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The Impact of AI on Job Security and Skill Requirements: A Survey-Based Analysis

[1]Dr. Surekha Adiki, [2]Dr. P. Sairani, [3]Dr. K. Siva Nageswara Rao

[1]*Associate Professor, ICBM-School of Business Excellence, Hyderabad*
drsurekhaadiki@gmail.com │ORCID ID: 0000-0003-1913-0844
[2]*Professor & Head- Finance, ICBM-School of Business Excellence, Hyderabad/ORCID: 0000-002-9447-7883*
[3]*Associate Professor, ICBM-School of Business Excellence, Hyderabad*

ARTICLE INFO	ABSTRACT
	"Change is the only constant, but in the age of AI, change is exponential." As Artificial Intelligence swiftly transforms industries, it brings with it a wave of uncertainty and opportunity—challenging traditional job roles while creating new demands for skills and adaptability. In this context, exploring how employees perceive the impact of AI on their careers is crucial for navigating the future of work with clarity and confidence. This study investigates the perceived impact of Artificial Intelligence (AI) adoption on job security and evolving skill requirements across various industries. Drawing data from a survey of professionals in IT, finance, and education, the research examines sectoral differences in AI-related job concerns and assesses how AI integration influences employee perceptions and upskilling efforts. The results reveal that concerns about AI-led job displacement significantly vary across industries, but do not differ by employee work experience, indicating a widespread sense of uncertainty. While many respondents acknowledge AI's potential to enhance work-life balance and operational efficiency, a notable share also reports negative consequences like increased stress and extended work hours. Additionally, the findings show a strong association between AI integration and the presence of corporate training programs, as well as increased personal interest in AI-related learning. Employees identified a mix of technical (AI literacy, programming, data analysis) and soft skills (communication, adaptability, emotional intelligence) as essential for staying competitive. These insights emphasize the need for proactive workforce development strategies to manage the transition toward AI-driven workplaces. **Keywords**: Artificial Intelligence, Job Security, Skill Requirements, AI Integration, Job Displacement, Upskilling, Work-Life Balance, AI Training Programs

INTRODUCTION

Artificial Intelligence (AI) is transforming the global labor market at an unprecedented pace. Its ability to automate complex tasks, analyse large datasets, and improve operational efficiency has made it a cornerstone of innovation across industries. According to Brynjolfsson and McAfee (2014), AI and automation are not just enhancing productivity but also redefining the nature of jobs and how work is performed. However, this transformation has led to growing concerns over job security, as many fear that AI could lead to widespread job displacement, particularly in roles susceptible to automation.

Several studies have highlighted the sector-specific impact of AI on employment. Chui et al. (2016) from McKinsey Global Institute estimate that while fewer than 5% of occupations can be entirely automated, about 60% of jobs could have at least 30% of their activities automated. This suggests that rather than eliminating jobs entirely, AI is likely to change the composition of work within industries, demanding new skills and competencies. The World Economic Forum's (2020) "Future of Jobs" report further supports this, projecting that while 85 million jobs may be displaced by AI, around 97 million new roles

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may emerge that are more adapted to the new division of labor between humans, machines, and algorithms.

The demand for new skills is becoming increasingly evident. Studies such as Bessen (2019) emphasize that while AI may reduce demand for routine tasks, it increases the value of cognitive, emotional, and technical skills. Employees are now expected to possess a hybrid of digital literacy and soft skills like problem-solving, communication, and adaptability. As AI adoption accelerates, organizations must prioritize reskilling and upskilling strategies to equip workers for the changing landscape. However, not all companies or sectors are equally proactive in offering AI-related training, which creates disparities in workforce readiness.

Despite the extensive research on AI's labor market effects, there remains a gap in understanding how employees across different sectors perceive these changes. This study aims to fill that gap by examining employee perceptions of job security, job displacement, and skill requirements in an AI-driven environment. By conducting a survey-based analysis of professionals in IT, finance, and education, this research investigates the relationship between industry type, AI integration, and concerns about employment and skills. The findings aim to provide actionable insights for policymakers, corporate leaders, and educators to help shape a resilient and future-ready workforce in the age of AI.

