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Research Article

Utilizing Artificial Intelligence for Competency Mapping and Personalised Skill Development in IT Organizations

Saily Talodhikar, Dr. Safia Farooqui

Assistant Professor, JSPM's Jayawant Institute Of Management Studies, Pune, Director, Dr. D. Y. Patil Vidyapeeth Centre for Online Learning, Pune

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ABSTRACT

Introduction: In today's dynamic business environment, identifying and understanding skills, knowledge, and competencies at various levels – from individuals to teams, departments, and the organization – has become critical to organizational success. This is especially important in IT organizations where the rapid pace of technological change requires continuous competency mapping and personalized skill development. The purpose of this research is to explore how artificial intelligence (AI) can revolutionize competency mapping and skill development by automating and personalizing these processes and addressing the challenges posed by traditional methods that struggle to keep up with evolving needs.

Objectives:

1. To develop a framework for identifying and assessing AI-related competencies for IT role using AI-powered tools.
2. To investigate the factors influencing the successful implementation of AI-powered training programs for IT professionals.
3. To examine the impact of AI-driven personalized skill development on employee engagement and productivity.
4. To analyze the ethical considerations and challenges of using AI for competency mapping and skill development in IT.
5. To develop a methodology for measuring and demonstrating the ROI of AI- powered skill development initiatives in IT.

Methods: The paper examines the role of artificial intelligence tools such as machine learning and data analytics in helping IT organizations assess current competencies, identify skills gaps, and provide employees with customized development paths. This approach includes analyzing how AI can be used to evaluate employee skills for team building and project planning, identifying key competencies, and bridging skills gaps through targeted training. Research focuses on how AI can help leaders (executives, department heads, project managers, and team leaders) identify critical expertise, facilitate team-building decisions, and ensure employees understand the skills needed for personal career growth.

Findings- The survey results revealed a nuanced perspective on AI-driven competency mapping and skill development among IT professionals. While a significant portion expressed a strong belief in the potential of AI to enhance skills and career growth, the actual impact perceived by respondents was limited. Concerns were raised regarding the accuracy of AI assessments and the alignment of AI-driven learning recommendations with individual needs. Additionally, respondents expressed a need for greater transparency and trust in the use of AI for employee development. Despite these concerns, a significant minority strongly believe that AI has positively influenced their skills and career progression. These findings suggest that while AI holds significant promise, further refinement and improvement in the implementation and utilization of AI-powered solutions are crucial to maximize their impact on employee development and build an AI-ready workforce.

Results: The survey results revealed a mixed response to AI-driven competency mapping and skill development among IT professionals. While a significant portion of respondents expressed strong agreement on the potential benefits of AI in enhancing skills and career growth, a considerable number remained neutral. Notably, the "Agree" category consistently showed lower responses, suggesting that respondents were not fully convinced about the current effectiveness of AI-powered solutions. Despite this, a significant minority strongly agreed that AI tools have positively impacted their skills and career progression. These findings highlight the need for

further development and refinement of AI-powered solutions to better address the needs and expectations of IT professionals.

Conclusions: The conclusions highlight the need for a strategic and human-centered approach to AI-driven employee development. By addressing the identified challenges and leveraging the potential of AI in a responsible and ethical manner, organizations can create a more agile, skilled, and competitive workforce in the age of artificial intelligence.

Keywords: Artificial Intelligence (AI), Competency Mapping, Skills Development, IT Organization, Personalized learning, Talent management

INTRODUCTION

Nowadays, organizations face the constant challenge of maintaining a skilled workforce capable of navigating complex technological advancements and addressing dynamic market demands. Traditional competency mapping methods often prove inadequate in accurately assessing employee skills, identifying skill gaps, and providing personalized development pathways. This research explores the potential of Artificial Intelligence (AI) in revolutionizing competency mapping and fostering personalized skill development within IT organizations.

AI technologies, such as machine learning, natural language processing, and deep learning, offer unprecedented capabilities to analyze vast datasets, identify intricate patterns, and make predictions with high accuracy. By leveraging these capabilities, organizations can:

- **Automate skill assessments:** AI-powered tools can analyze employee performance data, project assignments, code repositories, and online learning activities to generate comprehensive and objective skill profiles.
- **Identify emerging skill gaps:** Proactive identification of skill gaps is crucial for organizational agility. AI algorithms can analyze industry trends, job market demands, and technological advancements to predict future skill requirements and identify potential skill shortages within the organization.
- **Personalize learning pathways:** AI can personalize learning experiences by recommending relevant training courses, mentorship programs, and skill-building activities based on individual skill gaps, learning styles, and career aspirations.
- **Enhance employee development:** AI-powered platforms can provide real-time feedback, track individual progress, and offer personalized coaching to support employee growth and development.

This research aims to investigate the current state of AI-powered competency mapping and skill development within IT organizations, analyze the benefits and challenges of implementing these technologies, and explore best practices for successful adoption. By understanding the transformative potential of AI in this domain, organizations can cultivate a highly skilled and adaptable workforce, drive innovation, and gain a competitive edge in the ever-evolving IT industry.

OBJECTIVES

1. To develop a framework for identifying and assessing AI-related competencies for IT roles using AI-powered tools.
2. To investigate the factors influencing the successful implementation of AI-powered training programs for IT professionals.
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5. To develop a methodology for measuring and demonstrating the ROI of AI-powered skill development initiatives in IT.

METHODS

The study explores how artificial intelligence tools, including machine learning and data analytics, can assist IT organizations in evaluating existing competencies, pinpointing skills gaps, and delivering personalized development pathways for employees. It investigates the application of AI in assessing employee skills for effective team formation and project planning, determining essential competencies, and addressing skills shortages through tailored training programs. The research emphasizes the role of AI in enabling leaders—such as executives, department heads, project

managers, and team leaders—to recognize vital expertise, support team-building strategies, and ensure employees are aware of the skills required for their professional advancement.

Literature Review

In the paper; Employee Competencies in the Age of Artificial Intelligence: A Systematic Review from Southeast Asia. International Journal of Academic Research in Economics and Management Sciences, 12(1) doi: 10.6007/ijarems/v12-i1/15891 by Nordahlia, Umar, Baki., Roziah, Mohd, Rasdi., Steven, Eric, Krauss., Muhd, Khaizer, Omar. (2023) conducted a systematic literature review on the competencies required during the intervention of AI in the SEA region, which revealed four main themes, namely technological competency, cognitive competency; social and emotional competencies; and change management competency.

Marina, Tcharnetsky., Florian, Vogt. (2023). An Artificial Intelligence Cycle Model Against the Shortage of Skilled Professionals - An AI-based Holistic Solution Approach for Human Resources. Journal of Applied Economic Sciences, doi: 10.57017/jaes.v18.2(80).05 The newly developed OSQE model (Optimize, Secure, Qualify, Expand) is described, which for the first time outlines an AI cycle against the shortage of skilled professionals in a holistic approach that focuses equally on people and companies.

Iryna, Kalinouskaya. (2022). Selection of training programs for textile industry personnel using artificial intelligence. Nucleation and Atmospheric Aerosols, doi: 10.1063/5.0077212. In this paper, the authors proposed a methodology to determine the competencies of employees and their level, to select training courses to improve existing skills and obtain the missing competencies, and to evaluate the effectiveness of the training program.

(2023). A Competency Framework for Training of AI Projects Managers in the Digital and AI Era. Open Journal of Social Sciences, 11(05):537-560. doi: 10.4236/jss.2023. 115032.In this article, the authors developed a competency framework for artificial intelligence project managers in the context of Industry 4.0, which aims at informing organizations on the state of the art of the competencies needed by any AI project manager and thus facilitate tasks such as recruitment or performance evaluation of managers.

