Exploring the Impact of AI-Driven Changes in Workforce Stability and Job Roles in the Service Sector

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Abstract

This research aims to explore AI driven changes and their potential influence on job displacement in several industries including Information Technology (IT), Banking, Health Care, Educational Services and Customer Service. To accomplish this objective, a survey was performed with 100 employees, measuring five dimensions related to AI: AI Awareness; Job Effectiveness; Skills Competence; Employability; and Psychological Impact. An analysis of data obtained from the survey was performed using Descriptive statistics, Reliability tests, Exploratory factor analysis, Performance component analysis and Linear regression methods to examine how demographic variables like Industry, job role, work of experience affected these dimensions. While the majority of respondents believed that AI enhances job efficiency and supports skill development, they expressed moderate levels of concern about possible changes to their jobs due to the advent of AI and possible loss of employment due to automation. All dimensions, except skill competence, showed statistical significance with the job type. The findings highlight the need for employees to continuously upskill to stay in the industry and for employers to provide supportive policies, clear communication and a balanced integration of AI and human expertise to develop a sustainable workforce.

Keywords: Artificial Intelligence, Job Displacement, Workforce Transformation, Employees perceptions, Human-AI Collaboration

1. INTRODUCTION

AI is rapidly changing the global workforce. It is changing the way companies operate as well as the nature of work in different industries. In the service industry, including IT services, banking, healthcare, education, customer service and consulting, many organizations are exploring ways to integrate AI technologies into their processes, such as through data analysis, task automation, customer interaction and decision-making. AI provides many benefits to businesses, such as increased productivity, improved efficiency, enhanced accuracy; however, there are also

concerns regarding potential job loss, obsolescence of employee's skill set and psychological effects on employees.

2. RESEARCH DESIGN

The study adopts a quantitative, cross sectional research design to examine employee's perceptions of AI and its impact on job displacement in the service sector. A structured survey method was employed to record measurable responses related to AI awareness, Impact on Job Performance, Impact on Skills and Employability and Psychological Impact associated with AI adoption.

3. DATA COLLECTION

Primary data were collected through a structured questionnaire consisting of two components, first being the demographic variables administered to employees working across various service sector industries. including IT services, banking and finance, healthcare, education, customer service, human resources, marketing, and consulting. The sample comprised of respondents with diverse demographic characteristics in terms of Age, Gender, Education level,

Job designation, Work Experience and Income levels. A total of 100 responses were obtained and retained for analysis.

The second component of the questionnaire Likert Scale Questions divided across 4 dimensions - Awareness and Exposure to AI, Impact of AI on Job Performance and Work Processes, Impact of AI on Skills and Employability, Psychological Impact of AI. All the sections were measured using a 5-point Likert Scale ranging from 1 = Strongly Disagree to 5

= Strongly Agree.

3.1 Data Analysis Technique

The data that were collected by means of the structured questionnaire were encoded and processed using the SPSS program, which provided the means for conducting statistical analysis of the information gathered through survey administration. Descriptive statistics were calculated to provide an overview of the demographic characteristics of the participants who responded to the survey, and to provide insight into the general distribution of the data.

Reliability analysis using Cronbach's alpha was conducted based on the data to determine the internal consistency of the measurement scale used in the research. Exploratory factor analysis (EFA) with Performance Component Analysis (PCA) was performed in order to identify the underlying dimensions of the effects of artificial intelligence on job displacement. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were used to verify the appropriateness of the data for factor analytic procedures.

Additionally, multiple regression analysis was utilized to explore the influence of demographic and job-related variables on each of the identified factors. Such demographic and job-related variables included age, gender, education level, job role, industry sector, the number of years of work experience, and monthly income. The results from these analyses were helpful in assessing whether there were differences in how respondents perceived the effects of AI on job displacement in service organisations.

4. RESULTS

4.1 Presentation of Data and Interpretation

The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.848, indicating that the data were suitable for factor analysis. Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 1610.210$, $df = 231$, $p < 0.001$), confirming sufficient correlations among variables for factor extraction.

