

The Impact of AI Automation on Employee Productivity: A Case Study of the IT Sector Using the Technology Acceptance Model (TAM)

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Abstract

Currently, technology has become a part and parcel of the IT sector, which dictates the capabilities of the organisations in competitions in the market and the effect of Artificial Intelligence (AI) automation on employees' productivity. Employees need to become technologically strong so that they can work without any fear of losing their jobs. Though AI automation reduces the work burden by doing repetitive work, it also creates a job threat and insecurity. Through the Technology Acceptance Model (TAM), it was determined that employees will accept the Artificial Intelligence (AI) automation in their work, or it will create insecurity among them. This study talks about the interconnections between the impact of AI automation and productivity.

Keywords: IT Sector, Artificial Intelligence, Employees, Automation, Impact, TAM

1. Introduction

Numerous companies within the information technology (IT) sector are achieving greater stability due to the swiftly growing impact of artificial intelligence (AI). AI automation has become a component, in enhancing employee performance by boosting worker productivity, efficiency and decision-making capabilities. To allow their staff to focus on strategic and high-value tasks rather than being burdened by mundane daily duties organizations have started implementing AI-powered solutions to manage routine operations. The security of the workplace and the welfare of workers in an AI-focused workplace are the main issues raised by this technological change, nevertheless.

A theoretical foundation for the use of AI in the automation of the IT sector is the technology acceptance model. According to the Technology Acceptance Model (TAM), users' perceptions of a technology's utility and usability play a major role in its acceptance and usage (Davis, 1989). This makes this approach particularly relevant when taking into account how IT workers view AI automation as an extension of their daily tasks, which has an impact on their job happiness and productivity.

AI automation has demonstrated growing advantages for companies leading to productivity, better decision-making abilities and reduced operational expenses. According to a study by McKinsey (2021) implementing AI has boosted productivity in the IT industry by 40%. The report states that AI has substantially supported task management allowing time, for alternative activities. This shift permits employees to focus on stimulating creative and problem-solving assignments. As a result, a number of industries have seen notable breakthroughs, such as software development using predictive analytics, customer support using AI chatbots, and IT infrastructure management using machine learning algorithms. Though there are benefits to using AI automation, it comes with drawbacks. Employees will be in secure about their jobs, as AI automation may replace their work with machines. Automation may replace employees for many jobs, but it will pose a threat to workers (Frey, 2017). Companies are concentrating on reskilling and upskilling their employees, and they are facing problems while doing this. By doing this, employees will have the skills to use AI, and organizations will make sure that it supports their employees' capabilities rather than substituting them (The Future jobs Report 2020, October, 2020)

Furthermore, AI automation allows employees to learn new jobs that focus on creativity and problem-solving techniques. While AI automation will replace some jobs, it will also create new ones. Organizations that focus on employee development while adopting AI automation will also remain in the competition in the world of dynamic IT.

Based on the Technology Acceptance Model (TAM), this research aims to examine the impact of AI automation on employee productivity in the IT sector. Through this study, one can understand the challenges and opportunities faced by organisations and employees. Thus, the study gives insights into how organisations can use AI-driven transformation to improve employee efficiency without job displacement.