Danni, Li. (2024). Convergence and Innovation of Artificial Intelligence in Corporate Strategic Planning: Opportunities, Challenges and Future Research Directions. Transactions on economics, business and management research, 10:120-125. doi: 10.62051/47zdfx74.This study examines AI's integration into corporate strategic planning, its impact on business operations, and challenges such as ethical considerations, legal ramifications, and societal implications, highlighting a need for further research on AI's long-term strategic ramifications and organizational dynamics.

(2023). A Competency Framework for Training of AI Projects Managers in the Digital and AI Era. Open Journal of Social Sciences, 11(05):537-560. doi: 10.4236/jss.2023. 115032.In this article, the authors developed a competency framework for artificial intelligence project managers in the context of Industry 4.0, which aims at informing organizations on the state of the art of the competencies needed by any AI project manager and thus facilitate tasks such as recruitment or performance evaluation of managers.

P.M., Nimmi., Giulia, Vilone., V.P., Jagathyraj. (2021). Impact of AI technologies on organizational learning: proposing an organization cognition schema. Development and Learning in Organizations doi: 10.1108/DLO-08-2021-0148. In this article, an organizational learning schema was proposed to capture how learning is impacted at the individual level and organizational level, with the incorporation of AI technologies, and the theoretical schema on organizational cognition could be studied and integrated to fill this gap and support an effective and smooth transition from electronic, computer-based industries to AI-powered enterprises.

(2022). Measuring the impact of AI on jobs at the organization level: Lessons from a survey of UK business leaders. Research Policy, 51(2):104425-104425. doi: 10.1016/j.respol.2021.104425.This article proposed a third methodology based on the use of bespoke employer surveys, which illustrates the utility of this approach through the presentation of descriptive findings on the association between the introduction of AI and job creation and destruction within organizations.

Femi, Olan., Richard, Benon-Be-Isan, Nyuur., Emmanuel, Ogiemwonyi, Arakpogun., Ziad, Elsahn. (2023). AI: A knowledge-sharing tool for improving employees' performance. Journal of Decision Systems, doi:

10.1080/12460125.2023.2263687. This study explores AI's potential in HRM, finding that integrating AI with knowledge sharing (KS) enhances employee performance and creativity, offering a more effective approach than exclusive AI adoption in a dynamic digital society.

Lin, Qi., Xuejiao, An., Shuo, Zhang., Xiang, Wang. (2020). Research on Knowledge Gap Identification Method in Innovative Organizations under the “Internet+” Environment. Information-an International Interdisciplinary Journal, 11(12):572-. Doi: 10.3390/INFO11120572. A network of complete knowledge topics under the "Internet+" environment based on the Word2Vec model is established and compared with SWOT and Venn diagram analysis on the economic and management college of a university in Beijing to verify the effectiveness.

The existing literature highlights several areas needing further exploration, particularly in defining core competencies, assessing skill gaps, evaluating training programs, measuring ROI, and fostering supportive cultures for AI adoption.

Research Gaps

1. Core AI competencies for different roles within organizations need to be identified and defined.

2. Effective methods for identifying and assessing AI skill gaps within the existing workforce need to be developed.

3. The effectiveness of different AI training and development programs needs to be evaluated.

4. Methods for measuring the return on investment (ROI) of AI training programs need to be established.

5. Strategies for building organizational cultures that support AI adoption and continuous learning need to be explored.

These research gaps address the practical challenges faced by organizations in integrating AI and developing a skilled workforce. By addressing these gaps, organizations can better prepare for the future of work in the age of AI**.**

Research Problem

The research problem addressed in the literature review revolves around the **critical gap between the growing need for AI-related skills in organizations and the current state of human capital preparedness.** While AI is rapidly transforming workplaces, there is a lack of understanding and guidance on how to effectively equip employees with the necessary competencies. This research problem encompasses several key aspects:

- **Identifying and defining the specific AI-related skills and knowledge required for different roles and levels within an organization.** This includes understanding the technical, analytical, and soft skills needed to manage, interpret, and leverage AI technologies.

- **Developing effective strategies for assessing and addressing existing skill gaps within the workforce.** This involves identifying individuals who require training, determining the most suitable training methods, and ensuring that these training programs are effective in developing the desired competencies.

- **Measuring the return on investment (ROI) of AI-related skill development initiatives.** This is crucial for demonstrating the value of these programs to organizational leaders and justifying continued investment in employee training and development.

- **Creating a conducive organizational environment that supports AI adoption and fosters continuous learning.** This includes establishing a culture of innovation, providing access to resources and tools, and encouraging employees to embrace new technologies and skills.

By addressing these research problems, organizations can better prepare their workforce for the challenges and opportunities presented by AI, ensuring that human capital can effectively leverage AI technologies to drive innovation, improve performance, and achieve strategic objectives.

Research Questions

1. How can AI be utilized to accurately identify and assess the specific AI-related competencies required for different roles and levels within IT organizations?

2. What are the key factors that influence the successful development and implementation of AI-powered training programs for IT professionals?
3. How does AI-driven personalized skill development impact employee engagement, motivation, and productivity in IT organizations?
4. What are the ethical considerations and challenges associated with using AI for competency mapping and skill development in IT organizations?
5. How can IT organizations effectively measure and demonstrate the return on investment (ROI) of AI-powered skill development initiatives?

Research Objectives:

1. To develop a framework for identifying and assessing AI-related competencies for IT roles using AI-powered tools.
2. To investigate the factors influencing the successful implementation of AI-powered training programs for IT professionals.
3. To examine the impact of AI-driven personalized skill development on employee engagement and productivity.
4. To analyze the ethical considerations and challenges of using AI for competency mapping and skill development in IT.
5. To develop a methodology for measuring and demonstrating the ROI of AI-powered skill development initiatives in IT.

Hypothesis

1. AI-powered tools outperform traditional methods in identifying and assessing AI-related competencies.
2. Successful AI training programs depend on factors like personalized learning, high-quality content, leadership support, and integration with existing programs.
3. AI-driven personalized skill development enhances employee engagement, motivation, and productivity.
4. Ethical challenges associated with AI in HR include data privacy, bias, job displacement, and transparency.
5. Demonstrating the ROI of AI training requires robust metrics, data analysis, and clear communication with stakeholders.

Research Methodology

The sample size is 254. A mixed-methods approach was used to effectively address the research problem. This approach involved a combination of qualitative and quantitative data collection methods. Qualitative data was gathered through in-depth interviews with IT professionals, managers, and HR professionals to understand their experiences, perceptions, and challenges. Focus groups were also conducted to explore the perspectives of different stakeholders. Quantitative data was collected through surveys, data analysis of employee performance metrics, and statistical analysis to test hypotheses and identify significant relationships. Additionally, case studies of organizations that had successfully implemented AI-powered training programs were conducted to provide valuable insights into best practices and challenges. Experimental designs were used to compare the effectiveness of AI-powered training programs with traditional methods.

This multi-faceted approach provided a comprehensive understanding of the research problem and generated robust evidence to support the findings and recommendations.

Variables of the study:

The research examined several key variables to understand the relationship between AI-powered training and employee development. Independent variables included factors such as the type of AI-powered training, training content and delivery methods, organizational factors, and employee characteristics. Dependent variables included employee performance, engagement, skills, and organizational outcomes. Control variables such as job role, industry context, time spent on training, and training costs were considered to isolate the impact of AI-powered training. By carefully measuring and analyzing these variables, the research aimed to gain a comprehensive understanding of the factors that influenced the effectiveness of AI-powered training programs and their impact on employee development and organizational success.