LITERATURE REVIEW:

The review indicated that AI is likely to replace some jobs, especially those that are repetitive or routine in nature (Ford, 2015). At the same time, AI will create new jobs in AI development, deployment, and maintenance (Manyika et al., 2017). In addition, it is also believed that workers should acquire new skills, including critical thinking, creativity, and emotional intelligence, in order to survive in an AI-driven economy (WEF, 2018).

One of the major debates on employment in the last few years has been due to the impacts of artificial intelligence and automation. Acemoglu and Restrepo (2022) consider the impact of AI on work and conclude that AI has the potential to displace many jobs, especially jobs involving repetitive or routine tasks. On the other hand, they also contend that AI will create new jobs in AI development, deployment, and maintenance. This study therefore calls for policymakers and educators to take steps that mitigate the negative consequences of AI and ensure workers have the necessary skills and qualifications to adapt to an AI-driven economy.

Building on this research, Autor and Reynolds (2022) investigate the future of work in relation to technological change and argue that it will require workers to enhance skills such as critical thinking, creativity, and emotional intelligence. They also pinpoint the need for policymakers and educators to advance education and training programs with a focus on these skills. Moreover, Frey and Osborne (2017) research the effect that technological change bears on employment by arguing that significant job displacement occurs due to automated jobs, as technological change bears the potentiality of automation towards many jobs, but on the other hand they also argue it will create various new job scopes in areas concerned with technology deployment, development and maintenance.

The impact that AI and automation have on the employment sector go beyond job dislocation and the creation of more jobs. While Manyika et al. in 2017 discussed the relationship between automation, employment, and the argument advanced that automation indeed has the likelihood of displacing many jobs by taking over repeated or routine kind of jobs but will also eventually create new employments in, for example, automation development and deployment and subsequently maintenance. West (2018) looks into how automation affects employment and argues that automation can lead to the loss of many jobs because it takes away jobs which involve repetitive and routine tasks. On the other hand, West further argues that automation will give birth to new employment opportunities, which include developing, deploying, and maintaining automation systems.

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More recent studies have further explored the effects of AI and automation on employment. Chui et al. (2022) study the impact of AI on employment and argue that AI has the potential to automate many jobs, especially those involving repetitive or routine tasks. However, they also argue that AI will create new job opportunities in areas such as AI development, deployment, and maintenance. Lee (2023) discusses how AI transforms work and employment. He believes that AI can completely automate most of the jobs, especially those that are repetitive or follow a routine pattern, but AI will still be bringing with it completely new job opportunities in areas such as AI research and development, deployment, and maintenance.

Overall, the literature suggests that AI and automation will have a huge impact on employment, both positively and negatively. While AI and automation will replace many jobs, they will also create new ones in the areas of technology development, deployment, and maintenance. Policymakers and educators need to act to address the negative impact of AI and automation and make sure that workers are prepared to adjust to the fast-changing nature of the job market.

METHODOLOGY

The study employs Descriptive research design, using a structured questionnaire with total 22 items under six sections such as demographic variables, AI Awareness & Adaption, AI & Job Security, AI & Skill Evolution, AI Integration & Workplace Productivity, AI & Employee Well-being: to assess employees' perception of AI's impact on job security and skill development.

OBJECTIVES OF THE STUDY

1. To examine the perceived impact of AI adoption on job security across various industries.
2. To analyse the relationship between industry type and concerns related to job displacement due to AI.
3. To explore the association between the level of AI integration and employees' perceptions of skill requirements.
4. To identify the key skills employees, believe are essential to remain competitive in an AI-driven job market.

DATA COLLECTION METHODS

A structured questionnaire was designed and distributed online via Google Forms. It included close-ended and Likert scale-based questions focusing on AI adoption, job security concerns, skill evolution, and productivity changes.

