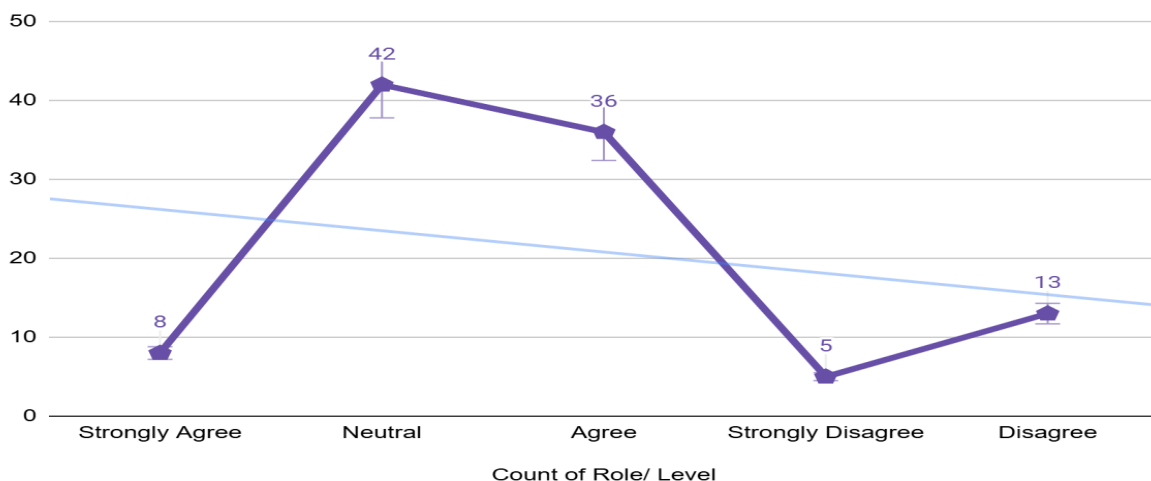
The chart displays the results of a survey question: "To what degree do you feel the feedback received through AI systems helps improve your performance? (Scale 1-5)." The data indicates that a significant majority of respondents believe that feedback from AI systems is helpful for improving their performance.

The largest group of respondents, 42.3%, selected "4" on the scale, suggesting a strong belief that AI feedback is beneficial. Another substantial portion, 28.8%, chose "5," indicating they feel the feedback is extremely helpful. In total, 71.1% of the respondents

rated the helpfulness of AI feedback as a 4 or 5, showing a strong positive consensus. A smaller group, 23.1%, rated the helpfulness as "3," suggesting a neutral or moderately positive view. Only a very small percentage of respondents felt the feedback was not helpful. 4.8% chose "2," and only 1% chose "1."

The findings suggest that, for the surveyed group, AI-driven feedback is largely seen as a valuable tool for performance improvement.

12. AI can reliably interpret employee tone, context, or mood.



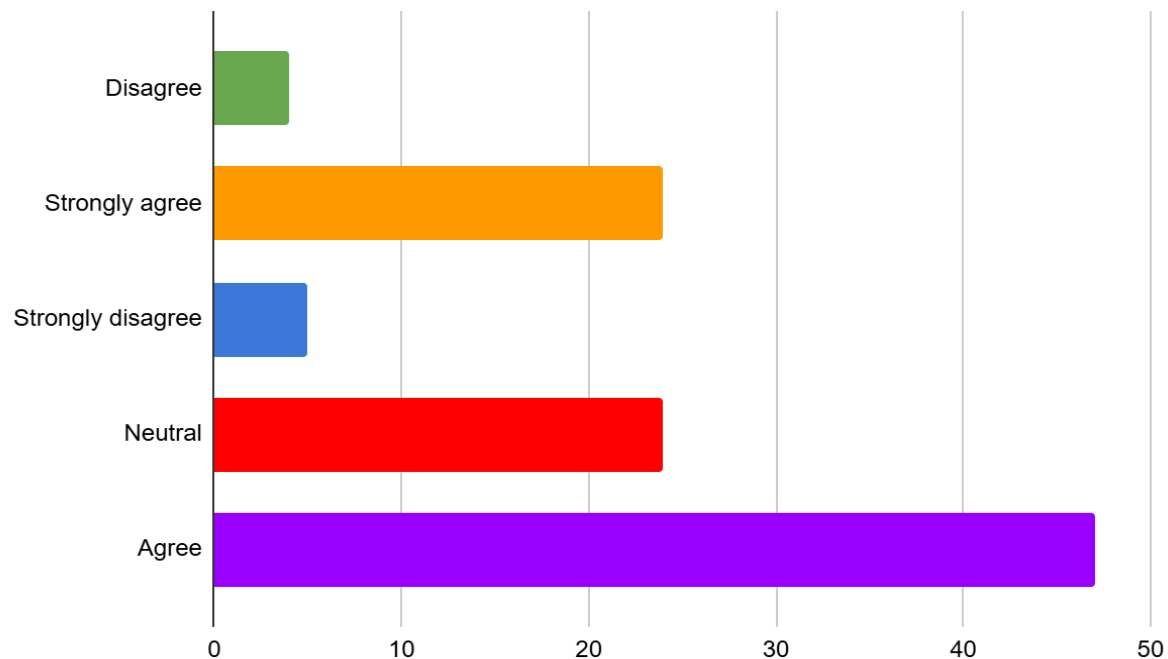
The data indicates a significant skepticism among respondents regarding the ability of AI to reliably interpret complex human emotions and communication nuances.