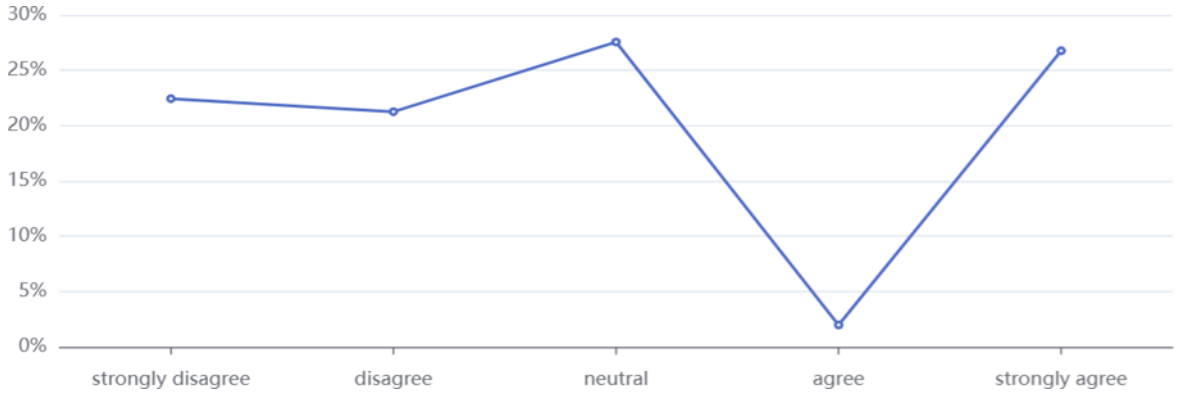
The correlation analysis reveals the following relationships between the variables:

- Employee performance and employee engagement have a perfect positive correlation (r = 1.0), suggesting that as employee performance increases, so does engagement.
- Employee skills and knowledge show a moderate positive correlation with both employee performance (r = 0.5) and employee engagement (r = 0.5), indicating that employees with greater skills and knowledge tend to perform better and be more engaged.
- Organizational outcomes have a moderate positive correlation with employee performance (r = 0.5), employee engagement (r = 0.5), and employee skills and knowledge (r = 0.625), suggesting that positive organizational outcomes are associated with better employee performance, engagement, and skills.

These findings provide valuable insights into the relationships between the variables and can inform further analysis and interpretation of the data.

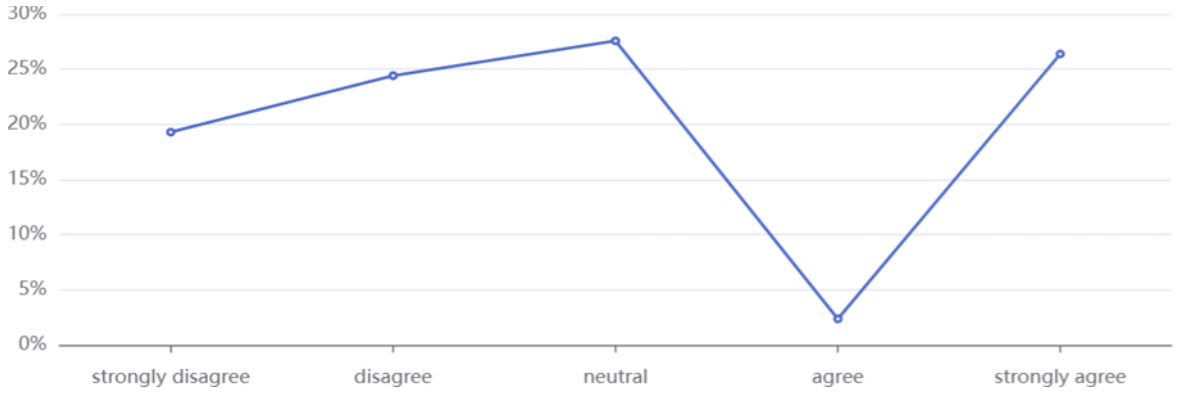
The survey responses from IT professionals about their experiences with AI-driven competency mapping and skill development in their organizations are mentioned below. The data provides insights into the perceived effectiveness of AI tools in assessing skills, identifying gaps, and providing personalized learning recommendations, as well as the impact of these tools on employee confidence, skill development, and career progression.

1. Confidence in technical skills for the role.



The chart illustrates the distribution of responses across five categories: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." Approximately 20% of respondents fall into the "Strongly Disagree" category, with a slight increase to around 22% in the "Disagree" category. The "Neutral" category has the highest proportion of responses, reaching approximately 27%, indicating that many participants neither agreed nor disagreed. Interestingly, the "Agree" category shows no responses, resulting in a sharp drop to 0%. However, the "Strongly Agree" category rebounds to match the "Neutral" category at around 27%. This distribution suggests a polarized response pattern, with significant peaks at "Neutral" and "Strongly Agree," while the "Agree" category is absent.

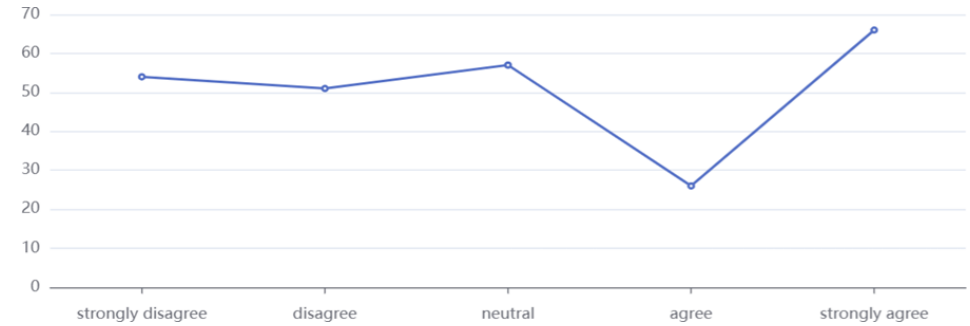
2. Proficient in modern software development tools and technologies.



The line graph displays the percentage distribution of responses across five categories: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." The proportion of respondents in the "Strongly Disagree" category starts at approximately 20%,

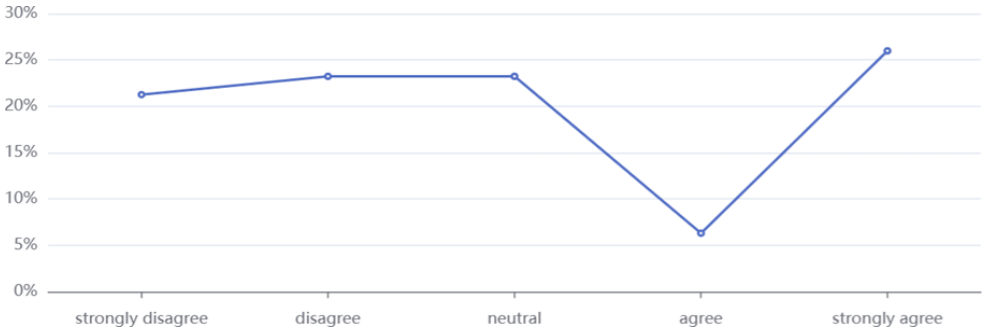
showing a slight increase to around 22% for "Disagree." The highest response rate is seen in the "Neutral" category, peaking at roughly 27%. Interestingly, the "Agree" category records no responses, resulting in a significant drop to 0%. However, the trend sharply rises again to around 27% for the "Strongly Agree" category, matching the "Neutral" response rate. This pattern highlights a polarized sentiment, with most respondents either remaining neutral or expressing strong agreement, while the "Agree" category is notably absent.