These results demonstrate that the dataset met the necessary assumptions for performing factor analysis.

4.2 PCA (Performance Component Analysis)

The eigenvalues of the first five components were all greater than 1; thus, together, these components account for 73.82% of the explained variance, which demonstrates sufficient representativeness of the underlying constructs captured by the dataset. The interpretation of these components indicates that all of the information contained within the survey responses can be summarized using the information associated with the first five factors.

4.3 Descriptive Statistics

The descriptive data demonstrates an adequate range of responses, demonstrating a broad and varied range of perceptions among individuals surveyed. Among respondents, there was more variation in their report of AI Awareness and AI Job Efficiency than Skill Competence and Employability; while there was still some variation, there was not as much variability within Skill Competence and Employability compared to the other two factors. In general, it appears that all respondents acknowledge the potential benefits and challenges related to implementing AI in the service industry, though it appears that the majority of respondents believe that AI has a greater capacity for improving efficiency and skill level, rather than for creating jobs or psychological fears.

4.4 Regression Analysis

Regression analysis was performed to examine the impact of demographic and job-related factors on employees' perceptions of AI in the service sector.

Dependent variables: Ai Awareness, Job Efficiency, Skill Competence, Employability, Psychological Impact

Independent variables: Age, Gender, Education, Job Role, Industry, Work Experience and Monthly Income.

The results indicate: Significant predictors: Demographic and job-related variables significantly influence AI Awareness, Job Efficiency, Employability, and Psychological Impact.

Non-significant predictor: Skill Competence was not significantly affected ($p = 0.170$).

Variance explained: R^2 values ranged from 0.104 to 0.152, suggesting that these variables contribute very little to the understanding of the variation in individuals' perception of the impact on job displacement due to AI.

5. DISCUSSION

The present study examined the employee's perception Artificial Intelligence (AI) and its impact on job displacement in the service sector, focusing on AI Awareness, Job Efficiency, Skill Competence, Employability, and Psychological Impact. The results of the survey reflected a diverse response from employees on their perceptions of AI with most employees viewing AI as having a significant impact on their jobs, but they also recognized that AI posed certain challenges. Both the reliability of the survey and factor analysis support the internal consistency of the survey instrument within the context of the exploratory study.

In terms of employees' level of AI Awareness, respondents generally indicated moderate to high levels of awareness of AI technologies and applications at their jobs. This finding is consistent with prior research findings showing that when employees have a clear understanding of AI's capabilities, they are better able to take full advantage of AI's benefits. In terms of Job Efficiency, the respondents demonstrated a positive view of how AI may enhance productivity, streamline operations, increase efficiencies and result in a better return on investment. In addition, it was found that the level of Job Efficiency perceived by employees was affected by the demographic characteristics (e.g., Race, Gender, Age) and job type (e.g., Service, Technical) of the respondents, with younger employees and employees that work in technical occupations likely being the most receptive to AI technology improvements.

On the other hand, Skill Competency was not statistically significantly correlated to any of the factors examined in this research study. This means that the level to which participants perceived that using Artificial Intelligence (AI) enabled them to gain skills relates to either an individual experience with the use of AI or to the level of support from their organization in helping them to develop skills rather than how they view themselves based upon demographic variables. Therefore, organizations should look at establishing specific upskilling programs to assist their

employees in transitioning to new job functions as their current functions change as a result of the continuing evolution of job demands.

Participants expressed both positive and negative perceptions related to employability. On one hand, many participants believed that jobs would evolve due to the advent of AI and the creation of new job roles. On the other hand, however, many of the participants felt a high level of anxiety regarding the displacement of current jobs by machines. Therefore, there is a high need for organizations to develop proactive workforce planning and reskilling programs to reduce the anxiety created by AI in the workplace and to help ease employees' transitions into new job roles as AI is integrated into their workplaces. As for Psychological Impact, the majority of participants reported a moderate amount of anxiety and concern regarding the way that their job responsibilities will change due to AI. Organizations should implement strategies to support their employees' mental health, including providing employees with detailed information regarding the impact of AI on their jobs and by providing a means for employees to participate in the decision-making process concerning their jobs.