A large majority of respondents, 40.4%, strongly disagree that AI can reliably interpret employee tone, context, or mood. When combined with those who simply "Disagree" (7.7%), the total percentage of respondents who do not believe in AI's reliability for this task is 48.1%. In contrast, a much smaller portion of the respondents agree with the statement. 12.5% of respondents "Agree," while a smaller 7.7% strongly agree. This amounts to a total of 20.2% of

respondents who believe in AI's reliability. A substantial group of respondents, 34.6%, remained "Neutral" on the topic, suggesting they are either undecided or have mixed feelings about the capability.

The findings highlight a considerable lack of trust or confidence in AI's ability to handle the subtle complexities of human communication, which is a key limitation noted in the background study. The significant portion of neutral responses also suggests that many people are not yet convinced of AI's capabilities in this area.

13. The level of comfort when AI outputs are reviewed by a human before decisions.



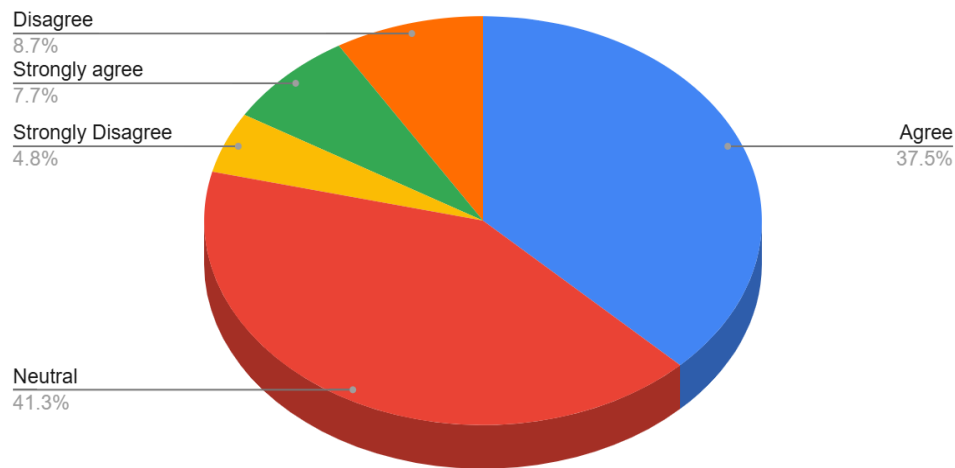
The data indicates that a strong majority of the respondents are more comfortable with human oversight of AI outputs before decisions are made.

Most people (45.2%) chose "Agree," and a big chunk of those people (23.1%) chose "Strongly agree." Overall, 68.3% of those who answered think it's better for a person to look over AI results before a decision is made. A much smaller number of people who answered disagreed with the statement. About 23% chose "Disagree," and 8.7% chose "Strongly disagree." A very small percentage of those who

answered are okay with decisions being made directly from AI outputs without being reviewed by a person.

It was found that people strongly prefer human oversight and input in AI-driven decision-making. This shows how important trust and openness are in the use of these tools. It seems that the people who answered may value AI's insights, but they are not yet ready to give the technology full control over their decisions.

