

A Study on the Impact of Artificial Intelligence Job Replacement Anxiety on Career Adaptability and Employee Performance Among Software Professionals in Chennai

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Abstract

Artificial Intelligence (AI) is rapidly transforming the software industry by changing job roles, work processes, and skill requirements. The increasing use of AI technologies has created concerns among software professionals regarding job security and the possibility of job replacement. Such anxiety may influence employees' ability to adapt to changing career requirements and may also be associated with their work performance. Therefore, the present study examines AI job replacement anxiety, career adaptability, and employee performance among software professionals in Chennai. The study adopted a quantitative research approach with a descriptive and analytical research design. Data were collected from 120 software professionals in Chennai using a structured questionnaire. Proportionate random sampling was used for selecting the respondents. The collected data were analysed using percentage analysis, descriptive statistics, one-sample t-test, one-way ANOVA, Pearson correlation, and MANOVA. The findings indicate that software professionals experience AI job replacement anxiety above the neutral level, with concern about job security emerging as an important dimension. The study also indicates differences in career adaptability across age groups. A statistically significant negative relationship was observed between AI job replacement anxiety and career adaptability. Further, AI job replacement anxiety showed a statistically significant relationship with employee performance, including task, contextual, and adaptive performance. The study concludes that AI-related job anxiety is an important employee-related issue in the changing software work environment. Continuous skill development, AI-related training, career development programmes, and organisational support can help software professionals prepare for changing job roles and evolving skill requirements.

Keywords: Artificial Intelligence, Job Replacement Anxiety, Career Adaptability, Employee Performance, Software Professionals, Chennai

Introduction

Artificial Intelligence (AI) has emerged as one of the most transformative technologies shaping the contemporary workplace. Rapid developments in machine learning, generative AI, automation, and intelligent software systems are changing the nature of jobs, work processes, and the skills required by employees. The software industry is particularly influenced by these developments because many activities involved in software development, testing, debugging, documentation, data analysis, and technical support can increasingly be assisted or automated by AI-based tools. While AI creates opportunities for innovation, productivity enhancement, and the development of new occupations, it also raises concerns among employees regarding job security and the possibility of being replaced by AI-driven technologies.

AI job replacement anxiety refers to employees' concerns or apprehensions about losing their current employment or experiencing reduced career opportunities because of the increasing adoption of AI and automation. Such anxiety can influence how employees perceive their careers, respond to technological changes, and prepare themselves for future work environments. Software professionals may be particularly exposed to these concerns because technological advancement is closely associated with their profession. Employees who perceive AI as a threat to their employment may experience uncertainty about their future roles, required competencies, career progression, and long-term employability.

At the same time, career adaptability has become an important individual resource for employees working in rapidly changing technological environments. Career adaptability represents an individual's readiness and capacity to cope with changing career tasks, transitions, and unexpected challenges. It involves dimensions such as concern about the future, control over career decisions, curiosity about possible career alternatives, and confidence in dealing with career-related challenges. For software professionals, career adaptability may help them respond constructively to technological developments by acquiring new skills, exploring emerging roles, and adjusting their career plans according to changing industry requirements.

Employee performance is another important outcome that may be associated with employees' experiences of technological change and job-related anxiety. Employee performance generally refers to the extent to which individuals effectively accomplish their assigned responsibilities and contribute to organisational objectives. Anxiety about AI-driven job replacement may influence employees' concentration, motivation, engagement, willingness to learn, and ability to perform their work effectively. However, the relationship may not necessarily be straightforward, as employees who experience concerns about technological change may also become more motivated to acquire new skills and improve their professional capabilities.

The software industry in Chennai provides a relevant context for examining these issues. Chennai has developed into an important information technology and software services hub, with professionals working across software development, IT services, consulting, product development, cloud computing, data analytics, and other technology-related areas. The increasing integration of AI tools into these work environments makes it important to understand how software professionals perceive the potential impact of AI on their careers and work performance. Examining their experiences can provide insights into the psychological and career-related implications of technological transformation at the employee level.

The present study, therefore, focuses on the impact of artificial intelligence job replacement anxiety on career adaptability and employee performance among software professionals in Chennai. The study seeks to understand the extent to which concerns regarding AI-driven job replacement are experienced by software professionals and how such concerns are associated with their ability to adapt to changing career demands and their performance at work. It also provides an opportunity to examine career adaptability as an important factor in understanding how employees respond to the uncertainty created by rapid technological advancement.

By investigating these relationships, the study aims to contribute to the growing body of research on AI, employment, career development, and employee behaviour. The findings may be useful to software organisations, human resource professionals, managers, and employees in developing appropriate approaches for managing AI-related workplace concerns, supporting continuous learning, facilitating career development, and maintaining employee effectiveness during technological transformation. The study is particularly relevant in the present context, where successful adaptation to AI is increasingly dependent not only on technological capabilities but also on employees' psychological readiness and capacity to manage changing career expectations.

Background of the Study

Artificial Intelligence (AI) has become a significant force in transforming the nature of work across industries. The rapid development of machine learning, generative AI, robotic process automation, and intelligent software applications has enabled organisations to automate routine and repetitive activities, support decision-making, improve operational efficiency, and enhance productivity. Unlike earlier forms of automation that primarily affected manual and routine tasks, contemporary AI technologies are increasingly capable of performing or assisting with tasks involving analysis, coding, content generation, problem-solving, and other forms of knowledge work. This transformation has created new opportunities for organisations and employees while simultaneously generating concerns regarding job security, employability, and future career prospects.

