



## The Impact of Artificial Intelligence on Employment in IT Sector

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### Abstract:

Artificial Intelligence (AI) has rapidly evolved from being a theoretical concept in the mid-20th century to becoming a powerful and practical tool that is transforming industries worldwide—including the Information Technology (IT) sector. Initially limited to rule-based systems and simple automation, AI technologies have advanced significantly with the rise of machine learning, natural language processing, computer vision, and more recently, generative AI and large language models like ChatGPT and Copilot. These advancements have enabled machines to perform increasingly complex cognitive tasks once thought to be the exclusive domain of humans.

The IT sector, which was once the driving force behind automation in other industries, is now experiencing a transformation of its own workforce due to AI integration. Routine and repetitive tasks such as code generation, software testing, data entry, and technical support are now being handled by intelligent systems, leading to both opportunities and challenges for IT professionals.

### Introduction:

Artificial Intelligence (AI) has rapidly evolved from being a theoretical concept in the mid-20th century to becoming a powerful and practical tool that is transforming industries worldwide—including the Information Technology (IT) sector. Initially limited to rule-based systems and simple automation, AI technologies have advanced significantly with the rise of machine learning, natural language processing, computer vision, and more recently, generative AI and large language models like ChatGPT and Copilot. These advancements have enabled machines to perform increasingly complex cognitive tasks once thought to be the exclusive domain of humans.

The IT sector, which was once the driving force behind automation in other industries, is now experiencing a transformation of its own

workforce due to AI integration. Routine and repetitive tasks such as code generation, software testing, data entry, and technical support are now being handled by intelligent systems, leading to both opportunities and challenges for IT professionals.

### Advantages of AI in IT Sector Employment:

- **Increased Efficiency:** AI automates time-consuming tasks, enabling faster software development, debugging, and deployment.
- **Creation of New Job Roles:** The rise of AI has created demand for roles such as AI/ML engineers, data scientists, AI ethicists, and AI system trainers.
- **Improved Decision-Making:** AI-powered analytics tools help IT professionals make better, data-driven decisions.

- Support for Innovation: By handling repetitive tasks, AI allows developers to focus on innovation, design, and complex problem-solving.

**Disadvantages of AI in IT Sector Employment:**

- Job Displacement: Entry-level and mid-level IT roles—especially those involving repetitive tasks—are increasingly being automated, leading to job losses.
- Skill Gaps: Many existing IT workers lack the AI-related skills now in demand, creating a mismatch in the labour market.
- Workforce Polarization: High-skilled professionals benefit most from AI, while low-skilled workers face unemployment or downward mobility.
- Over-reliance on AI Tools: Dependence on AI can lead to deskilling and reduced critical thinking in areas like software development and troubleshooting.

As AI continues to evolve, it is crucial to examine its impact on employment within the IT sector—not only to understand current trends but also to prepare for future workforce needs. This study aims to explore the extent to which AI is reshaping IT employment, analyze the opportunities and threats it presents, and propose strategies to ensure inclusive and sustainable growth in an AI-driven IT industry.

**Review of Literature:**

AI systems are changing how IT operations work by making processes more automatic and efficient, and by offering better ways to predict outcomes (Peterson, 2025). These systems take over repetitive tasks, so IT workers can spend more time on important tasks like planning and solving problems (Gibson, 2025). As AI becomes more common in workflows, professionals need to learn new skills and

understand how these systems work (Kasparov, 2025).

AI helps by doing routine jobs in IT service management, keeping track of how things are going, and making decisions, which means people don't have to do as much work (Poba-Nzaou et al., 2021).

While this boosts productivity, it also changes how traditional jobs are structured, shifting some roles from routine-based tasks (Nurski & Hoffmann, 2022). AI makes many processes more efficient but also brings challenges about how workers adapt and how much control humans should have in automated systems (Andriole, 2024; Ozer et al., 2024; Paradis, 2025).

AI is used as a tool to help workers, making decision-making faster and operations more efficient without replacing people entirely (Ozer et al., 2024).

It improves IT support by handling common issues automatically and offering better service through personalized help (Peterson, 2025). Right now, AI is making routine IT tasks easier by reducing the amount of manual work needed and speeding up service responses.

New AI developments allow systems to do complicated things and make decisions with less human involvement (Mayer et al., 2025).

These improvements make systems more flexible and efficient but raise important questions about how to monitor AI properly and how to build trust in these systems (Mayer et al., 2025).

Multimodal AI, which can handle text, audio, images, and videos, makes automation even more powerful and useful across many industries (Mayer et al., 2025).