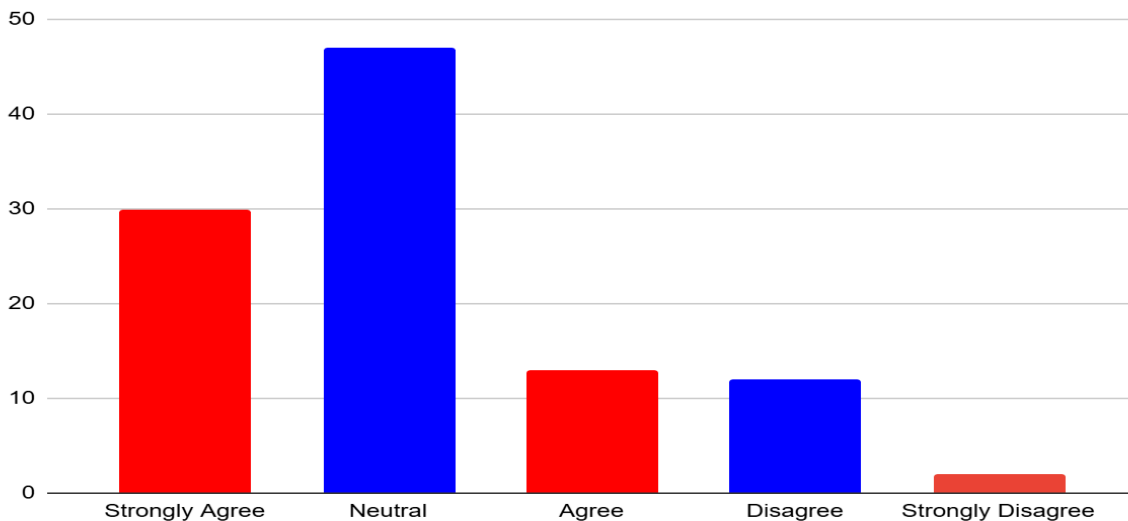
14. AI insights should inform action plans like coaching or wellbeing programs.



The data shows that a large majority of those who answered are not sure if AI insights can be used to help make action plans for coaching or well-being. A lot of people, 41.3%, said they "disagree" with the idea. Along with the 37.5% who said "Strongly Disagree," a total of 78.8% of respondents don't like

the idea of using AI insights for these specific action plans. Only 8.7% of those who answered have a neutral opinion. A very small number of people who answered agree that AI insights should be used in this way. 7.7% said "Agree," and 4.8% said "Strongly Agree," for a total of 12.5%.

15. The willingness to share feedback freely when the process is anonymized and acted upon.



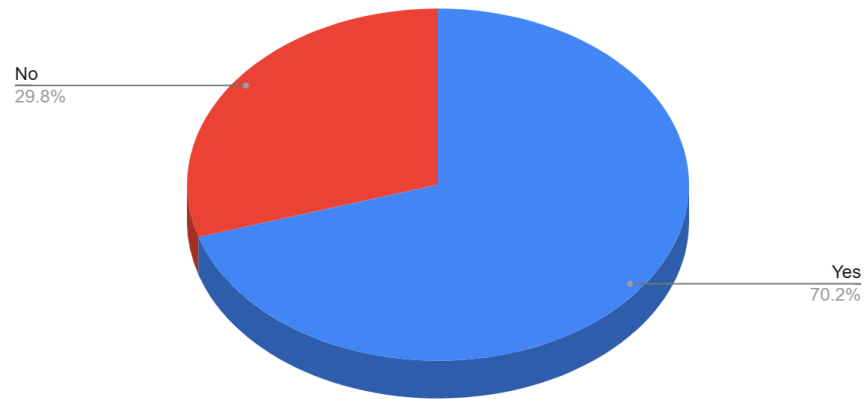
The data indicates that while there is strong support for the principle of sharing feedback freely when it's both anonymous and acted upon, a significant portion of the workforce remains skeptical or resistant.

The largest group of respondents, 45.2%, "Agree" that they would share feedback more freely under these conditions. When adding the 12.5% who "Strongly Agree," a total of 57.7% of respondents are positively inclined toward giving more feedback if

anonymity and action are guaranteed. This aligns with the study's premise that trust is a crucial factor in effective feedback loops.

A notable portion of the respondents are not convinced. 28.8% "Strongly Disagree" and 11.5% "Disagree," totaling 40.3%. This indicates a significant group that is either unwilling to trust the process, even with reassurances, or does not believe their feedback will genuinely lead to action. Only a small percentage, 12.5%, remained "Neutral," suggesting that most employees have a strong opinion one way or the other on this topic.