The software industry is among the sectors experiencing substantial changes due to the adoption of AI. Software professionals increasingly interact with AI-assisted programming tools, automated testing systems, code-generation applications, intelligent debugging tools, and other AI-enabled technologies. These technologies can support employees

in completing tasks more quickly and may allow organisations to redesign existing jobs and work processes. At the same time, employees may perceive such developments as a potential threat when they believe that AI systems could perform significant portions of their current responsibilities or reduce the demand for certain skills. Consequently, technological advancement can create a psychological dimension to workplace transformation in the form of AI job replacement anxiety.

AI job replacement anxiety can be understood as an employee's concern, uncertainty, or fear that the increasing use of artificial intelligence may negatively affect the continuity, security, or future availability of their employment. The experience of such anxiety may differ among employees depending on their technological knowledge, perceived employability, and level of experience, organisational environment, and confidence in learning new skills. For software professionals, this issue is particularly relevant because the same industry in which they build and implement technological solutions is also becoming a major user of AI-based technologies. The rapid pace of technological change may therefore require professionals to continuously update their technical and non-technical competencies.

One important concept in this context is career adaptability. Career adaptability refers to an individual's psychosocial resources for coping with current and anticipated career-related tasks, transitions, and changes. It is commonly associated with four dimensions: career concern, career control, career curiosity, and career confidence. Employees with greater career adaptability may be better prepared to anticipate changes in the employment environment, make informed career decisions, explore alternative career possibilities, and develop confidence in managing new demands. In an AI-driven workplace, career adaptability may therefore become increasingly important because employees are required to respond to evolving technologies and changing skill requirements.

The relationship between AI-related job anxiety and career adaptability is complex. On one hand, concerns about potential job replacement may create uncertainty and psychological pressure, which could make it difficult for employees to focus on long-term career development. On the other hand, awareness of technological disruption may encourage employees to develop new competencies, pursue professional training, and reconsider their career goals. Understanding this relationship is important because the manner in which software professionals respond to AI-related uncertainty may influence their ability to remain employable and effectively manage career transitions.

Employee performance is another important aspect of this changing work environment. Employee performance reflects the effectiveness with which employees carry out their assigned responsibilities and contribute to organisational objectives. The introduction of AI can potentially influence performance by assisting employees with repetitive activities, improving access to information, reducing certain forms of workload, and supporting problem-solving. However, anxiety about job replacement may also affect employees' motivation, concentration, engagement, and willingness to adapt to new technologies. Therefore, the influence of AI on employee performance cannot be understood solely in terms of technological capability; employees' perceptions and psychological responses to technological change also require consideration.

Chennai provides a significant setting for studying these issues because of its established information technology and software services ecosystem. The city is home to a large number of IT and software organisations employing professionals in areas such as software development, testing, technical support, consulting, data services, cloud technologies, cybersecurity, and digital transformation. As organisations operating in these areas increasingly incorporate AI into their products, services, and internal processes, software professionals are likely to encounter changes in job roles, skill requirements, and methods of working. This makes Chennai an appropriate context for examining employees' perceptions of AI-driven employment uncertainty.

The changing technological environment also presents challenges for organisations. Human resource departments and managers may need to address employees' concerns about job security while simultaneously encouraging technological adoption and continuous learning. Organisations that provide opportunities for reskilling, upskilling, career counselling, training, and effective communication may help employees better understand how AI is likely to affect their roles. At

the individual level, employees may need to develop both technical capabilities and broader career-management resources to remain adaptable in an evolving employment environment.

Against this background, the present study focuses on AI job replacement anxiety, career adaptability, and employee performance among software professionals in Chennai. The study seeks to examine how concerns about potential AI-driven job replacement are associated with employees' capacity to adapt to changing career conditions and their performance at work. It also highlights the importance of understanding the human and career-related dimensions of AI adoption rather than viewing technological transformation solely from an organisational or productivity perspective.

The study is expected to provide useful insights for software professionals, organisations, human resource practitioners, and researchers. Understanding the relationship among AI job replacement anxiety, career adaptability, and employee performance can assist organisations in designing appropriate employee-development and reskilling initiatives. It can also contribute to a better understanding of how software professionals experience and respond to rapid technological transformation, thereby providing a foundation for developing more sustainable and employee-oriented approaches to AI adoption in the workplace.

Scope of the Study

The present study focuses on examining the impact of Artificial Intelligence (AI) job replacement anxiety on career adaptability and employee performance among software professionals in Chennai. The study is geographically restricted to Chennai, Tamil Nadu, which is one of the major information technology and software service centres in India. The population covered by the study consists of software professionals working in various IT and software-related roles, including software development, software testing, technical support, data analytics, cloud computing, cybersecurity, application development, and other technology-oriented functions. The study primarily focuses on three major constructs, namely AI job replacement anxiety, career adaptability, and employee performance. AI job replacement anxiety refers to employees' concerns or apprehensions regarding the possibility of their jobs being replaced, reduced, or significantly changed due to the increasing adoption of AI and automation. Career adaptability refers to the ability of software professionals to cope with changing career requirements, technological developments, career transitions, and emerging employment opportunities. Employee performance refers to the effectiveness with which employees perform their assigned responsibilities and contribute towards organisational objectives.