This helps with data analysis and system connections, but it also needs careful setup and management to ensure it works well (Mayer et al., 2025).

AI that gives suggestions can help workers make better choices, but AI that directs how tasks are done may limit how flexible workers can be (Nurski & Hoffmann, 2022). To use AI well, companies must find the right balance between how efficient the system is and how much supervision is needed from people.

AI is greatly changing IT jobs, with 92% of roles expected to change, especially mid-level (40%) and entry-level (37%) positions (Zubicoa, 2024).

### **Objectives of The Study:**

1. To analyse the impact of AI on employment trends in the IT industry, including job creation, transformation, and displacement.
2. To identify the roles and skill sets most affected by AI automation within the IT sector.
3. To explore the emerging job opportunities and new career paths created by AI technologies.
4. To examine the advantages and disadvantages of AI implementation from an employment perspective in IT.
5. To study the evolution and advancement of Artificial Intelligence (AI) and its adoption in the IT sector.

### **Research Hypotheses:**

H<sub>01</sub>: Artificial Intelligence has no significant impact on employment opportunities in the IT sector.

H<sub>11</sub>: Artificial Intelligence has a significant impact on employment opportunities in the IT sector.

H<sub>02</sub>: There is no significant difference in perception of AI impact on employment between students and IT professionals.

H<sub>12</sub>: There is a significant difference in perception of AI impact on employment between students and IT professionals.

### **Research Methodology:**

#### **Research Design:**

This study employs a mixed-methods research design, integrating both quantitative and qualitative approaches. The purpose is to gain an understanding of how Artificial Intelligence (AI) is affecting employment patterns, job roles, and skill demands within the Information Technology (IT) sector. While quantitative data provides statistical insight, qualitative data offers depth through personal and organizational experiences.

#### **Sample Size:**

The sample size for this study is 100 participants, chosen to balance the depth and manageability of data collection within the scope of this research. This number is sufficient to provide meaningful insights while maintaining feasibility given the study's resources and timeframe.

#### **Data Collection Methods:**

##### **Primary Data:**

Structured questionnaires will be distributed to 100 IT professionals working in various roles such as software development, data analysis, system administration, and project management. The questionnaire will focus on topics including AI usage, job security, changes in job responsibilities, and up skilling practices.

##### **Secondary Data:**

This is information that has already been collected by others. For this study, secondary data will come from:

- Reports, articles, and studies about AI and jobs in the IT sector.

- Official statistics and data from organizations that track employment trends.

### Significance of The Study:

This study examines the impact of Artificial Intelligence on employment in the IT sector, focusing on changes in job roles, skill requirements, and workforce dynamics. It provides insights into how AI influences employability, helping educational institutions

align curricula with industry needs and supporting professionals in adapting to evolving job demands. The findings also assist organizations and policymakers in formulating effective strategies for AI adoption, workforce planning, and skill development. Overall, the study contributes empirical evidence to existing research on AI-driven employment transformation in the IT sector.

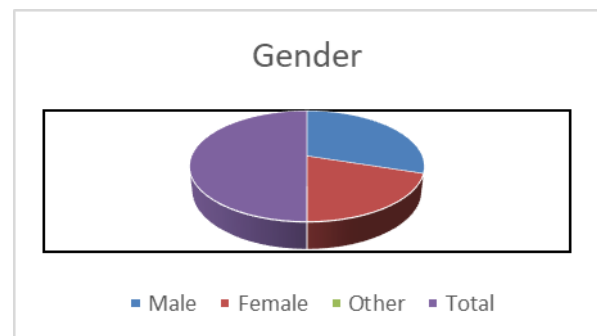
### Demographic Profile:

#### Gender:

**Table 1: Gender of Respondent**

| Gender | Frequency | Percentage (%) |
|--------|-----------|----------------|
| Male   | 60        | 60%            |
| Female | 40        | 40%            |
| Other  | 0         | 0              |
| Total  | 100       | 100%           |

**Graph 1: Gender of Respondent**

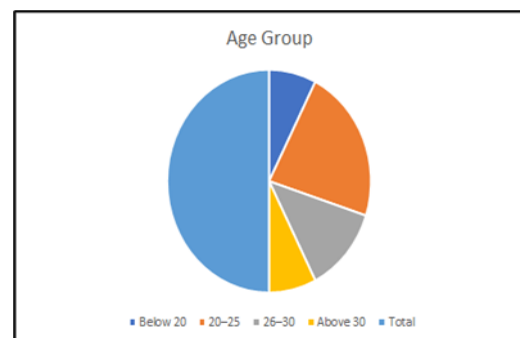


#### Age Group:

**Table 2: Age group of Respondent**

| Age Group | Frequency | Percentage (%) |
|-----------|-----------|----------------|
| Below 20  | 15        | 15             |
| 20–25     | 45        | 45             |
| 26–30     | 25        | 25             |
| Above 30  | 15        | 15             |
| Total     | 100       | 100            |