16. The consent to participate in a short follow-up interview

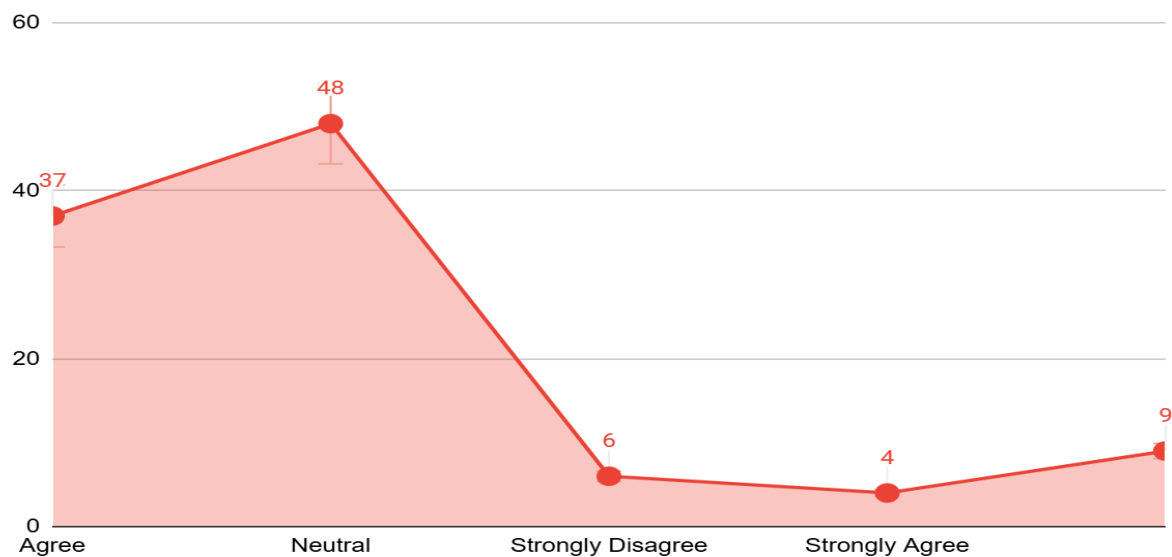


Based on the pie chart shown in the image, here is an interpretation of the data. The chart displays the results of a survey, A clear majority of the respondents, 70.2%, answered "Yes," indicating they would consent to participate in a follow-up interview. A smaller portion of respondents, 29.8%, answered

"No," meaning they would not consent to a follow-up interview.

The interpretation suggests a high level of engagement and willingness among the survey respondents to further contribute to the research study.

17. The trust towards the organization to use AI tools responsibly.

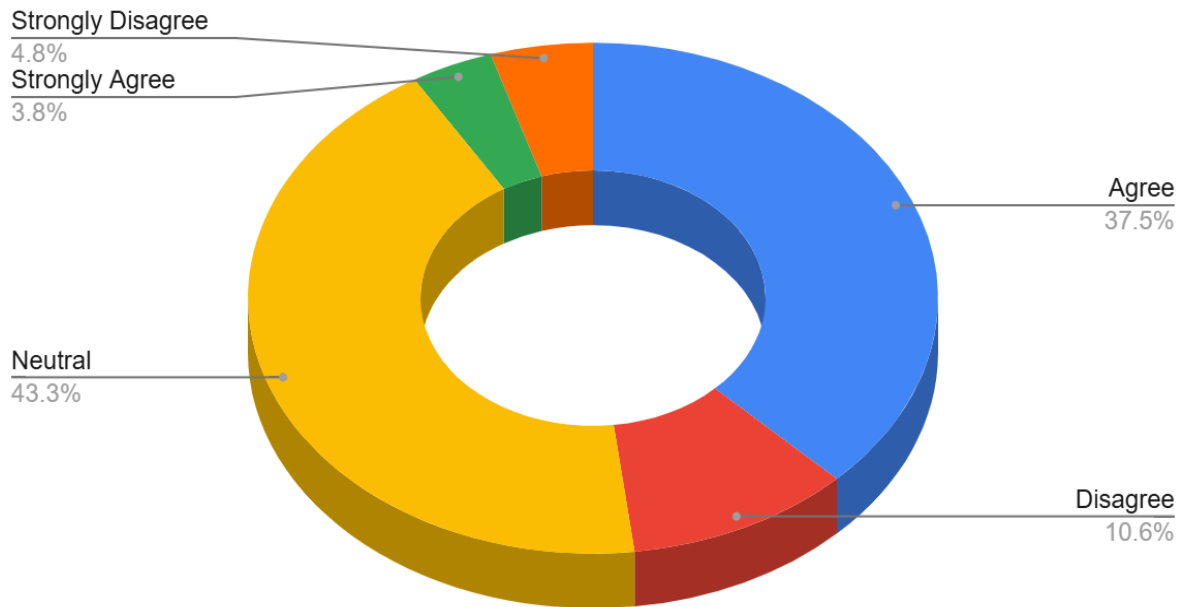


The data indicates that a significant portion of respondents do not trust their organization to use AI tools responsibly, while a substantial number remain undecided.