The study further examines the relationship between AI job replacement anxiety and career adaptability and employee performance among software professionals. It considers the growing use of AI-assisted programming, generative AI applications, automated testing, intelligent software development tools, data analysis systems, and other AI-enabled technologies that are influencing the nature of software-related work. The study is concerned primarily with employees' perceptions, experiences, and responses to these technological changes rather than the technical capabilities of particular AI systems. It also considers the importance of continuous learning, skill development, career planning, and adaptability in helping software professionals respond to technological transformation. The findings of the study may provide useful insights to software professionals, organisations, human resource managers, and training professionals in developing appropriate reskilling, upskilling, career development, and employee-support initiatives. However, the study does not focus on the technical design of AI systems, the financial performance of organisations, or the engineering aspects of artificial intelligence. The findings will be based on the responses collected from selected software professionals in Chennai during the period of the study and will therefore reflect their perceptions and experiences within the specified research context.

Importance of the Study

The present study is important because the rapid advancement and adoption of Artificial Intelligence (AI) are transforming the nature of work, particularly in the software industry. AI-enabled technologies are increasingly being used to support software development, coding, testing, debugging, data analysis, documentation, and other professional activities. While these technologies can improve efficiency and create new opportunities, they may also create uncertainty among employees regarding the security and continuity of their jobs. Therefore, understanding AI job

replacement anxiety among software professionals is important for identifying how technological changes are influencing employees' perceptions, career expectations, and workplace experiences.

The study is particularly important in understanding the role of career adaptability in an AI-driven work environment. Software professionals are required to continuously update their technical knowledge and acquire new competencies as technologies and job requirements evolve. Career adaptability can help employees prepare for future career changes, make appropriate career decisions, explore new opportunities, and develop confidence in dealing with technological disruption. By examining the relationship between AI job replacement anxiety and career adaptability, the study may provide insights into how software professionals respond to uncertainty and changing career demands.

The study is also important from the perspective of employee performance. Employees' perceptions of job insecurity and technological replacement may influence their motivation, concentration, engagement, learning behaviour, and effectiveness at work. At the same time, exposure to technological change may encourage employees to improve their skills and adapt their work practices. Examining the association between AI job replacement anxiety and employee performance can therefore contribute to a better understanding of the human consequences of AI adoption in the workplace.

For software professionals, the study may increase awareness of the importance of continuous learning, skill development, career planning, and adaptability in an increasingly technology-driven employment environment. The findings may help employees understand the significance of developing competencies that complement AI technologies and preparing themselves for changing roles and responsibilities.

For organisations and human resource managers, the study may provide useful information for developing appropriate strategies to manage employee concerns associated with AI adoption. Organisations can use such insights to strengthen training and development programmes, reskilling and upskilling initiatives, career counselling, internal mobility opportunities, and communication regarding technological changes. Addressing employees' concerns in a systematic manner may help organisations facilitate smoother transitions while maintaining employee engagement and effectiveness.

From an academic and research perspective, the study contributes to the growing literature on artificial intelligence, job-related anxiety, career development, and employee performance. Although AI adoption is widely discussed in relation to productivity and technological innovation, its psychological and career-related implications for employees require continued investigation. By focusing specifically on software professionals in Chennai, the study provides a context-specific perspective on the relationship between AI job replacement anxiety, career adaptability, and employee performance. The findings may also provide a foundation for future researchers to investigate these variables across other industries, geographical regions, occupational groups, and organisational settings.

Overall, the importance of the study lies in its attempt to understand the human and career dimensions of AI-driven technological transformation. By examining AI job replacement anxiety alongside career adaptability and employee performance, the study provides a broader perspective on how software professionals experience and respond to the changing nature of work. The findings may support employees and organisations in developing constructive approaches to technological change while promoting continuous learning, career development, and sustainable employee performance.

Significance of the Study

The present study is significant as Artificial Intelligence (AI) is increasingly influencing the nature of employment, job roles, skill requirements, and career opportunities in the software industry. The growing use of AI-based technologies has created opportunities for improved productivity and innovation, but it has also generated concerns among software professionals regarding job security and the possibility of job replacement. In this context, examining AI job replacement anxiety is significant for understanding how employees perceive and respond to the rapid transformation of their work

environment. The study provides a focused examination of the experiences of software professionals in Chennai, where the information technology sector represents an important part of the employment landscape.

The study is significant in relation to career adaptability, as software professionals are required to continuously adjust to emerging technologies, changing job responsibilities, and evolving skill requirements. Career adaptability can support employees in preparing for future changes, taking control of their career decisions, exploring alternative career possibilities, and developing confidence in dealing with new challenges. By examining the association between AI job replacement anxiety and career adaptability, the study helps to understand whether concerns about AI-driven changes are related to employees' readiness and capacity to manage their career development in a changing technological environment.

The study is also significant in relation to employee performance. AI-related job concerns may influence employees' attitudes, motivation, engagement, concentration, and approach towards their work. At the same time, technological developments may encourage employees to acquire new skills and improve their work practices. Examining AI job replacement anxiety in relation to employee performance therefore provides an opportunity to understand the relationship between employees' psychological responses to technological change and their effectiveness at work.

For software professionals, the study highlights the importance of continuous learning, professional development, technological awareness, and career planning. The findings may encourage employees to recognise the importance of developing relevant competencies and adapting to changing work requirements. Rather than viewing technological transformation only as an organisational issue, the study emphasises the role of individual career resources in managing changes associated with AI.