SAMPLING TECHNIQUES

- **Sampling Method:** Stratified random sampling was employed to ensure representation across multiple industries.
- **Sample sizes:** 82 employees from IT, Healthcare, Finance, and Manufacturing sectors participated.

Techniques Used

- Frequency analysis, Word-cloud, Chi-Square Test and ANOVA

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RESULTS AND DISCUSSION:

Table no. 1 Demographic Profile of the respondents

Category	Sub-Category	Frequency
Industry	Information Technology	26
	Finance	18
	healthcare	3
	Manufacturing	3
	Education	18
	Others	14
Age	Below 25	13
	25-34	18
	35-44	26
	45-54	6
	55 and above	19
Gender	Male	58
	Female	24
Educational Qualification	High School	1
	Bachelor's Degree	22
	Masater's Degree	43
	Doctorate	14
	Others	2
Work Experience	Less than 1 year	12
	1-5 years	15
	6-10 years	12
	11-20 years	20
	More than 20 years	23

Source: Primary data

The demographics table shows that the group is dominated by middle-aged males working in IT, finance, and education. They are highly educated, with 43 holding master's degree. The age distribution is skewed towards 35-44 years, with 26 respondents. Males outnumber females by a ratio of 2.4:1. The work experience varies, with 23 having more than 20 years of experience and 12 having less than 1 year. Overall, the group is characterized by its strong educational background and mix of experienced and new professionals.

Chi-Square Test

Table no. 2. Chi-Square Test: Sectors and Concerns about AI replacing Jobs

H_{1a}: Sectors and concerns about AI replacing Jobs are not independent.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	31.694[a]	20	.047

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Likelihood Ratio	32.339	20	.040
N of Valid Cases	82		

6 cells (19.85%) have expected count less than 5.

The significant p-value (0.047) which is less than the significance level (0.05) indicates that there is a statistically significant association between the variables, Sectors and concerns about AI replacing jobs.

Table No. 3 Chi-Square test: Sectors and AI-led to Job displacement.

H_{1b}: Sectors and AI-led to Job displacement are not independent.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25.041	15	.049
Likelihood Ratio	29.934	15	.012
N of Valid Cases	82		

The minimum expected count is .37.

The significant p-value (0.049) which is less than the significance level (0.05) indicates that there is a statistically significant association between the variables, Sectors and AI-led to Job displacement.

Inference

The results suggest that there is a significant relationship between the variables, which could have practical implications for industries, policymakers or researchers. The association between sectors are more vulnerable to job displacement due to AI adoption

Table. no. 4 Chi-Square Test: Sectors and AI replace human jobs in 5-10 years

H_{1c}: Sectors and AI replace human jobs in 5-10 years are not independent.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.870[a]	15	.327
Likelihood Ratio	18.004	15	.262
N of Valid Cases	82		

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The test statistics value is 16.870, and the significant p-value (0.327) which is greater than the significance level (0.05) indicates that there is no statistically significant association between the variables, Sectors and AI will replace human jobs in 5-10 years. This suggest that the variables are independent, or there are other factors influencing the relationship.

Table no. 5 ANOVA Test: Post-Hoc Comparison of AI Job Replacement Concerns Across Work Experience Levels

H_{1d}: There is a significant difference in the level of concern about AI replacing jobs among at least one pair of work experience groups.

H_{1e}: There is a significant difference in the perception that AI has led to job displacement among at least one pair of work experience groups.

H_{1f}: There is a significant difference in the perception that AI will replace human jobs in the next $5-10$ years among employees with different levels of work experience.

ANOVA Test	Items	Sig.
Post Hoc Test: Tukey HSD-Work Experience	Concerns about AI replacing Jobs	0.686
	AI led to Job Displacement	0.182
	AI replace human jobs in 5-10 years	0649

The Tukey HSD post-hoc test output from your ANOVA analysis helps us understand which groups differ significantly in their concerns about AI replacing jobs, AI led to Job Displacement and AI replace human jobs in 5-10 years based on work experience.