2. Related Research Work

Table 1: Literature Review

Sl. No.	Field of Research	Focus	Outcome/ observation	References
1	AI and Employee Productivity	Impact of AI on workplace efficiency	AI enhances productivity by automating repetitive tasks	(McKinsey, 2021)
2	AI-driven Decision Making	Role of AI in strategic business decisions	AI aids in data-driven decision-making	(Ronanki, 2018)
3	AI in the IT Sector	Influence on the IT workforce	AI transforms job roles and responsibilities	(Carl Benedikt Frey, 2017)
4	Technology Acceptance Model (TAM)	Understanding AI adoption	Perceived usefulness influences AI adoption	(Davis, 1989)
5	AI and Job Security	Employee concerns about automation	Need for reskilling programs	(The Future jobs Report 2020, October,2020)
6	AI-driven Automation	Changes in workflow dynamics	AI optimizes operations and reduces costs	(Bessen, 2019)
7	AI in Software Development	AI in coding and debugging	AI improves software development efficiency	(Amy Finkelstein, 2020)
8	AI and Cybersecurity	Role of AI in security threat detection	AI enhances security monitoring	(Sarker, 2019)
9	Customer Service & AI	AI chatbots and customer engagement	Improved customer satisfaction	(Rust, 2018)
10	AI-driven HR Practices	AI in recruitment and performance evaluation	AI improves hiring efficiency	(Prasanna Tambe, 2019)
11	AI and Business Analytics	AI in data interpretation	AI-driven insights improve strategic planning	(Erik Brynjolfsson, 2019)
12	AI in Cloud Computing	AI-enhanced cloud services	Improved cloud performance and scalability	(Mavroudi, 2020)
13	Ethics&AI	Ethical concerns of AI in the IT sector	Need for ethical AI deployment	(Mittelstadt, 2016)
14	Workplace Collaboration and AI	AI-enhanced teamwork	AI supports collaboration and innovation	(Jones, 2019)
15	AI-driven Automation Policy	Government regulations on AI use	Need for policy frameworks	(Act, 2021)

16	Adoption of AI in SMEs	Technological and organisational Orientation	Internal dynamics and specific organizational factors directly impact AI adoption.	(Almashawreh, 2024)
17	AI in Manufacturing	Adoption behavior using the TAM-TOE model	Leadership support and organizational readiness significantly influence AI adoption.	(Walton, 2021)
18	AI in Education	AI adoption: Theoretical Structure	Through the TAM, UTAUT, and TBP models, technology adoption in educational contexts is sufficiently described.	(Nasari, 2024)
19	AI in E-commerce	Technology acceptance behaviour	Trust and perceived ease of use greatly influence AI adoption in e-commerce.	(Wang, 2023)
20	AI in Media	Effect on TAM in media	The incorporation of AI into media affects user acceptance concerning its usefulness through an effect.	(Tavakoli, 2023)
21	AI Adoption Behavior	Add UTAUT to a collectivistic culture	Cultural factors in AI, this sub-component forms especially agent relationships.	(Bokhari, 2023)
22	AI Technology Adoption	Role of expectations and experiences	User experiences and expectations significantly influence AI acceptance intentions.	(Yi, 2023)
23	AI in Software Engineering	Perceived roles and impact on adoption	Diverse conceptualizations of AI enhance its adoption in software engineering.	(Zhou, 2019)
24	Trust in AI	Perception of acceptance of AI technologies	The intention to use AI is significantly swayed by trust as a mediator between perceived usefulness	(Ghodrati, 2012)
25	Determinants of AI adoption	Themes of study and future research	Discusses the main drivers for AI adopters spanning multiple industries	(Khanfar, 2024)
26	AI Developer Productivity	DevOps experience of AI in action: GitHub Copilot	AI peers can significantly boost developer productivity compared to off-the-shelf pair programmers.	(Ziegler, 2024)

27	AI and Organizational Behavior	Impact on employee attitudes	AI implementation affects employee attitudes, necessitating change management strategies.	(Wang, 2023)
28	FinTech: AI Boom in Financial Services	Productivity surge in AI-intensive sectors	AI adoption can entail a decrease in productivity at scale, but there are long-term advantages such as sales growth	(PWC Global Annual Review)
29	AI in Manufacturing	Long-term impact on company performance	Initial adoption of AI may reduce productivity; long term benefits may include sales growth	(Reuters, 2025)
30	AI and Workforce Dynamics	Impact on job markets and inequality	AI automation could increase inequality without supportive policies.	(Ghost woodlands': Rewilding sheep fells in Yorkshire, UK, 2025)

3. Objectives of the Study

- To evaluate the impact of AI automation on employee productivity
- To understand employee perception and acceptance using TAM
- To know the impact of reskilling and upskilling programs by integrating AI
- To explore the psychological and job security concerns.