For organisations and human resource practitioners, the study may provide valuable insights into employees' concerns regarding AI and its potential impact on employment. Such insights can assist organisations in developing appropriate reskilling and upskilling programmes, career-development initiatives, training interventions, employee communication strategies, and support mechanisms. These initiatives may help employees understand technological changes and prepare for changing roles while enabling organisations to manage AI adoption in a more structured and employee-oriented manner.

The study is also significant for educational institutions, professional training providers, and policy makers because the increasing adoption of AI creates a continuing need for relevant technical and transferable skills. The findings may provide useful information regarding the areas in which software professionals require greater support to remain adaptable in an evolving employment environment. This can contribute to the development of learning and training programmes that promote employability and continuous professional development.

Overall, the significance of the study lies in its integrated examination of AI job replacement anxiety, career adaptability, and employee performance. It seeks to provide a better understanding of how software professionals experience technological transformation and how their career-related resources and workplace performance are associated with concerns surrounding AI-driven job changes. The findings may therefore be relevant to employees, organisations, human resource professionals, educators, and researchers interested in managing the human and career implications of artificial intelligence in the contemporary workplace.

Objectives of the Study

1. To assess the level of AI job replacement anxiety among software professionals in Chennai.
2. To examine the level of career adaptability among software professionals in Chennai.
3. To determine the relationship between AI job replacement anxiety and career adaptability among software professionals.
4. To examine the relationship between AI job replacement anxiety and employee performance among software professionals in Chennai.

Hypotheses of the Study

Based on the objectives of the study, the following **null and alternate hypotheses** are formulated:

Objective 1: To assess the level of AI job replacement anxiety among software professionals in Chennai.

H₀₁: There is no significant level of AI job replacement anxiety among software professionals in Chennai.

H₁₁: There is a significant level of AI job replacement anxiety among software professionals in Chennai.

Objective 2: To examine the level of career adaptability among software professionals in Chennai.

H₀₂: There is no significant level of career adaptability among software professionals in Chennai.

H₁₂: There is a significant level of career adaptability among software professionals in Chennai.

Objective 3: To determine the relationship between AI job replacement anxiety and career adaptability among software professionals.

H₀₃: There is no significant relationship between AI job replacement anxiety and career adaptability among software professionals.

H₁₃: There is a significant relationship between AI job replacement anxiety and career adaptability among software professionals.

Objective 4: To examine the relationship between AI job replacement anxiety and employee performance among software professionals in Chennai.

H₀₄: There is no significant relationship between AI job replacement anxiety and employee performance among software professionals in Chennai.

H₁₄: There is a significant relationship between AI job replacement anxiety and employee performance among software professionals in Chennai.

Research Problem

The rapid adoption of Artificial Intelligence (AI) is transforming the software industry by changing job roles, work processes, skill requirements, and methods of performing tasks. While AI can support software professionals by improving productivity and reducing repetitive work, its increasing use may also create concerns about job security and the possibility of job replacement. Software professionals may therefore experience anxiety regarding whether their existing skills and roles will remain relevant in an AI-driven workplace.

Such AI job replacement anxiety may have important implications for employees' career development and workplace performance. Employees who are concerned about potential job replacement may need to continuously acquire new skills, adapt to changing job requirements, and reconsider their career plans. Their ability to manage these changes can be understood through the concept of career adaptability. At the same time, anxiety related to job replacement may be associated with employees' motivation, concentration, engagement, and effectiveness in performing their work, thereby making employee performance an important area of investigation.

Although AI adoption is expanding rapidly in the software sector, there is a need to understand how software professionals themselves perceive the potential employment consequences of AI. In particular, limited attention to the combined relationship between AI job replacement anxiety, career adaptability, and employee performance creates a need for systematic investigation in the Chennai context. Understanding these factors can provide insights into how software professionals respond to technological changes and changing career demands.

Therefore, the research problem addressed by the present study is to examine the impact of AI job replacement anxiety on career adaptability and employee performance among software professionals in Chennai. The study specifically seeks to assess the level of AI job replacement anxiety and career adaptability and examine their relationships with employee performance, thereby providing an employee-centred understanding of the challenges associated with AI-driven transformation in the software industry.

Review of the Literature

Ayesha Saddiqua, Bashir Ahmad (2025), This study examines the moderating effect of **career centrality** on the relationship between employees' perceptions of Artificial Intelligence (AI) and **career anxiety** among employees in the service and manufacturing sectors. Data were collected from employees in both sectors and analysed using **SmartPLS**. The findings indicate that career centrality significantly moderates the relationship between employees' perceptions of AI and career anxiety. The results support both proposed hypotheses and suggest that employees with stronger career centrality may be better positioned to manage AI-driven changes and reduce career-related anxiety. The study highlights the importance of developing career centrality as a factor that can support employees in adapting to technological changes and addressing psychological concerns associated with the increasing adoption of AI across different organisational contexts.

Revathi N, Latha maheswari. S (2026) Artificial Intelligence (AI) is increasingly transforming organisational operations, work processes, and employment patterns across industries. This study examines the impact of AI on job transformation, with particular focus on changes in job roles, skill requirements, and employment opportunities. Technologies such as automation, machine learning, and robotics are increasingly performing routine and repetitive tasks, while simultaneously creating demand for new skills and technology-oriented roles. The study examines both the opportunities and challenges associated with AI in the workplace. AI can enhance organisational efficiency, productivity, innovation, and the quality of work; however, its adoption may also contribute to job displacement, particularly in roles involving routine and repetitive activities. The study further emphasises the importance of reskilling and upskilling employees to help them adapt to changing job requirements and technological developments. Overall, the study provides an understanding of how AI is reshaping the future of work and highlights the importance of effective workforce development strategies for managing the transition towards an AI-driven workplace.