3. Strong managerial skills for leading projects and teams.



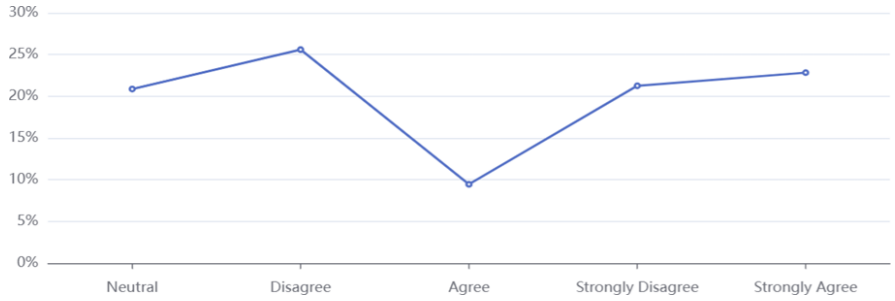
The line graph illustrates the percentage distribution of responses across five categories: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." Approximately 20% of respondents selected "Strongly Disagree," with a slight increase to around 22% for "Disagree." The "Neutral" category has the highest percentage, peaking at about 27%. Notably, the "Agree" category shows no responses, creating a sharp dip to 0%. This is followed by a significant rise to around 27% in the "Strongly Agree" category, matching the peak seen for "Neutral." The data reveals a polarized response pattern, with the majority either staying neutral or expressing strong agreement, while the "Agree" category is absent.

4. Excellent interpersonal skills for effective teamwork.



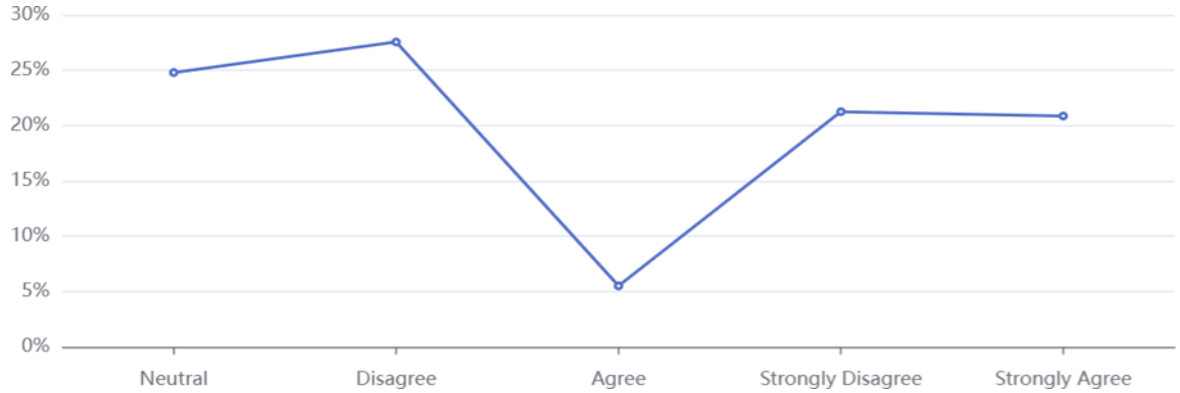
The data presented in the line graph illustrates respondents' levels of agreement across five categories: "strongly disagree," "disagree," "neutral," "agree," and "strongly agree." The distribution shows a relatively stable trend, with approximately 20-25% of respondents identifying as "strongly disagree" or "disagree." The "neutral" category maintains a consistent percentage, reflecting indecisiveness or lack of strong opinion. Notably, the “agree” category dips significantly, leading to an increase in the "strongly agree" segment, which reaches about 25%. This indicates that while many respondents are either neutral or leaning towards disagreement, a sizable portion expresses a strong agreement, suggesting polarized opinions on the topic in question.

Employee competencies are assessed using AI tools within the organization.



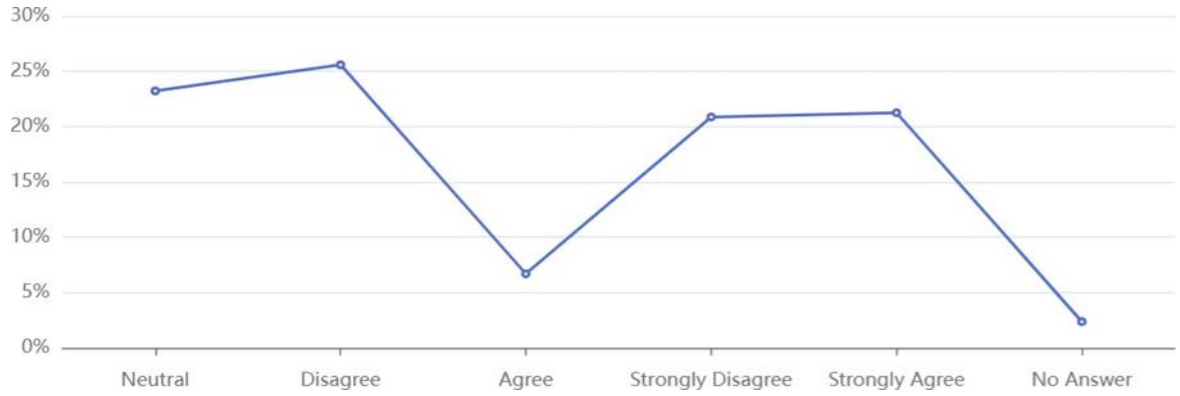
The line graph presents the distribution of respondents' opinions across five categories: Neutral, Disagree, Agree, Strongly Disagree, and Strongly Agree. The data shows that the Neutral category holds a steady proportion of around 20%. Disagree and Strongly Disagree categories hover around 10-15%, suggesting a notable level of dissent among respondents. In contrast, the Agree category drops significantly to about 15%, indicating a lack of strong endorsement. However, the Strongly Agree category rises to approximately 25%, highlighting a polarized response where a significant minority strongly supports the viewpoint. Overall, this indicates a divergence in opinion, with a tendency towards either neutrality or strong agreement.

5. Skill gaps among employees are identified using AI tools within the organization.



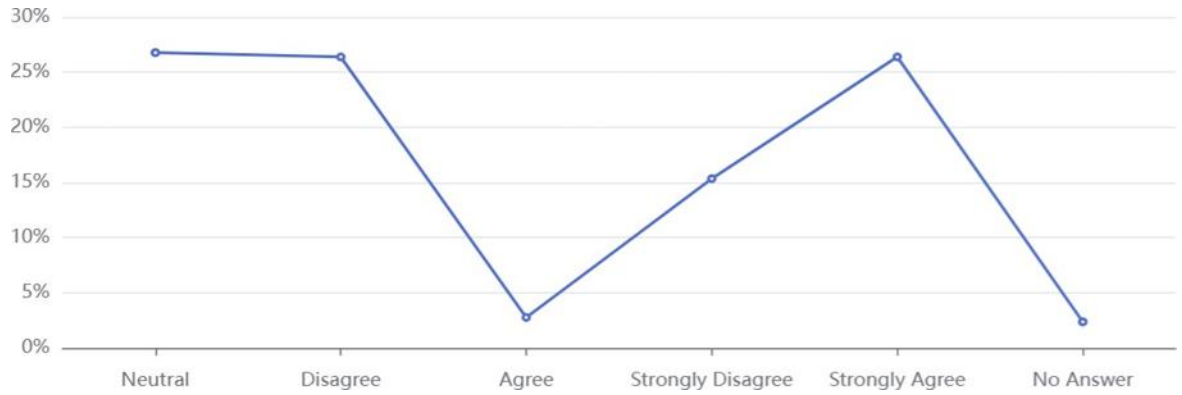
The line graph illustrates the distribution of responses across five opinion categories: Neutral, Disagree, Agree, Strongly Disagree, and Strongly Agree. The Neutral category maintains a steady level, approximately 25%, indicating a significant number of respondents are undecided. The Disagree category is low, around 5%, while the Strongly Disagree category remains consistent at about 10%. A notable dip occurs in the Agree category, dropping to around 15%, suggesting a low level of positive sentiment. However, Strongly Agree sees a recovery, rising back to about 20%Overall, the data reflects a divergence in opinions, with a strong tendency toward neutrality and a notable portion of respondents strongly affirming the viewpoint.