4. Research Design

Several studies focus on employee productivity and employee efficiency by implementing AI automation, but very few studies focus on employee psychology.

4.1 Research Agenda

This study intends to examine the impact of using AI in the IT sector on employee productivity and efficiency. Using the Technology Acceptance Model (TAM), this study is analysed. This study investigates the reskilling, upskilling, and reshaping of jobs for job sustainability and job satisfaction.

4.2 Methodology of Data Collection:

This study is based on secondary data. This information is analysed and collected from various journals, newspapers, magazines, research works, and books. In addition, the Technology Acceptance Model (TAM) is used to determine employee perception.

IBM

IBM is the first company to adopt Artificial Intelligence (AI) using AI-powered solutions like IBM Watson to digitise services, boost cybersecurity, and refresh actions. Such has yielded an increase in employee productivity by as much as 30% for customer service and IT infrastructure management. It also released AI analyses for software development, resulting in a 40% decrease in repair time.

INFOSYS

Infosys Nia platform– Infosys focuses on AI-driven activities in its repetitive work to help the industry evolve to be more productive by providing advanced predictive analytics, automating tedious procedures, and streamlining IT operations. According to the corporation, AI-powered automation has improved operational efficiency by 25%, allowing staff to focus on innovative work. Infosys has also invested significantly in AI-driven upskilling efforts to ensure workers adopt new AI technologies instead of being displaced.

TATA CONSULTANCY SERVICES (TCS)

Using its AI-driven cognitive automation platform, ignio™, TCS has made strides in AI, enhancing process automation, minimizing downtimes, and boosting IT system reliability. TCS even claims that integrating AI helped reduce operational costs by 35% while improving workforce productivity. Their focus lies on reskilling employees so that they are in sync with AI-driven transformations, and none are on the verge of losing a job yet.

5. Summary of Artificial Intelligence (AI) History

Artificial intelligence (AI) has its roots in myths, legends, and rumors from antiquity that describe intelligent or conscious artificial beings made by skilled artisans. The search for logic and formal reasoning throughout history led to the creation of the programmable digital computer in the 1940s, a machine built on abstract mathematical concepts. Because of this revolutionary discovery and the ideas, it sparked, scientists started thinking about creating an electronic brain.

With complex models like GPT-4, ChatGPT, and DALL-E that improve automation, picture creation, and language comprehension, artificial intelligence has evolved in recent years. AI is already widely used in a variety of fields, including cyber security, healthcare, finance, and smart technology. While it is transforming sectors, ethics, job displacement, and data privacy are becoming major problems. As AI develops further, ethical issues and responsible development will be crucial in determining how technology will affect society in the future.

6. Summary of Artificial Intelligence in the IT Sector

AI plays an important role in the IT sector. As it minimizes repetitive work and helps employees to work to save time and utilizes the same into the other major jobs. AI technologies are used in such a way that they help increase the productivity of employees.

As we know, currently, AI is at its peak, still there are still some threats do to which people are not ready to accept. It creates job loss and job insecurity, which keeps people on their toes to maintain their positions in the organizations. Due to that, companies go for reskilling and upskilling for their employees.

These advancements face many problems, such as transparency, privacy of data, and algorithm unfairness. Companies need to have strong cyber security and policies to protect fairness and security. In general, AI helps organizations shape the abilities of employees and companies and reduce costs. A company's development depends upon effective productivity, efficiency, and continuous innovation.

7. Technology Acceptance Model (TAM) and Artificial Intelligence (AI) Automation in the IT sector

7.1 Understanding the Technology Acceptance Model (TAM)

It was introduced in 1989 by Davis and was used to understand how users accept and use new technology. The two aspects of TAM:

Perceived Usefulness (PU): The users' belief that using AI automation will enhance their performance.