The Sig. value = 0.686, which is greater than 0.05, indicating no statistically significant difference between any of the work experience groups in their concern about AI replacing jobs.
The sig. value = 0.182, which is greater than 0.05, indicating no statistically significant difference between any of the work experience groups in their concern about AI led to Job Displacement.
The sig. value = 0.649, which is greater than 0.05, indicating no statistically significant difference between any of the work experience groups in their concern about AI replace human jobs in 5-10 years.

This study explored the concerns about AI replacing jobs across employees with varying levels of work experience. The analysis, including one-way ANOVA and Tukey HSD post hoc tests, revealed that while employees from all experience levels expressed concern about AI replacing jobs, no significant differences were found in the levels of concern across the groups.

These findings suggest that concern about AI's impact on employment is consistent across different work experience levels. Regardless of whether individuals had less than 1 year or more than 20 years of experience, they all shared a similar level of concern about the potential displacement of jobs due to AI.

Therefore, it is concluded that work experience does not appear to influence the level of concern about AI replacing jobs, indicating a widely shared perception of AI's potential threat to employment.

Table no. 6 Chi-Square Test: AI integration and AI training or upskilling programs in companies

H_{1g}: There is a significant association between AI integration and AI training or upskilling programs in companies.

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	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.037ᵃ	6	.006
Likelihood Ratio	20.966	6	.002
Linear-by-Linear Association	6.283	1	.012
N of Valid Cases	82		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 2.32.

The Chi-Square test results indicate a statistically significant relationship between the AI integration and AI training or upskilling programs in companies. The Pearson Chi-Square value is 18.037, the p-value is 0.006 which is very less than 0.05, suggests that the variables are significantly different. This indicates that there is an association between AI integration and AI training or upskilling programs in companies.

Inferences

AI Integration and Training: companies that have integrated AI are more likely to have AI training or upskilling programs in place.

Planning and Implementation: Companies that are planning to implement AI training or upskilling programs may be taking a proactive approach to address the skills gap and prepare for AI integration.

Table no. 7 Chi-Square Test: AI integrated in Companies and AI courses, or training taken personally

H_{1h}: There is a significant relationship between a company's integration of AI and individuals personally taking AI courses or training.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.780ᵃ	6	.010
Likelihood Ratio	17.813	6	.007
Linear-by-Linear Association	9.017	1	.003
N of Valid Cases	82		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is 2.32.

The Chi-Square test results indicate a statistically significant relationship between the AI integrated in Companies and AI courses or training taken personally. The Pearson Chi-Square value is 16.870, the p-value is 0.01 which is less than 0.05, suggests that the variables are significantly different. This indicates that there is an association between the AI integrated in Companies and AI courses or training taken personally.

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Inferences

AI Integration and Personal Interest: It is evident that companies that have integrated AI tend to have more individuals who have taken AI courses or training, indicating a positive relationship between AI adoption and personal interest in AI development.

Interest in AI: From the crosstab it is identified that a substantial number of individuals across all categories are interested in AI but have not taken any courses, indicating a potential demand for AI training programs.

Figure no. 1 Impact of AI in work-life balance
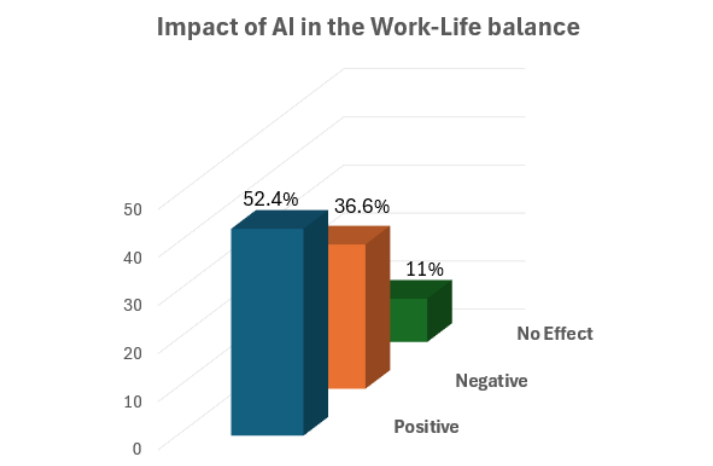
The chart shows mixed views on AI's impact on work-life balance. Most respondents (52.4%) felt AI had a positive effect, improving efficiency, automating tasks, and offering flexibility. However, 36.6% saw negative impacts, such as increased monitoring, longer hours, or higher stress. Only 11% reported no effect.