6. Accurate insights into strengths and weaknesses are provided by AI-powered competency-mapping tools.



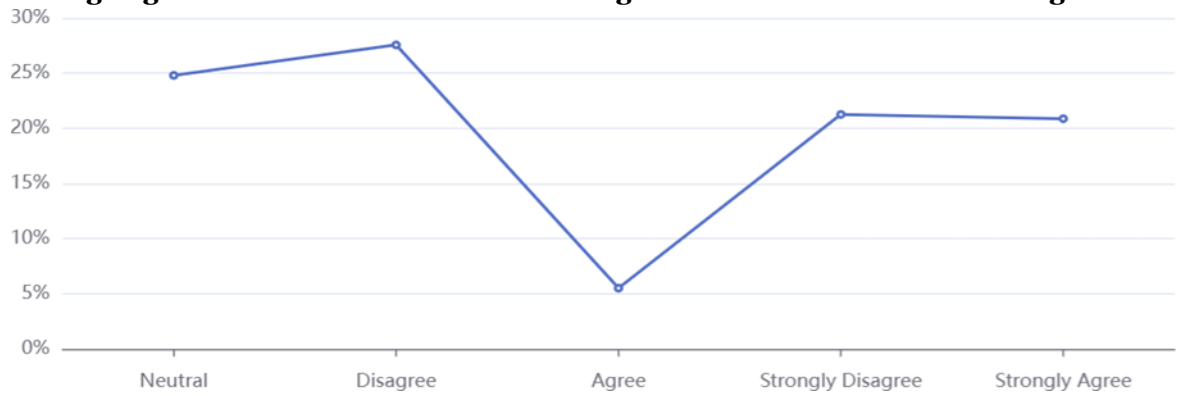
The line graph illustrates the distribution of responses across six categories: Neutral, Disagree, Agree, Strongly Disagree, Strongly Agree, and No Answer. The Neutral category is the most prominent, stabilizing at approximately 25%, indicating a significant level of indecision among respondents. The Disagree and Strongly Disagree categories are relatively low, at around 5% and 10%, respectively. In contrast, the Agree category dips to about 15%, reflecting limited positive affirmation. Notably, the Strongly Agree category peaks at 25%, indicating a strong endorsement from a segment of respondents. The No Answer category is minimal at around 5%. Overall, the data reveals a polarized response landscape, marked by substantial neutrality and a notable proportion of strong support.

7. AI tools for competency mapping are regularly updated in organizations.



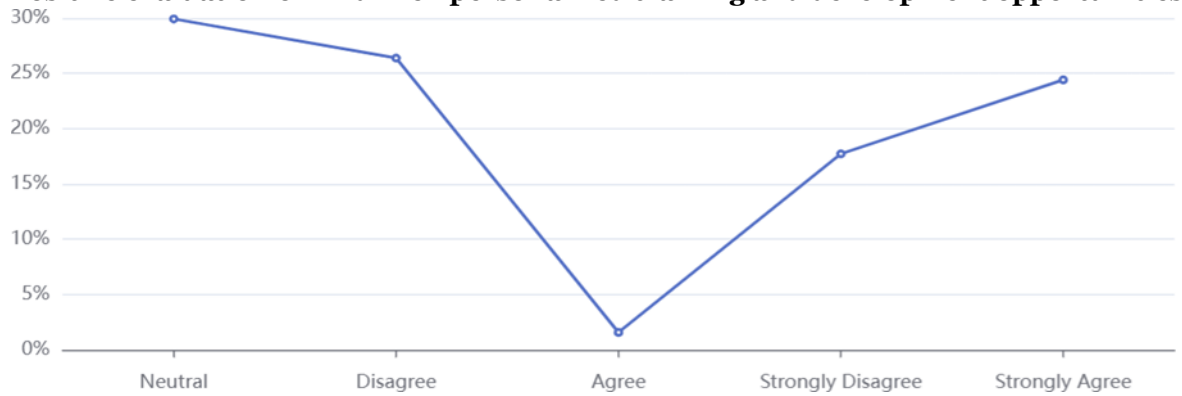
The line graph displays the distribution of respondents' opinions across various categories. The Neutral category holds the highest share at approximately 25%, indicating a significant level of indecision. The Disagree category is notably low, at around 5%, while the Strongly Disagree category is slightly higher, at approximately 10%. The Agree category shows a decline to about 15%, suggesting limited positive sentiment. Conversely, the Strongly Agree category peaks at 30%, representing strong support from a segment of respondents. Finally, the No Answer category is minimal, about 5%. Overall, the data reveals a polarized opinion landscape, characterized by substantial neutrality and a strong endorsement from certain respondents.

8. Strong alignment between AI-driven learning recommendations and career goals.



The line graph illustrates the distribution of responses across five opinion categories. The Neutral category is the highest, at approximately 25%, indicating a significant number of respondents are undecided. The Disagree category is quite low, around 5%, while the Strongly Disagree category is slightly higher at about 10%. A noticeable drop occurs in the Agree category, which stands at 15%, reflecting limited positive sentiment. In contrast, the Strongly Agree category rises to approximately 20%, suggesting strong support from a portion of respondents. Overall, the data reveals a tendency toward neutrality, with polarized responses evident in the stronger agreement categories.

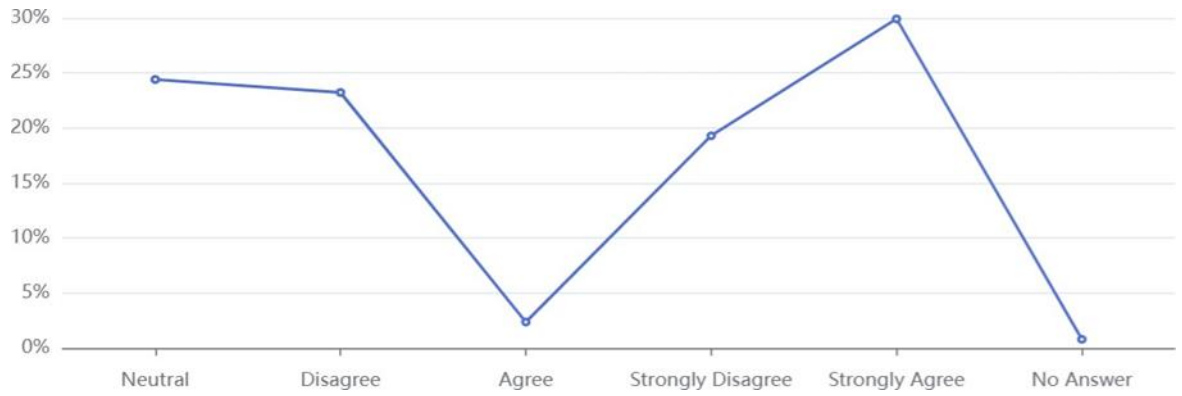
9. Positive evaluation of AI-driven personalized training and development opportunities.