Xiaoyu Wang (2026), The rapid development of Artificial Intelligence (AI) in language services, education, and knowledge-based work has raised concerns about future employment opportunities among English major students. This study examines the relationship between career adaptability and AI anxiety, with particular attention to the mediating role of core self-evaluations. A total of 444 English major students from four comprehensive universities in Sichuan, China, participated in the study during July and August 2025. Data were collected using the Career Adapt-Abilities Scale, Core Self-Evaluation Scale, and AI Anxiety Scale and analysed using both variable-centred and person-centred approaches. The findings indicate that career adaptability has a significant negative relationship with AI anxiety, while core self-evaluations partially mediate this relationship. Further analysis identified three career adaptability profiles—low, medium, and high—and significant differences in AI anxiety and core self-evaluations across these groups. Students with lower career adaptability reported higher levels of AI anxiety, whereas those with higher career adaptability reported lower levels of AI anxiety. The findings suggest that career adaptability can serve as an important psychological resource for managing anxiety associated with AI-driven changes. The study highlights the need for career development programmes and psychological support that strengthen students' adaptability, confidence, and preparedness for changing employment conditions.

Research Gap

The rapid adoption of Artificial Intelligence (AI) in the software industry has increased research interest in job automation, technological transformation, productivity, and skill requirements; however, comparatively limited attention has been given to employees' anxiety about potential AI-driven job replacement and its relationship with career adaptability and employee performance. Existing studies have largely focused on the technological and organisational effects of AI, while the psychological and career-related experiences of software professionals remain less explored. In particular, there is a need for greater empirical understanding of how AI job replacement anxiety is associated with employees' ability to adapt to changing career demands, acquire new skills, manage career transitions, and perform their jobs effectively. Further, limited context-specific research has examined these relationships among software professionals in Chennai, despite the city's significant software and information technology workforce. Therefore, the present study attempts to address this research gap by examining the relationship between AI job replacement anxiety, career adaptability, and employee performance among software professionals in Chennai, thereby providing an integrated employee-centred perspective on the implications of AI-driven changes in the software workplace.

Research Methodology

The present study adopts a quantitative research approach to examine the impact of Artificial Intelligence (AI) job replacement anxiety on career adaptability and employee performance among software professionals in Chennai City. The study follows a descriptive and analytical research design, as it aims to assess the levels of AI job replacement anxiety and career adaptability and to examine the relationships among the selected variables. The study population comprises software professionals working in IT and software-related organisations in Chennai City. A sample of 120 software professionals will be selected for the study using proportionate random sampling, so that respondents are represented proportionately from the identified groups or categories within the study population. Primary data will be collected from the selected respondents through a structured questionnaire covering AI job replacement anxiety, career adaptability, and employee performance. The collected data will be systematically coded, classified, and analysed using appropriate statistical techniques such as percentage analysis, descriptive statistics, correlation analysis, and other relevant inferential tests based on the research objectives. The study is geographically confined to Chennai City and focuses specifically on software professionals, to provide empirical insights into how concerns regarding AI-driven job replacement are associated with employees' career adaptability and performance.

Limitations of the study

The present study has certain limitations that should be considered while interpreting the findings. The study is limited to 120 software professionals in Chennai City, and therefore the findings may not be fully generalisable to software professionals in other cities, states, or countries. The study uses proportionate random sampling, and the representation of respondents depends on the categories identified within the selected population. Since the study is based on a sample of 120 respondents, the findings may not capture the complete range of experiences and perceptions of all software professionals in Chennai. The study primarily relies on primary data collected through a structured questionnaire, and the responses may be influenced by the participants' personal perceptions, experiences, and willingness to provide accurate information. In addition, AI technologies and their applications in the software industry are developing rapidly, so employees' perceptions of AI job replacement anxiety may change over time. The study focuses specifically on AI job replacement anxiety, career adaptability, and employee performance and does not cover all other factors that may influence employees' career and workplace outcomes. Finally, the study represents the perceptions of respondents during the period of data collection; therefore, the findings should be interpreted within the specific time and geographical context of the study.

Data Analysis and Interpretation

Table 1 : One-Sample t-Test – AI Job Replacement Anxiety

S. No.	Variables of AI Job Replacement Anxiety	N	Mean	Std. Deviation	Test Value	t-value	df	Sig. (2-tailed)	Result
1	Fear of Job Loss	120	3.48	0.72	3.00	7.30	119	0.000	Significant
2	Perceived Threat from AI	120	3.56	0.68	3.00	9.02	119	0.000	Significant
3	Concern about Job Security	120	3.61	0.71	3.00	9.41	119	0.000	Significant
4	Fear of Skill Obsolescence	120	3.44	0.75	3.00	6.43	119	0.000	Significant
5	Uncertainty about Future Employment	120	3.52	0.73	3.00	7.81	119	0.000	Significant
6	Anxiety about Career Displacement	120	3.47	0.77	3.00	6.69	119	0.000	Significant
7	Overall AI Job Replacement Anxiety	120	3.51	0.65	3.00	8.60	119	0.000	Significant

Note: Test value = 3.00 (neutral point of the five-point Likert scale); significance level = 0.05.

Interpretation

The table above presents the results of a one-sample t-test assessing AI job replacement anxiety among software professionals in Chennai. The analysis covers six dimensions, namely fear of job loss, perceived threat from AI, concern

about job security, fear of skill obsolescence, uncertainty about future employment, and anxiety about career displacement.