A large majority of respondents expressed distrust in the organization's use of AI tools. The largest group, 40.2%, selected "Disagree," and another significant portion, 35.6%, selected "Strongly Disagree." This

results in a combined 75.8% of respondents who do not trust the organization in this regard. In contrast, a very small percentage of respondents expressed trust. 4.8% selected "Agree" and 2.9% selected "Strongly Agree," for a combined total of only 7.7%. A small portion of respondents, 16.3%, chose "Neutral," suggesting they are either undecided or have mixed feelings about the organization's use of AI.

18. The organization clearly explains how employee data is used in AI analyses.



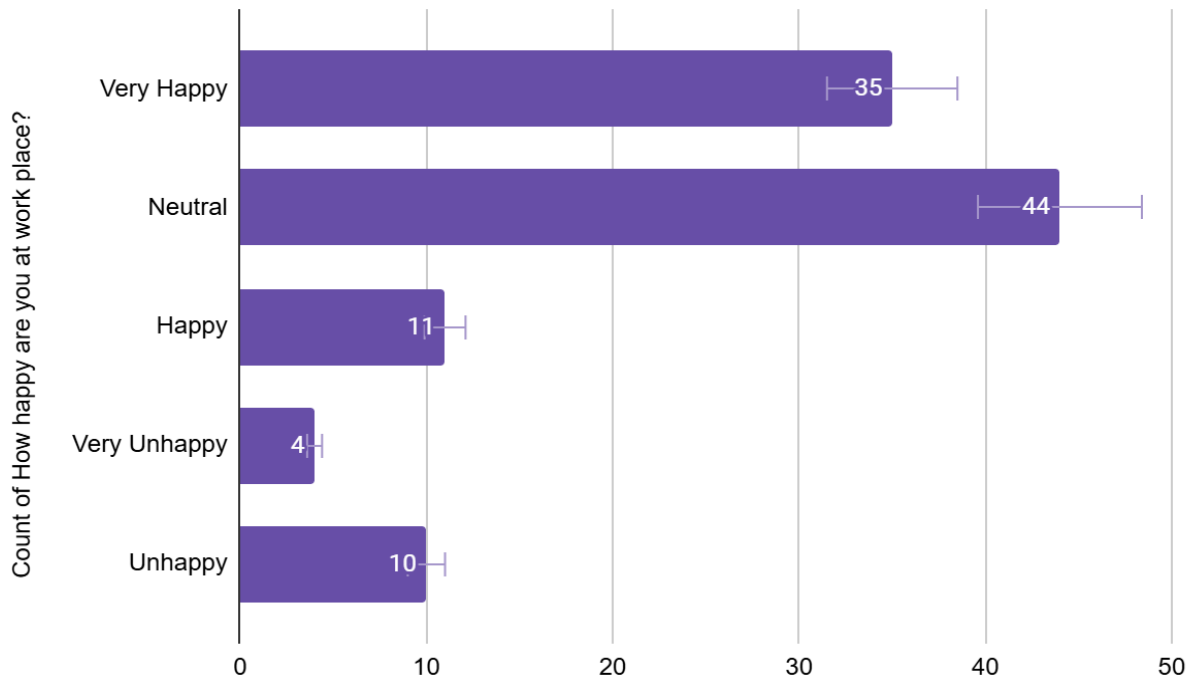
The data indicates a significant lack of transparency from the organizations regarding the use of employee data in AI analyses.

A large majority of respondents, 43.3%, "Disagree" with the statement. When combined with those who "Strongly Disagree" (37.5%), a total of 80.8% of respondents feel that their organization does not clearly explain how their data is used in AI analyses. In contrast, a very small percentage of respondents believe their organization is transparent. 10.6% selected "Agree" and only 4.8% selected "Strongly

Agree," for a combined total of 15.4%. Only a small portion of respondents, 3.8%, chose "Neutral," suggesting that most employees have a strong opinion on the matter.

The findings highlight a major gap in communication and transparency within organizations. This lack of clarity is a critical issue for building employee trust, as emphasized in the research paper's context, and could be a significant obstacle to the ethical implementation and acceptance of AI tools.

19. The Level of happiness at the workplace.



The data indicates that a significant portion of the respondents are either unhappy or have neutral feelings about their workplace happiness.