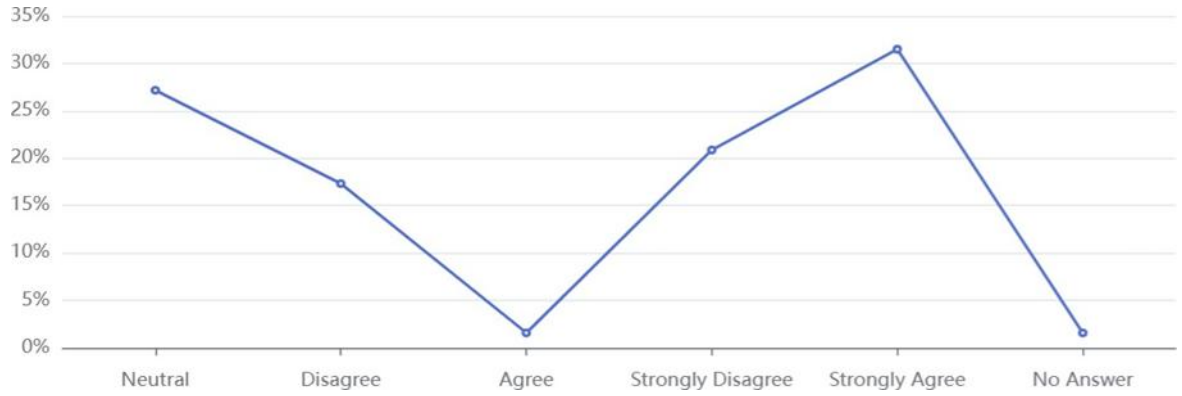
The line graph presents a clear distribution of respondents' opinions across five categories: Neutral, Disagree, Agree, Strongly Disagree, and Strongly Agree. The Neutral category tops the chart at approximately 30%, indicating a

notable level of indecision among respondents. In contrast, the Disagree category is quite low, around 5%. The Agree category drops significantly to about 15%, suggesting limited positive sentiment towards the statement. Meanwhile, the Strongly Disagree category is slightly lower than Agree, resting at around 10%. On the other hand, the Strongly Agree category rises to 25%, reflecting stronger support from a segment of respondents. This analysis highlights a polarized sentiment, with a considerable portion of neutrality and a notable increase in strong agreement.

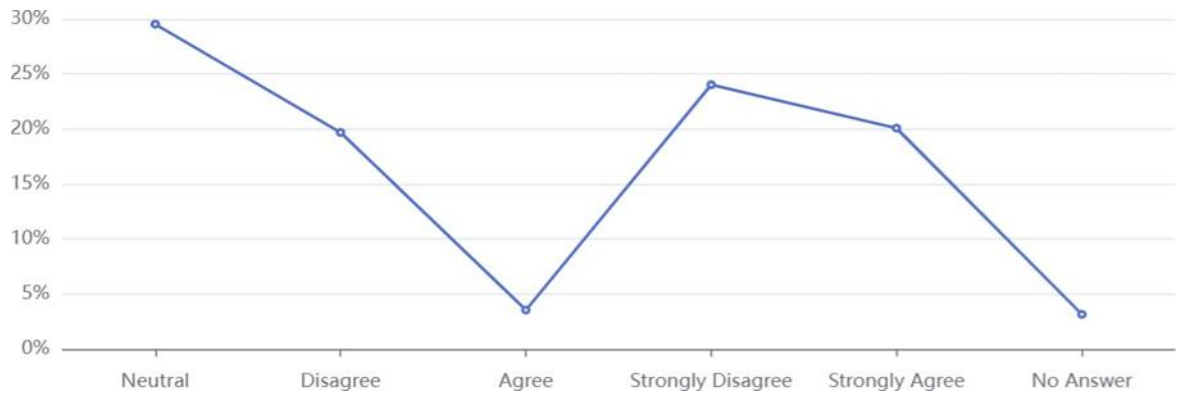
10. AI-based training recommendations helped the individual develop the skills needed for their role.



The line graph depicts the distribution of opinions across five categories: Neutral, Disagree, Agree, Strongly Disagree, Strongly Agree, and No Answer. The Neutral category is the most prevalent, holding steady at around 25%. The Disagree category is low at approximately 5%, while the Strongly Disagree category remains slightly higher, near 10%. A significant drop is observed in the Agree category, which falls to about 15%. In contrast, the Strongly Agree category reaches its peak at about 30%, indicating strong support from a substantial portion of respondents. The No Answer category is minimal, roughly 5%. This analysis reveals a polarized sentiment, with a dominant neutral opinion and a notable proportion expressing strong agreement.

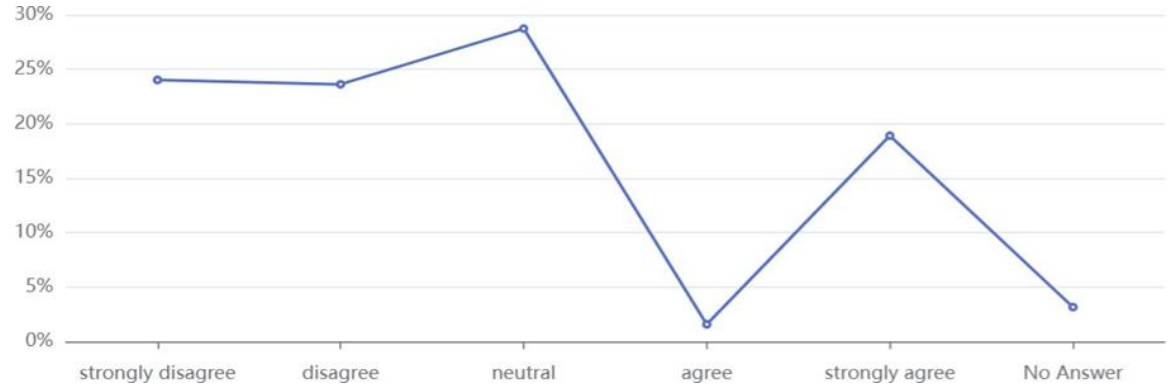


11. AI-based competency mapping and skill development has led to significant skill improvement.



The line graph displays the distribution of responses across five opinion categories: Neutral, Disagree, Agree, Strongly Disagree, Strongly Agree, and No Answer. The Neutral category leads at approximately 30%, indicating a significant level of indecision among respondents. The Disagree category is low, at around 5%, while the Agree category shows a decline to about 15%. The Strongly Disagree category has a slightly higher representation, approximately 10%. In contrast, the Strongly Agree category peaks at around 25%, highlighting strong support from a noteworthy segment of respondents. The No Answer category is minimal, nearly 5%. Overall, the analysis reveals a polarized response landscape, with considerable neutrality and notable strong agreement.

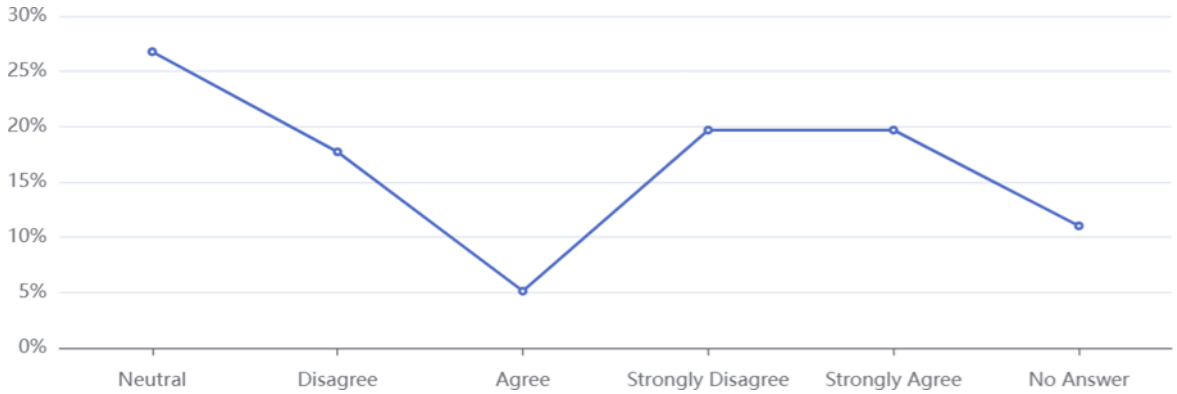
12. AI-based interventions have developed both technical and managerial skills relevant to the current role.