Overall, the findings suggest that while AI has the potential to enhance work-life balance, organizations must adopt mindful implementation strategies to ensure that its benefits are equitably distributed and do not inadvertently lead to employee burnout or dissatisfaction.

Figure no. 2 Essential Skills for Staying Competitive in an AI-Driven Job Market

From the figure it is understood that to be competitive in AI- driven job market employees should acquire the necessary skills required for their domain. For instance, AI Literacy, Programming, and

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Data Analysis are key technical skills for future readiness. Collaboration, Communication, and Emotional Intelligence highlight the continued value of soft skills. Emphasis on Adaptability and Continuous Learning shows the need to keep pace with rapid AI advancements. A balanced mix of tech skills and human-centric abilities is essential in the AI-driven job market.

FINDINGS:

The research has several significant findings regarding AI's impact on job security, skill requirements, and work-life balance. The demographic profile of the respondents indicates a highly educated, middle-aged group, predominantly male, with a strong representation of IT, finance, and education sectors. The analysis of sectors and AI-related job concerns reveals that industries are significantly concerned about AI's potential to replace jobs, although some sectors show less worry about AI displacing human roles in the next 5-10 years. Additionally, work experience does not significantly influence concerns about AI's impact on job displacement, suggesting a universal perception of AI's potential to threaten employment across different experience levels. Furthermore, the study underscores that AI integration within companies is strongly associated with the implementation of AI training programs, highlighting the need for upskilling to remain competitive. On the issue of work-life balance, the majority of respondents feel that AI has a positive effect, while a notable proportion also expresses concerns regarding the negative impacts, such as increased stress or longer working hours.

CONCLUSIONS:

The study suggests that AI is perceived as both an opportunity and a challenge. While it can offer significant improvements in work-life balance and operational efficiency, it also raises concerns about job displacement and increased pressure on workers. The study concluded that employees across all experience levels share similar concerns about AI's impact on job security, indicating that the fear of job loss is widespread and not significantly influenced by years of work experience. Moreover, companies that integrate AI tend to support this transition by offering AI-related training, which is seen as essential for preparing employees for the future job market. The data also points to the importance of maintaining a balance between technical and soft skills to thrive in an AI-driven workforce.

IMPLICATIONS:

The implications on the findings of the study are crucial for both businesses and policymakers. For businesses, the integration of AI should be accompanied by proper training and upskilling programs to address the potential skills gap and reduce concerns related to job displacement. Policymakers should consider implementing measures that ensure workers are equipped with the necessary skills for the evolving job market. Additionally, the study also implies that AI adoption can improve work-life balance but must be carefully managed to avoid negative consequences such as stress or burnout. Companies should adopt strategies that ensure AI benefits employees without overburdening them.

SCOPE FOR FURTHER RESEARCH:

The study can be further extended by exploring the long-term effects of AI integration on various industries, particularly those with less immediate concern about job displacement. Additionally, examining how AI adoption influences employee well-being over time could provide valuable insights into managing work-life balance in a tech-driven environment. Future it might also delve into specific skill sets required for different sectors and explore how AI is reshaping the future of job roles in emerging industries. Finally, investigating the effectiveness of current AI training programs in various sectors could help identify best practices for upskilling and preparing the workforce for AI-driven changes.

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