**Graph 2: Age of Respondent**

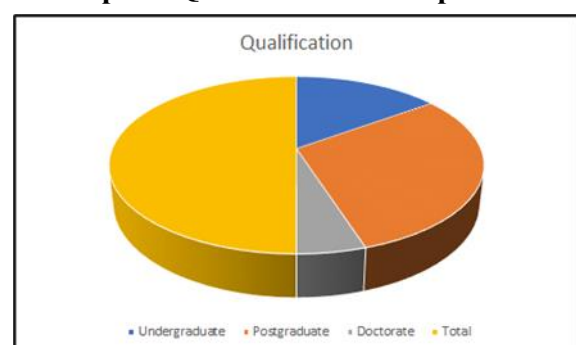


#### Qualification:

**Table 3: Qualification of Respondent**

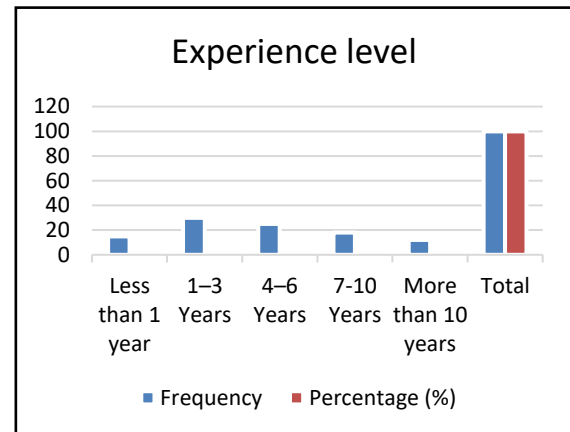
| Qualification | Frequency | Percentage (%) |
|---------------|-----------|----------------|
| Graduate      | 30        | 30.0           |
| Postgraduate  | 60        | 60.0           |
| Doctorate     | 10        | 10.0           |
| Total         | 100       | 100.0          |

**Graph 3: Qualification of Respondent**

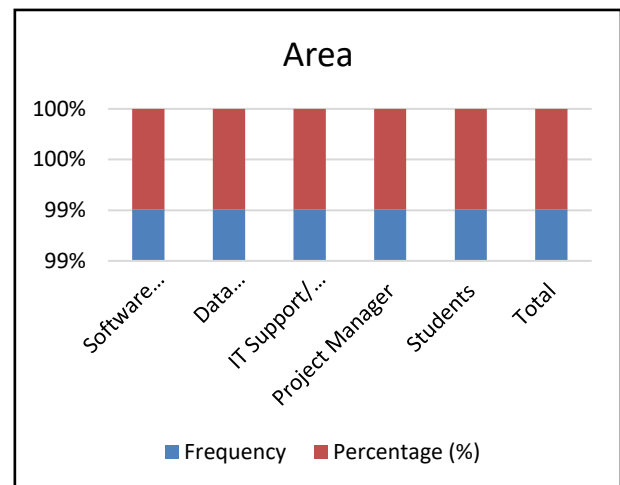


**Experience Level:****Table 4: Experience of Respondent**

| Experience Level   | Frequency  | Percentage (%) |
|--------------------|------------|----------------|
| Less than 1 year   | 15         | 15%            |
| 1–3 Years          | 30         | 30%            |
| 4–6 Years          | 25         | 25%            |
| 7-10 Years         | 18         | 18%            |
| More than 10 years | 12         | 12%            |
| <b>Total</b>       | <b>100</b> | <b>100</b>     |

**Graph 4: Experience of Respondent****Job Role:****Table 5: Job Role of Respondent**

| Area                       | Frequency  | Percentage (%) |
|----------------------------|------------|----------------|
| Software Developer         | 28         | 28%            |
| Data Scientist/AI Engineer | 22         | 22%            |
| IT Support/System Amin     | 18         | 18%            |
| Project Manager            | 12         | 12%            |
| Students                   | 20         | 20%            |
| <b>Total</b>               | <b>100</b> | <b>100%</b>    |

**Graph 5: Job Role of Respondent****Data Analysis and Interpretation:****Awareness of AI:**

The dependent variable awareness of AI has been explained by 4 items. Mean and standard

deviation for each item has been listed in table 7.1. This table explains the response of sample respondents with respect to each item, which indicate the acceptance of awareness of AI.