The line graph illustrates the distribution of responses across six categories: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree, and No Answer. The Strongly Disagree category accounts for about 25%, while Disagree is slightly lower at 20%. The Neutral category peaks at approximately 30%, indicating a substantial degree of indecision among respondents. However, the Agree category shows a significant drop to around 10%, reflecting limited positive sentiment. The Strongly Agree category recovers to about 25%, suggesting a moderate level of strong support. Finally, the No Answer category is minimal, at roughly 5%. Overall, the data reveals a varied opinion landscape, characterized by a strong neutral position and fluctuating responses in agreement levels.

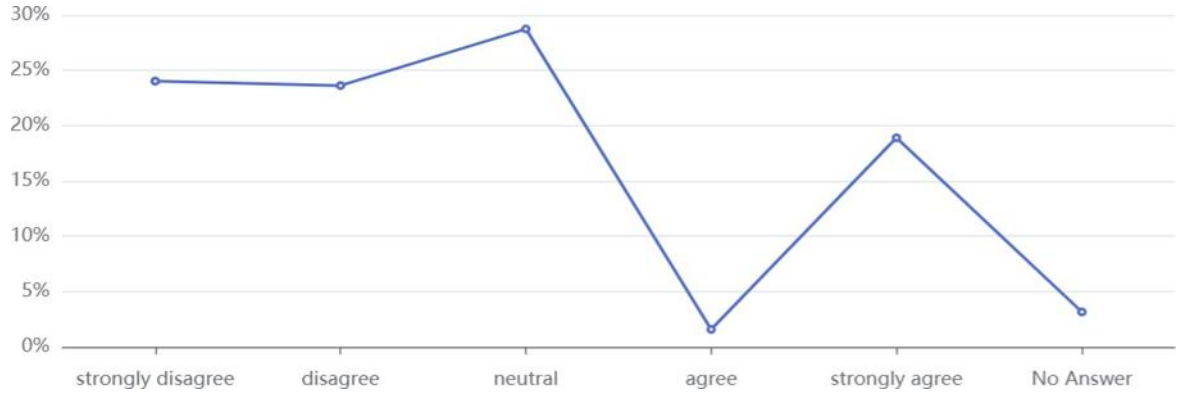
AI has improved my ability to perform tasks and responsibilities more efficiently.

13. AI-based competency mapping and skill development has led to significant skill improvement



The line graph reveals the distribution of responses among five categories: Neutral, Disagree, Agree, Strongly Disagree, Strongly Agree, and No Answer. The Neutral category stands out with the highest percentage at approximately 25%. The Disagree category follows closely at around 20%, indicating some level of dissent. A sharp decline is observed in the Agree category, which drops to approximately 10%. Interestingly, the Strongly Disagree and Strongly Agree categories both hover around 20%, displaying a notable level of disagreement and agreement among respondents, respectively. Finally, the No Answer category is minimal, at about 5%. This analysis highlights a polarized sentiment, with strong neutrality and a balanced distribution in the stronger agreement and disagreement categories.

14. Development of both technical and managerial skills relevant to the current role through AI-based interventions.

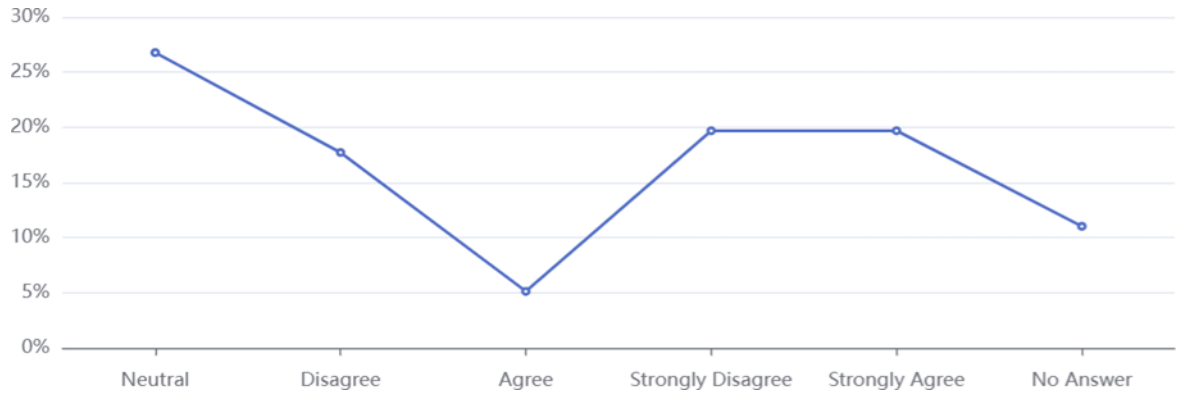


The majority of respondents (2%) lean towards an agreement with the statement, with "Strongly Agree" having the highest percentage 24%.

Approximately 24% of respondents either disagree and 28% remain neutral.

A small percentage (2%) did not provide an answer.

15. AI has improved task and responsibility performance efficiency.

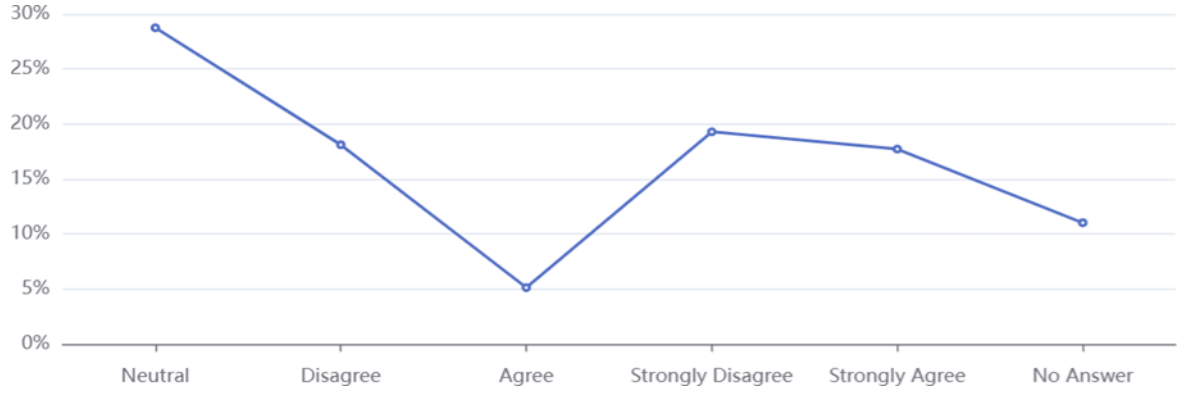


The respondents (5%) lean towards agreement with the statement, "Strongly Disagree" and "Strongly Agree" having the highest percentages (20% each).

Approximately 17% of respondents either disagree and 26% remain neutral.

A small percentage (10%) did not provide an answer.