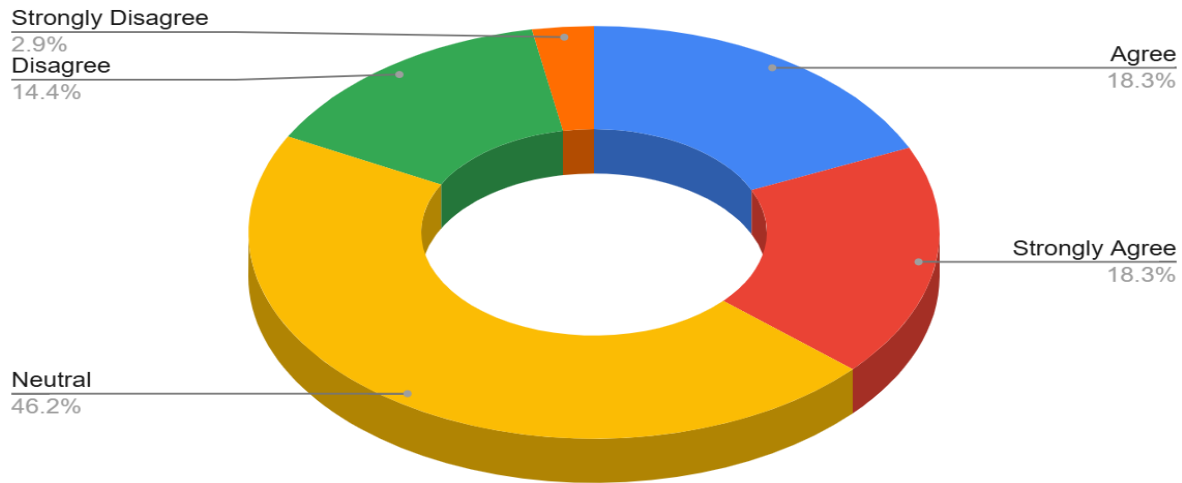
Only a small minority of respondents are "Very Happy" (10.6%) or "Happy" (9.6%). Combined, only 20.2% of employees express a positive sentiment. A substantial portion of the respondents are "Very Unhappy" (33.7%), which is the largest single category. This suggests a significant underlying issue affecting morale. When combined with the 22.1% who are "Unhappy," a majority of the workforce (55.8%) expresses negative sentiment. A small group, 4.8%, chose "Neutral," indicating that they have neither a positive nor a negative feeling towards their workplace happiness.

20. The Frequency of feeling stressed or burned out at the work Place.

21. Trust in the fairness and unbiased nature of AI analysis.

The data indicates that a significant majority of the respondents frequently experience feelings of stress or burnout, pointing to a widespread issue within the workplace.

A combined total of 54.8% of respondents reported feeling stressed or burned out "Often" (32.9%) or "Always" (21.2%). This suggests that more than half of the surveyed employees are dealing with chronic stress or burnout. Another large portion of the respondents, 25%, feel this way "Sometimes." When combined with the "Often" and "Always" categories, this means that nearly 80% of employees experience stress or burnout at least occasionally. Only a small minority of respondents reported rarely or never feeling stressed or burned out. 17.3% selected "Occasionally," and only 2.9% selected "Never."