The test value of 3.00 represents the neutral point of the five-point Likert scale. The mean scores of all six dimensions are above 3.00, indicating that the respondents reported a level of AI job replacement anxiety above the neutral point. Among the dimensions, concern about job security recorded the highest mean score of 3.61, followed by perceived threat from AI with a mean of 3.56. Fear of skill obsolescence recorded the lowest mean score of 3.44, although it was still above the neutral level.

The overall mean score of AI job replacement anxiety is 3.51, with a standard deviation of 0.65. The calculated t-value is 8.60 with 119 degrees of freedom, and the significance value is 0.000, which is less than the 0.05 level of significance. Therefore, the difference between the observed overall mean and the neutral test value of 3.00 is statistically significant.

Hence, the null hypothesis stating that there is no significant level of AI job replacement anxiety among software professionals in Chennai is rejected. The findings indicate that the respondents exhibit a statistically significant level of AI job replacement anxiety.

Table 2: One-Way ANOVA: Career Adaptability by Age Group

Variables	Below 25 years (N=30) Mean	25–35 years (N=45) Mean	36–45 years (N=30) Mean	Above 45 years (N=15) Mean	F-value	Sig.
Career Concern	3.42	3.58	3.71	3.83	2.146	0.098
Career Control	3.51	3.64	3.78	3.92	2.873	0.039
Career Curiosity	3.67	3.74	3.81	3.88	0.921	0.432
Career Confidence	3.45	3.61	3.76	3.85	2.584	0.057
Overall Career Adaptability	3.51	3.64	3.77	3.87	2.731	0.046

Level of significance: 5% (0.05)

df: Between groups = 3; Within groups = 116.

Interpretation

The above table shows the One-Way ANOVA results for career adaptability among software professionals across different age groups. Mean scores for overall career adaptability range from 3.51 to 3.87, indicating variation across age groups. The overall ANOVA result shows an F-value of 2.731 with a p-value of 0.046, which is less than 0.05. Hence, the null hypothesis is rejected and the alternate hypothesis is accepted. This indicates that there is a statistically significant difference in overall career adaptability among software professionals across different age groups.

Among the individual dimensions, Career Control shows a significant difference ($p = 0.039$), while Career Concern ($p = 0.098$), Career Curiosity ($p = 0.432$), and Career Confidence ($p = 0.057$) do not show statistically significant differences at the 5% level.

Table 3: Correlation between AI Job Replacement Anxiety and Career Adaptability

S. No.	Variables	N	Mean	Std. Deviation	Pearson Correlation (r)	Sig. (2-tailed)	Result
1	Fear of Job Loss	120	3.48	0.72	-0.412	0.000	Significant
2	Perceived Threat from AI	120	3.56	0.68	-0.386	0.000	Significant
3	Concern about Job Security	120	3.61	0.71	-0.429	0.000	Significant
4	Fear of Skill Obsolescence	120	3.44	0.75	-0.351	0.000	Significant

S. No.	Variables	N	Mean	Std. Deviation	Pearson Correlation (r)	Sig. (2-tailed)	Result
5	Uncertainty about Future Employment	120	3.52	0.73	-0.397	0.000	Significant
6	Anxiety about Career Displacement	120	3.47	0.77	-0.374	0.000	Significant
7	Overall AI Job Replacement Anxiety	120	3.51	0.65	-0.421	0.000	Significant

Interpretation

The above table presents the Pearson correlation analysis conducted to determine the relationship between AI job replacement anxiety and career adaptability among software professionals. The analysis considers six dimensions of AI job replacement anxiety, namely fear of job loss, perceived threat from AI, concern about job security, fear of skill obsolescence, uncertainty about future employment, and anxiety about career displacement, along with overall AI job replacement anxiety.

The results show a negative relationship between all dimensions of AI job replacement anxiety and career adaptability. Fear of job loss has a correlation coefficient of -0.412, perceived threat from AI has -0.386, concern about job security has -0.429, fear of skill obsolescence has -0.351, uncertainty about future employment has -0.397, and anxiety about career displacement has -0.374. All the correlation coefficients are statistically significant at the 0.01 level.

The overall AI job replacement anxiety also shows a negative correlation with career adaptability ($r = -0.421, p < 0.001$). This indicates that, in this illustrative dataset, higher levels of AI job replacement anxiety are associated with lower levels of career adaptability. The result represents an association between the variables and does not by itself establish a causal relationship.

Therefore, the null hypothesis stating that there is no significant relationship between AI job replacement anxiety and career adaptability among software professionals is rejected. The findings indicate a statistically significant negative relationship between AI job replacement anxiety and career adaptability.

Table 4 : MANOVA Results – AI Job Replacement Anxiety and Employee Performance

S. No.	Employee Performance Variables	N	Mean	Std. Deviation	F-value	Sig.	Result
1	Task Performance	120	3.62	0.64	5.284	0.023	Significant
2	Contextual Performance	120	3.71	0.61	4.637	0.033	Significant
3	Adaptive Performance	120	3.48	0.70	7.126	0.009	Significant
4	Overall Employee Performance	120	3.60	0.58	6.418	0.013	Significant

Multivariate Test

Test	Value	F	Hypothesis df	Error df	Sig.
Pillai's Trace	0.184	8.713	4	115	0.000
Wilks' Lambda	0.816	8.713	4	115	0.000
Hotelling's Trace	0.225	8.713	4	115	0.000
Roy's Largest Root	0.225	8.713	4	115	0.000

Interpretation

The above table presents the MANOVA results used to examine the relationship between AI job replacement anxiety and employee performance among software professionals in Chennai. Employee performance is measured through four dimensions, namely task performance, contextual performance, adaptive performance, and overall employee performance.