Perceived Ease of Use (PEOU): The ease of learning and using AI.

These aspects influence Attitude Toward Use (ATU) and Behavioural Intention to Use (BIU), which will show whether the employees will adopt AI automation in their work.

7.2 Application of TAM in the context of AI Automation:

Two critical TAM influences on the adoption of AI automation in the IT sector constructs:

Perceived Usefulness (PU): Workforces in the IT sector feel that AI automation improves productivity by automating routine tasks and enabling them to perform higher tasks (McKinsey, 2021) (Bessen, 2019).

Perceived Ease of Use (PEOU): The training before AI automation makes it easier for employees to become more confident in using the AI tools. Therefore, Organizations invest more in training programs (The Future jobs Report 2020, October,2020) (Frey, 2017).

Attitude Toward Use (ATU): the attitude of an employee changes depending on the usefulness and ease of the technology, which will develop the positive impact in adoption of the technology (Davis, 1989).

Behavioral intention to Use (BIU): A positive attitude results in a stronger intention to continue using AI-driven systems in daily operations. Evidence from IBM, Infosys, and TCS shows that proper reskilling initiatives have strengthened employee confidence and increased AI adoption rates in the workplace (Tambe, Artificial intelligence in human resources management: Challenges and a path forward., 2019)

8. Data Analysis and Interpretations

Table 2: Data Analysis and Interpretation

Aspects	Insights	Source	TAM Component
Improvement in Productivity	The inclusion of AI helps in increasing efficiency and software development up to 60% and IT consulting by 47%	(Staff, 2025)	PU
AI in Daily IT Operations	Coders using AI tools (e.g., Copilot) see 30–40% efficiency improvements.	(Amazon CEO Andy Jassy has a warning about how fast people are embracing AI, 2025)	PU
Upskilling Needs	16.2 million Indian workers must be reskilled by 2027 to keep up with AI adoption.	(Times T. E., 2023)	Perceived Ease of Use (PEOU)
Workforce Willingness to Upskill	85% of Indian professionals plan to upskill in AI, data science, and ML in FY25.	(Line, 2024)	PEOU
Job Security Perception	Employees have lost confidence in job security, dropping from 71% to 62%, while only 29% of entry-level employees feel secure.	(Times E. , 2024)	Attitude Toward Use (ATU)
Corporate Support and Training	Firms are not effectively communicating the benefits of AI, resulting in uncertainty and fear.	(Times F. , 2025)	PEOU, BIU
Future AI Integration Trends	70% of IT organizations are projected to integrate AI into their core workflows by the year 2026.	(Gartner, 2023)	BIU (Behavioral Intention to Use)
Reskilling and Role Redesign	AI helps employees concentrate on repetitive tasks to creative/problem-solving tasks.	(Forum, 2023) (HRKatha) (India, 2024)	PU, ATU

9. Conclusion

This study discovers that AI automation supports employees' productivity in the IT sector significantly by doing repetitive jobs and enabling workers to focus more on strategic and creative work. When employees feel that using AI automation makes their work simple and easy, they accept the Technology Acceptance Model (TAM). However, it is not simple to move toward an AI society. Insecurity at work, lack of skills, and resistance persist. The study identifies that the danger may be avoided through well-crafted reskilling and upskilling, good internal communications, and inclusive deployment. Companies like IBM, Infosys, and TCS have shown that when AI is focused on the people, then it will lead towards creativity, idea generation and better results, and happier employees. AI is not meant for human replacement, but rather for support and improving working conditions.

10. Recommendations

To gain maximum advantage from AI automation, IT companies need to ensure that a constant process of reskilling and upskilling for the different IT job functions is a top priority. These initiatives should stay abreast of the latest advances in AI technology so that employees can adapt accordingly. Adoption of AI is subject to communication; in a bid to alleviate concerns among employees and gain their confidence, companies must be transparent about the goals and benefits of incorporating AI.

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