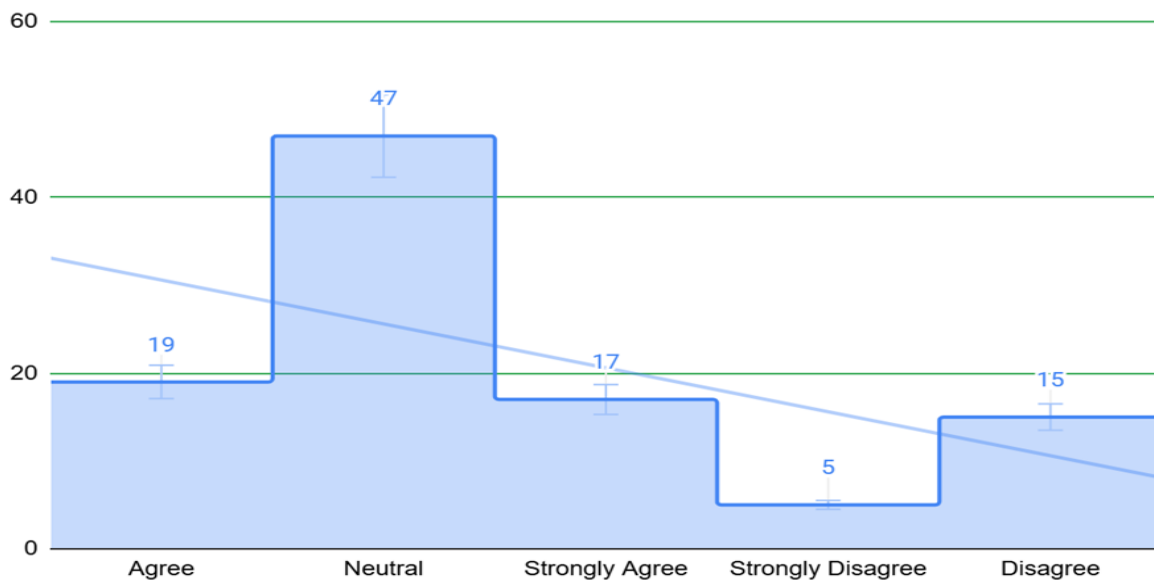


The data indicates a significant lack of trust among respondents regarding the fairness and unbiased nature of AI analysis .

The largest segment, at 46.2%, represents those who "Disagree" with the statement. An additional 18.3% "Strongly Disagree." Combined, this means that almost two-thirds of the respondents (64.5%) do not believe that AI analysis is fair and unbiased. Only a

small minority of respondents express trust in the AI's fairness. 14.4% selected "Agree" and 6.2% selected "Strongly Agree," for a combined total of just 20.6%. A sizable portion of respondents (18.3%) chose "Neutral," suggesting that they are either unsure, have mixed feelings, or lack sufficient information to form an opinion on the matter.

22. Belief that insights from AI-driven sentiment analysis are used to make meaningful improvements in the workplace.



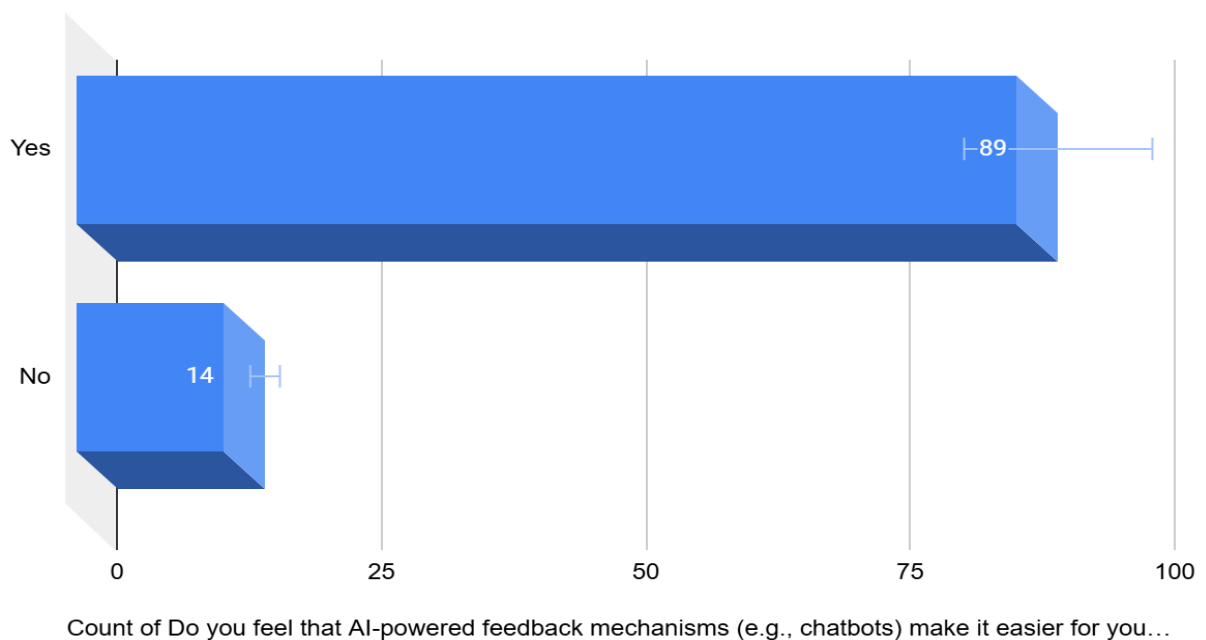
The data reveals a stark division among respondents regarding whether AI-driven sentiment insights lead to meaningful improvements in the workplace. While a substantial portion has a positive belief, an almost equally large segment is skeptical or distrustful.

A significant group of respondents believes the AI insights are being used for meaningful improvements, 45.6% "Agree" with the statement, 14.6% "Strongly Agree." Combined, 60.2% of employees hold a

positive belief that AI insights are effectively utilized for workplace improvements.