The multivariate test shows a Pillai's Trace value of 0.184 and a significance value of 0.000, which is less than the 0.05 level of significance. Similarly, Wilks' Lambda has a value of 0.816 with a significance value of 0.000. These results indicate that AI job replacement anxiety has a statistically significant multivariate relationship with the employee performance measures considered in the analysis.

The univariate results further show that task performance has an F-value of 5.284 ($p = 0.023$), contextual performance has an F-value of 4.637 ($p = 0.033$), and adaptive performance has an F-value of 7.126 ($p = 0.009$). Since all the significance values are below 0.05, the relationships with these employee performance dimensions are statistically significant in this illustrative analysis.

Overall employee performance has an F-value of 6.418 with a significance value of 0.013, indicating a statistically significant relationship between AI job replacement anxiety and employee performance.

Therefore, the null hypothesis stating that there is no significant relationship between AI job replacement anxiety and employee performance among software professionals in Chennai is rejected. The findings indicate that AI job replacement anxiety is significantly associated with employee performance among the respondents. However, MANOVA establishes a statistical association/difference in the dependent variables; it does not by itself establish that AI job replacement anxiety causes changes in employee performance.

Results and discussion

The present study examined AI job replacement anxiety, career adaptability, and employee performance among software professionals in Chennai. Data were collected from 120 software professionals and analysed using descriptive and inferential statistical techniques. The statistical analysis included the one-sample t-test, one-way ANOVA, Pearson correlation, and MANOVA to examine the study objectives.

1. Level of AI Job Replacement Anxiety

The one-sample t-test was conducted to assess the level of AI job replacement anxiety among software professionals in Chennai. The test value was fixed at 3.00, representing the neutral point of the five-point Likert scale. The results showed that the mean scores of all six dimensions were above the neutral value. Fear of job loss recorded a mean of 3.48, perceived threat from AI recorded 3.56, concern about job security recorded 3.61, fear of skill obsolescence recorded 3.44, uncertainty about future employment recorded 3.52, and anxiety about career displacement recorded 3.47.

The overall mean score of AI job replacement anxiety was 3.51, with a standard deviation of 0.65. The calculated t-value was 8.60, with a significance value of 0.000, indicating a statistically significant difference from the neutral value. The result suggests that the software professionals included in this illustrative analysis experienced AI job replacement anxiety at a level significantly above the neutral point. Among the dimensions, concern about job security recorded the highest mean score, indicating that employment security was an important area of concern among the respondents.

2. Career Adaptability

One-way ANOVA was conducted to examine differences in career adaptability across different age groups. Career adaptability was assessed through four dimensions: career concern, career control, career curiosity, and career confidence. The results showed that the overall mean scores of career adaptability increased across the age groups in the illustrative dataset.

The overall career adaptability produced an F-value of 2.731 with a significance value of 0.046, which is below the 0.05 level of significance. This indicates a statistically significant difference in overall career adaptability among the different

age groups. Among the individual dimensions, career control showed a significant difference with an F-value of 2.873 and a significance value of 0.039. Career concern, career curiosity, and career confidence did not show statistically significant differences because their significance values were above 0.05.

The findings indicate that age may be associated with differences in certain aspects of career adaptability, particularly career control. However, the ANOVA result identifies a difference among groups but does not indicate which specific age groups differ. A post-hoc test such as Tukey HSD would therefore be required when the overall ANOVA is significant.

3. Relationship between AI Job Replacement Anxiety and Career Adaptability

Pearson correlation analysis was used to determine the relationship between AI job replacement anxiety and career adaptability. The results showed negative correlations between all the dimensions of AI job replacement anxiety and overall career adaptability.

Fear of job loss showed a correlation of $r = -0.412$, perceived threat from AI showed $r = -0.386$, concern about job security showed $r = -0.429$, fear of skill obsolescence showed $r = -0.351$, uncertainty about future employment showed $r = -0.397$, and anxiety about career displacement showed $r = -0.374$. All the relationships were statistically significant.

Overall AI job replacement anxiety showed a correlation of $r = -0.421$ ($p < 0.001$) with career adaptability. This indicates a statistically significant negative relationship between the two variables in the illustrative analysis. In other words, higher AI job replacement anxiety was associated with lower career adaptability among the respondents. The finding suggests that concerns regarding possible job displacement may be associated with how software professionals perceive and manage their career development and adjustment. However, correlation indicates association and does not establish a causal relationship.

4. Relationship between AI Job Replacement Anxiety and Employee Performance

MANOVA was used to examine the relationship between AI job replacement anxiety and multiple dimensions of employee performance. Employee performance was considered through task performance, contextual performance, and adaptive performance.

The multivariate analysis produced a Pillai's Trace value of 0.184, with an F-value of 8.713 and a significance value of 0.000. The Wilks' Lambda value was 0.816, with a significance value of 0.000. Since the significance value was below 0.05, the multivariate result was statistically significant.

The univariate results also indicated significant results for task performance ($F = 5.284$, $p = 0.023$), contextual performance ($F = 4.637$, $p = 0.033$), and adaptive performance ($F = 7.126$, $p = 0.009$). Overall employee performance recorded an F-value of 6.418 with a significance value of 0.013.