Research indicates that the use of artificial intelligence (AI) may create increased automation and skill enhancement, however; the way employees perceive and react to the opportunities created by AI is influenced by multiple factors, including demographic traits, job function and potentially additional unidentified organizational influences. The findings highlight the need for a balanced approach by organizations and employees to effectively implement AI in a way that also considers the ability of the employee to adapt and psychologically engage with the organization.

Limitations of the current research include a small sample size of 100 employees from a diverse array of service sectors, limiting the ability to draw generalizations from the results. The self-reported measures from the participants were also subjective rather than using objective measures of implementation of AI or job performance, meaning the participants may have had individual biases based on recent experiences. Further research should examine these limitations by using longitudinal research designs with larger sample sizes and also take into

account additional factors such as company culture, leadership support, and prior experience with AI to gain a more complete picture on employee perceptions of AI.

Overall, the study contributes to the literature on Employment of Artificial Intelligence at the Worksite by empirically examining various aspects of employee perceptions about AI and linking these perceptions to demographic and job characteristics. Furthermore, the findings provide information to service sector employers who want to adopt AI Technology while also supporting the ongoing engagement and development of employee skills as well as enhancing their overall job satisfaction.

6. CONCLUSION

This research explored employees' thoughts on the use of Artificial Intelligence (AI) and its effect on employment in the service industry, specifically regarding AI Awareness, Job Efficiency, Skill Competence, Employability, and the Psychological Impact of AI. Results show that while employees believe that AI is a tool to improve job efficiency and support skill development, employees also have a moderate level of concern about being displaced from their jobs and having their current jobs modified as a result of AI.

Perceptions of AI Awareness, Job Efficiency, Employability, and Psychological Impact are significantly affected by employees' demographics and types of jobs; Skill Competence was not significantly affected by type of job or demographic. This indicates that the development of a skill relies more on the experience of the employee and the support provided by the employer than on the employee's demographic factors. Employees have a moderate level of anxiety regarding the introduction of AI into the workplace due to the psychological ramifications of automation, demonstrating the importance of effectively communicating and engaging employees in the planning and implementation process for AI integration within an organization.

Overall, this study suggests that while the AI will not eliminate all service sector job, it will impact job roles, through change and shifting of tasks around with the need to adapt and upgrade skills. AI as a set of tools used for the service sector will result in changing the nature of jobs rather than eliminating the jobs completely. The most resilient jobs are those which must possess human-centred capabilities. Employees must focus on adaptability, continuous learning, and upskilling, while organizations should provide supportive policies, training programs, and transparent communication to ease transitions. Achieving a balanced integration of AI and human expertise is essential, ensuring that technological advancement enhances productivity without compromising employee engagement, skill development, or psychological well-being.

7. RECOMMENDATIONS

Workforce Planning and Role Redesign: Workforce Planning should consider AI Adoption, with roles redesigned to accommodate automation while minimizing Job Displacement.

Training Programs: Employees should be provided with structured training programs in AI, enabling them to effectively perform evolving job tasks and remain competitive in their roles,

Transparent Communication: Clear communication about AI integration, including expected changes and opportunities, is essential to prevent misinformation and fear.

Ethical AI Policies: Ethical guidelines should be established to ensure AI is used fairly and responsibly, minimizing potential bias and protecting employee interests.

Psychological Support: Counselling, Stress Management and mental health resources should be provided to address concerns about AI – related job changes.

Performance Monitoring: Organizations should monitor AI's impact on productivity, efficiency and employee satisfaction to guide improvements.

Continuous Learning: Employees should stay updated to AI technologies and industry trends to remain adaptable to evolving job roles.

Plan Career Paths: Employees should map out long term career goals and identify how AI related skills can help them stay advance and competitive, while organizations design job roles integrating AI related skills.

Employee Participation: Employees should provide input and feedback on AI adoption, while organizations should actively involve employees in decision making.

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