**Table 6: Descriptive statistics for variable awareness of AI**

| Items                                                       | N   | Mean | Standard Deviation |
|-------------------------------------------------------------|-----|------|--------------------|
| I am aware of AI technologies used in the IT sector.        | 100 | 4.25 | 0.68               |
| AI is widely adopted in my organization/field of study.     | 100 | 4.32 | 0.59               |
| AI tools have become essential for IT-related tasks.        | 100 | 3.97 | 0.99               |
| My organization/institution encourages the use of AI tools. | 100 | 4.12 | 0.50               |
| Overall                                                     |     | 4.16 | 0.69               |

**Interpretation:**

Table 6 shows the descriptive statistics for the variable *Awareness of Artificial Intelligence (AI)* based on responses from **100 participants**. All items have mean values close to or above 4, indicating a **high level of awareness and agreement** regarding AI usage in the IT sector.

The highest mean score (**Mean = 4.32, SD = 0.59**) is observed for the statement “*AI is widely adopted in my organization/field of study,*” suggesting that most respondents perceive AI as being commonly implemented. Similarly, respondents reported strong awareness of AI technologies used in the IT sector (**Mean = 4.25, SD = 0.68**).

The statement “*My organization/institution encourages the use of AI*

*tools*” also shows a high mean (**Mean = 4.12, SD = 0.50**), reflecting institutional support for AI adoption. The item “*AI tools have become essential for IT-related tasks*” has a slightly lower mean (**Mean = 3.97**) with a higher standard deviation (**SD = 0.99**), indicating moderate agreement and varied opinions among respondents.

**Employment Impact of AI:**

The dependent variable Employment Impact of AI has been explained by 5 items. Mean and standard deviation for each item has been listed in table 7. This table explains the response of sample respondents with respect to each item, which indicate the Impact of AI on employment.

**Table 7:** Descriptive statistics for variable employment impact of AI

| Items                                                            | N   | Mean | Standard Deviation |
|------------------------------------------------------------------|-----|------|--------------------|
| AI has created new job roles in the IT sector.                   | 100 | 4.10 | 0.82               |
| AI has reduced the demand for certain traditional IT jobs.       | 100 | 3.80 | 0.90               |
| AI increases productivity and efficiency in IT jobs.             | 100 | 4.25 | 0.75               |
| AI leads to job displacement in the IT sector.                   | 100 | 3.60 | 1.05               |
| AI has increased the demand for highly skilled IT professionals. | 100 | 4.30 | 0.70               |
| Overall Mean                                                     |     | 4.01 | 0.84               |

**Interpretation:**

The overall mean score of 4.01 indicates that respondents perceive AI as having a strong impact on employment opportunities in the IT sector.

**Sample t-Test Result Table**

| Group            | Mean | Std. Dev | t-value | p-value |
|------------------|------|----------|---------|---------|
| Students         | 3.85 | 0.92     |         |         |
| IT Professionals | 4.10 | 0.80     | 2.45    | 0.016   |

Decision Rule: If  $p < 0.05$ , reject  $H_0$

**Independent Samples t-Test**

To test whether there is a significant difference between two groups, such as:

Students vs IT Professionals

**Interpretation:**

Since  $p = 0.016 < 0.05$ , there is a significant difference in perception of AI's impact

**Conclusion:**

The study reveals a high level of awareness and positive perception of Artificial Intelligence (AI) among the respondents. Descriptive analysis indicates that participants are well aware of AI technologies, recognize their widespread adoption in the IT sector, and acknowledge institutional encouragement for using AI tools. Although most respondents agree that AI tools are essential for IT-related tasks, some variation in opinions exists, suggesting differences in individual exposure and experience.

Further, the hypothesis testing results show a statistically significant difference in the perception of AI impact between students and IT professionals. IT professionals demonstrate a more positive perception compared to students, which may be attributed to their practical experience and direct involvement with AI technologies in real-world work environments.

Overall, the findings suggest that while awareness of AI is strong across groups, professional experience plays a crucial role in shaping perceptions of AI impact. This highlights the need for enhanced practical exposure, hands-on training, and industry-oriented learning for students to bridge the perception gap and better prepare them for AI-driven workplaces.

on employment between students and IT professionals.

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