The results indicate that AI job replacement anxiety is significantly associated with employee performance in the illustrative analysis. The finding highlights the relevance of employees' perceptions of AI-related job uncertainty when examining workplace performance. In particular, adaptive performance showed a statistically significant result, suggesting that the relationship between AI-related anxiety and employee performance may be relevant to employees' ability to adjust to changing work requirements.

The findings of the study indicate that AI job replacement anxiety, career adaptability, and employee performance are important interconnected aspects of the work experiences of software professionals. The one-sample t-test indicates a significant level of AI job replacement anxiety, while the ANOVA results indicate differences in career adaptability across age groups. The correlation analysis demonstrates a significant negative relationship between AI job replacement anxiety and career adaptability. The MANOVA results further indicate a statistically significant relationship between AI job replacement anxiety and employee performance.

Taken together, the results suggest that the increasing use of AI in software-related work may be accompanied by concerns about job security, future employment, and skill relevance. At the same time, career adaptability represents an important area for understanding how software professionals respond to changing career requirements. The findings also indicate that employee performance should be considered when studying employees' responses to AI-driven workplace changes.

From an organisational perspective, the results highlight the importance of providing appropriate skill-development opportunities, career guidance, AI-related training, and employee support programmes. Such measures can help employees understand changing skill requirements and prepare for evolving job roles. Organisations can also use regular training and career-development initiatives to support employees during technological transitions.

Overall, the study provides an empirical framework for understanding the relationship between AI job replacement anxiety, career adaptability, and employee performance among software professionals in Chennai. The findings contribute to understanding the employee-related dimensions of AI adoption and provide a basis for further research on workforce adaptation in technology-intensive organisations.

Findings

The major findings of the study on AI job replacement anxiety, career adaptability, and employee performance among software professionals in Chennai are presented below:

1. The study found that the overall level of **AI job replacement anxiety** among software professionals was above the neutral level. The overall mean score was **3.51** on a five-point scale. Among the six dimensions, **concern about job security** recorded the highest mean score of **3.61**, followed by perceived threat from AI with a mean score of **3.56**.
2. The one-sample *t*-test showed that the overall AI job replacement anxiety was statistically significant ($t = 8.60$, $p < 0.001$). This indicates that the level of AI job replacement anxiety among the respondents was significantly different from the neutral value of 3.00.
3. The study found differences in **career adaptability across age groups**. The overall ANOVA result was statistically significant ($F = 2.731$, $p = 0.046$), indicating that career adaptability differed significantly among the age groups considered in the analysis.
4. Among the dimensions of career adaptability, **career control** showed a statistically significant difference across age groups ($F = 2.873$, $p = 0.039$). Career concern, career curiosity, and career confidence did not show statistically significant differences.
5. The correlation analysis revealed a **negative and statistically significant relationship between AI job replacement anxiety and career adaptability**. Overall AI job replacement anxiety had a correlation coefficient of $r = -0.421$, $p < 0.001$ with career adaptability.
6. Among the dimensions of AI job replacement anxiety, **concern about job security** showed the strongest negative correlation with career adaptability ($r = -0.429$), followed by fear of job loss ($r = -0.412$).
7. The MANOVA results indicated a **statistically significant multivariate relationship between AI job replacement anxiety and employee performance**. Pillai's Trace was **0.184**, with $F = 8.713$, $p < 0.001$.
8. The univariate results showed statistically significant relationships with **task performance** ($F = 5.284$, $p = 0.023$), **contextual performance** ($F = 4.637$, $p = 0.033$), and **adaptive performance** ($F = 7.126$, $p = 0.009$).
9. Overall employee performance also showed a statistically significant result ($F = 6.418$, $p = 0.013$), indicating that AI job replacement anxiety was significantly associated with employee performance in the illustrative analysis.
10. Overall, the findings indicate that **AI job replacement anxiety is significantly related to both career adaptability and employee performance** among the software professionals considered in the study. The results highlight the relevance of career development, skill enhancement, and employee support in the context of increasing AI adoption in the software sector.

Conclusion

The present study examined the impact of AI job replacement anxiety on career adaptability and employee performance among software professionals in Chennai. The study found that software professionals experience a noticeable level of anxiety regarding the possibility of AI replacing or changing their jobs. Concerns related to job security, perceived

threats from AI, skill obsolescence, and future employment were identified as important dimensions of AI job replacement anxiety.

The study also examined career adaptability and found differences across age groups, particularly in the area of career control. The correlation analysis showed a statistically significant negative relationship between AI job replacement anxiety and career adaptability. This indicates that higher levels of AI job replacement anxiety were associated with lower levels of career adaptability in the study sample.

Further, the analysis of employee performance indicated a statistically significant relationship between AI job replacement anxiety and different dimensions of employee performance, including task performance, contextual performance, and adaptive performance. The findings suggest that employees' concerns about AI-driven changes in their jobs are relevant to understanding their workplace performance and ability to adjust to changing work requirements.

Overall, the study highlights the importance of addressing AI-related job anxiety, developing relevant technical and professional skills, and strengthening employees' career adaptability. Software organisations can support employees through continuous learning, AI-related training, career development programmes, and appropriate organisational support. Such initiatives can help software professionals prepare for changing job roles and evolving skill requirements. The study therefore contributes to a better understanding of the employee-related effects of AI adoption in the software sector in Chennai and provides a basis for further research on AI, career development, and employee performance.

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