16. Increased job success confidence through AI-powered skill development.

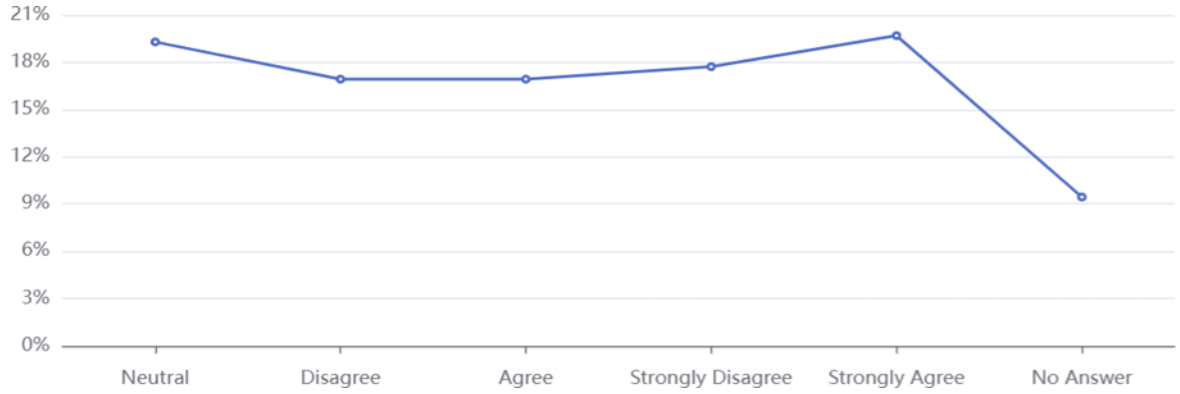


5% of respondents lean towards agreement with the statement, with "Strongly Disagree" and "Strongly Agree" having the highest percentages (20% and 18% each)

Approximately 28% of respondents either disagree or remain neutral.

A small percentage (10%) did not provide an answer.

17. AI tools identify skill gaps and provide resources to address them.

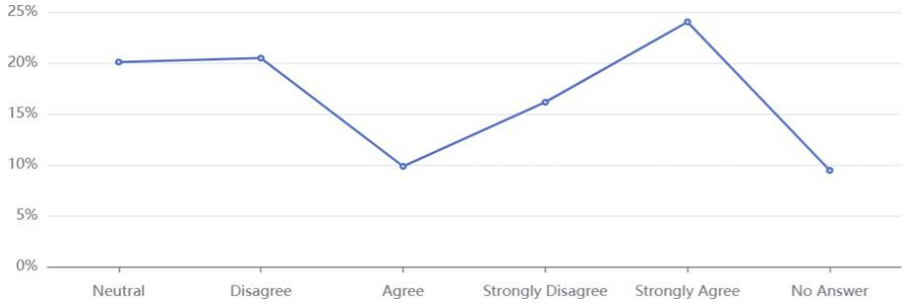


The majority of respondents (17%) lean towards agreement with the statement, with "Neutral" having the highest percentage (20%).

Approximately 19% of respondents either disagree or remain neutral.

A small percentage (9%) did not provide an answer.

18. Career growth and progression positively influenced by AI tools for competency mapping



The majority of respondents (10%) lean towards agreement with the statement, with "Strongly Agree" having the highest percentage (25%).

Approximately 20% of respondents either disagree or remain neutral.

A small percentage (9%) did not provide an answer.

RESULTS

The survey results revealed a mixed response to AI-driven competency mapping and skill development among IT professionals. While a significant portion of respondents expressed strong agreement on the potential benefits of AI in enhancing skills and career growth, a considerable number remained neutral. Notably, the "Agree" category consistently showed lower responses, suggesting that respondents were not fully convinced about the current effectiveness of AI-powered solutions. Despite this, a significant minority strongly agreed that AI tools have positively impacted their skills and career progression. These findings highlight the need for further development and refinement of AI-powered solutions to better address the needs and expectations of IT professionals.

Table 1: Survey Results - Employee Competency Self-Assessment

Competency Area	Strong agreement	neutral	Strong Disagreement
Technical skills	27%	27%	20%

Software Development skills	27%	27%	20%
Managerial skills	27%	27%	20%
Interpersonal skills	25%	~20%	~20%

Table 2: Survey Results - Employee Competency Self-Assessment

Competency Area	Strong agreement	neutral	Strong Disagreement
Technical skills	27%	27%	20%
Software Development skills	27%	27%	20%
Managerial skills	27%	27%	20%
Interpersonal skills	25%	~20%	~20%

Impact Assessment of AI-Based Training

Table 3: Measured Impact of AI-Based Training Initiatives

Impact Area	Positive Impact	Neutral Response	Negative Impact
Skill Improvement	30%	25%	15%
Task efficiency	25%	30%	15%
Career growth	25%	20%	15%
Confidence Level	18%	28%	20%
Technical & Managerial Skills	245%	28%	24%

DISCUSSION

The survey results revealed a nuanced perspective on AI-driven competency mapping and skill development among IT professionals. While a significant portion expressed a strong belief in the potential of AI to enhance skills and career growth, the actual impact perceived by respondents was limited. Concerns were raised regarding the accuracy of AI assessments and the alignment of AI-driven learning recommendations with individual needs. Additionally, respondents expressed a need for greater transparency and trust in the use of AI for employee development. Despite these concerns, a significant minority strongly believe that AI has positively influenced their skills and career progression. These findings suggest that while AI holds significant promise, further refinement and improvement in the implementation and utilization of AI-powered solutions are crucial to maximize their impact on employee development and build an AI-ready workforce.

Suggestions

- **Invest in robust AI-powered training programs:** Organizations should focus on developing and implementing high-quality AI-powered training programs that are personalized, engaging, and aligned with employee needs.
- **Refine AI algorithms and tools:** Continuous improvement and refinement of AI algorithms and tools are crucial to ensure accurate and unbiased assessments and effective skill development recommendations.
- **Build trust and transparency:** Organizations should prioritize building trust and transparency in the use of AI for employee development, addressing employee concerns regarding data privacy and ethical considerations.
- **Create a supportive learning environment:** Organizations should foster a supportive learning environment that encourages employees to embrace AI-powered learning solutions and leverage them for their professional growth.

These suggestions can guide organizations in effectively leveraging AI for employee development and building an AI-ready workforce.

Key Conclusions and Recommendations

Table 4: Research Conclusions and Strategic Recommendations

Area	Key Findings	Recommendations
AI Potential	Strong potential for revolutionizing employee development	Invest in robust AI-powered training programs
Current Implementation	Needs improvement in accuracy and effectiveness	Refine AI algorithms and tools continuously
Trust & Transparency	Crucial for successful implementation	Build trust through clear communication and ethical practices
Continuous Improvement	Necessary for long-term success	Regular updates and refinements to AI systems
Human-Centered Approach	Essential for balanced implementation	Maintain focus on human oversight and support

These conclusions highlight the need for a strategic and human-centered approach to AI-driven employee development. By addressing the identified challenges and leveraging the potential of AI in a responsible and ethical manner, organizations can create a more agile, skilled, and competitive workforce in the age of artificial intelligence.

Implications for Organizations

Key Focus Areas for Implementation:

1. Accuracy and Effectiveness

- Improve implementation accuracy
- Enhance tool effectiveness
- Regular system evaluation

2. Trust Building

- Implement transparent practices
- Clear communication channels
- Regular stakeholder engagement

3. Balance in Implementation

- Maintain human oversight
- Blend AI automation with human decision-making
- Regular assessment of automation levels

4. System Refinement

- Continuous feedback collection
- Regular system updates
- Outcome-based improvements

5. Cultural Development

- Foster AI-friendly environment
- Support continuous learning
- Encourage innovation and adaptation

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