A large portion of the respondents do not share this positive belief, 16.5% "Strongly Disagree, 10.4% "Disagree, Combined, 26.9% of employees express a negative view, believing the insights are not used for meaningful improvements. A notable group of respondents, 12.6%, remained "Neutral," indicating they are either unsure, undecided, or feel they don't have enough information to form an opinion.

23. Perception of whether AI-powered feedback mechanisms (e.g., chatbots) make it easier to share opinions compared to traditional methods.



The data indicates that a significant majority of respondents believe that AI-powered feedback mechanisms are more effective for sharing opinions than traditional methods.

A clear majority of the respondents, 86.4%, answered "Yes," indicating that they find AI-powered tools easier for sharing their opinions. A small minority of respondents, 13.6%, answered "No," suggesting they prefer traditional methods for providing feedback. The interpretation suggests a high level of acceptance and comfort with AI-powered feedback tools among the survey respondents.

Findings

Based on the analysis and interpretation of the survey data, the following findings are observed:

1. High Adoption and Perceived Benefits of AI Tools: A vast majority of employees (75%) have already used AI tools in their work, indicating high levels of adoption and familiarity. A strong consensus exists among employees that AI can be a valuable tool for HR. 70.2% believe AI can help detect issues before they escalate, and 71.1% find AI-driven feedback helpful for improving their performance.

A clear majority (86.4%) finds AI-powered feedback mechanisms easier to use than traditional methods. The introduction of AI tools has had a positive effect on job satisfaction and engagement for a significant

portion of the workforce. 70.2% reported higher job satisfaction, and 40.4% felt their engagement had increased.

There is a major trust gap regarding the ethical use of AI. A large majority of respondents (75.8%) do not trust their organization to use AI tools responsibly. A severe lack of transparency exists, with 80.8% of respondents believing their organization does not clearly explain how employee data is used in AI analyses.

Skepticism about algorithmic fairness is widespread. Almost two-thirds of employees (64.5%) do not trust that AI analysis is fair and unbiased. There is a strong preference for human oversight. A combined 68.3% of respondents feel more comfortable if AI outputs are reviewed by a human before decisions are made.

A significant portion of the workforce is unhappy at work, with 55.8% of respondents reporting being either "Unhappy" or "Very Unhappy." Stress and burnout are widespread. A combined 54.8% of employees feel stressed or burned out "Often" or "Always."

There is a clear need for meaningful action. A significant portion of the workforce (26.9%) does not believe that AI-driven insights are used to make meaningful improvements in the workplace.

Suggestions

Based on these findings, here are several suggestions for organizations looking to implement AI-driven sentiment analysis effectively:

Develop and communicate a clear, easy-to-understand policy on how AI tools are used for employee feedback and sentiment analysis. Explicitly state what data is collected, how it is analyzed, and who has access to the insights. This is crucial for bridging the transparency gap.

Talk to your employees ahead of time about the purpose and benefits of AI tools, and address any concerns they may have about privacy and fairness.

Take action on the insights you get from AI analysis and let your employees know about the changes that happen as a result. This will help workers believe that their feedback makes a real difference in the world. You should always use AI insights along with human review and decision-making. The data strongly suggests that employees feel more comfortable with AI when it is used as a helper rather than a boss.

Check AI models often to make sure they are fair and unbiased. To address the doubts about algorithmic fairness, it will be important to let people know that these checks are done. Show your employees that their opinions are valued and will be taken into account without fear of retaliation. This will make them feel safe enough to give honest feedback in traditional ways. This is especially important for the large group of employees who still won't give feedback freely.

VII. CONCLUSION

There is a big paradox in the survey results: most employees want to adopt and use AI tools and see how they could help them at work, but they don't trust their companies to use these tools in a responsible or open way. Unfortunately, this "trust deficit" makes it hard to use AI to its full potential in improving employee health and happiness. ‘

People who work for companies are often unhappy, stressed, and burned out, and they don't believe that AI insights can make things better. This makes it seem like companies aren't connecting AI insights to real, positive change. Employees seem to think that AI could help, but they don't trust that their bosses will or are responsible enough to use that ability. The results make it clear that companies need to not only use AI for sentiment analysis, but also put an emphasis on ethical governance, data transparency, and a real desire to act on the insights they gather. Without this, the tools will be seen as a way to spy on people instead of a way to make the workplace better, which could make the problems they are meant to solve even worse.

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WEBSITES AND LINKS

- [1] <https://www.attendancebot.com/blog/employee-sentiment-analysis/>
- [2] <https://www.biz4group.com/blog/ai-in-employee-engagement>
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