

A Study on Analyzing the Influence of AI and Automation on Employee Performance

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ABSTARCT

The rapid advancement of Artificial Intelligence (AI) and automation technologies has transformed organizational processes, redefining how employees work and perform. This study, “Analyzing the Influence of AI and Automation on Employee Performance,” examines the extent to which AI-driven tools and automated systems impact productivity, job efficiency, decision-making, employee engagement, and overall performance within modern organizations. The research also explores how employees perceive AI adoption, the challenges they face during technological transitions, and the skills required to adapt to an AI-enabled work environment.

A mixed-method research design was adopted, combining quantitative data collected through structured questionnaires with qualitative insights obtained from employee interviews. The findings reveal that AI and automation significantly improve operational accuracy, reduce repetitive tasks, and enhance employees’ strategic focus. However, the study also highlights concerns related to job insecurity, skill gaps, resistance to change, and the need for continuous training and organizational support.

The study concludes that AI and automation positively influence employee performance when implemented with adequate change management, skill development initiatives, and clear communication. Organizations must balance technological adoption with human-centric strategies to ensure improved performance, employee satisfaction, and sustainable growth. Recommendations include investment in reskilling programs, fostering a collaborative human–AI work environment, and developing policies that support ethical and transparent use of AI.

1. INTRODUCTION

Automation and artificial intelligence (AI) are upending workplaces in a number of sectors, including manufacturing, healthcare, finance, and automotive services. These technologies are designed to reduce human error, increase operational efficiency, and accomplish repetitive tasks with remarkable speed and accuracy. However, they are also

having a major effect on employee performance as they proliferate in businesses. On the one hand, automation and artificial intelligence (AI) can significantly increase productivity by optimizing processes, supporting difficult decision-making, and allowing employees to focus on more important work.

OBJECTIVES OF THE STUDY

PRIMARY OBJECTIVE:

A STUDY ON ANALYZING THE INFLUENCE OF AI AND AUTOMATION ON EMPLOYEE PERFORMANCE. AT MAHINDRA AUTOMOTIVE SERVICE CENTER PRIVATE LIMITED, GUINDY CHENNAI.

SECONDARY OBJECTIVE:

1. To evaluate the impact of AI on employee productivity..
2. To identify training gaps due to automation
3. To assess how AI reduces or increases workload
4. To evaluate the impact of AI-driven tools on employee productivity.
5. To assess the overall influence of AI and automation on organizational

REVIEW OF LITERATURE

1.Improving Organizational Productivity with Building Automation Systems – (2017).

This report is the primary deliverable for a CABA boutique multi-client research project. Numerous conversations between NRC and CABA, its members, and other participants in the commercial build-ings value chain, indicated that quantifying and valuing the benefits of “better buildings” beyond energy would support industry growth and success in competitive real-estate environments.

2.Artificial Intelligence, Automation and Work – Daron Acemoglu & Pascal Restrepo (2018).

We summarize a framework for the study of the implications of automation and AI on the demand for labor, wages, and employment. Our task-based framework emphasizes the displacement effect that automation creates as machines and AI replace labor in tasks that it used to perform. This displacement effect tends to reduce the demand for labor and wage.

3.AI, automation, and the future of work: Ten things to solve for – McKinsey & Company (2018).

Automation and artificial intelligence (AI) are transforming business and society: new capabilities in robotics, machine learning, sensors, and data are pushing the frontier of what machines can do.

4.A multidisciplinary task-based perspective for evaluating the impact of AI autonomy and generality on the future of work – Fernández-Macías et al. (2018).

This paper presents a multidisciplinary task approach for assessing the impact of artificial intelligence on the future of work. We provide definitions of a task from two main perspectives: socio-economic and computational. We propose to explore ways in which we can integrate or map these perspectives, and link them with the skills or capabilities required by them, for humans and AI systems.

5.Automation and occupational mobility: A data-driven network model – del Rio-Chanona et al. (2019).

The potential impact of automation on the labour market is a topic that has generated significant interest and concern amongst scholars, policymakers, and the broader public. A number of studies have estimated occupation- specific risk profiles by examining the automatability of associated skills and tasks

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RESEARCH DESIGN:

Generally the research design is of three types, exploratory, descriptive & casual research design is defined as the specification of methods and procedures for acquiring the information needed. It is a plan of organization frame work, for doing the collection of data. "The research design for this research is descriptive in nature.

DESCRIPTIVE STUDY:

Descriptive research studies are those student which are concerned with describing the characteristics of a particular individual, or a group. In this research, the researchers must be able to define clearly, what he wants to measure and must find adequate methods for measuring it along with a clear cut definition of population he wants to study. The design in such studies must be rigid and flexible and must focus attention on the following.

DATA SOURCES:

The data is mainly collected through primary sources and secondary sources.

Primary data:

It contains original information gathered for a specific purpose. The first hand information has been collected through administering the questionnaire by direct contact method and through informal meetings and observations.

Secondary data:

It contains information that already exists have been collected for another purpose, the second hand information has been collected through company previous records, annual reports, journals industrial

magazines, brochures, internet.

RESEARCH APPROACH:

Survey method is used in he collection of needed information from the respondents.

RESEARCH INSTRUMENT:

As the research A structured questionnaire consisting of 20 questions has been taken instrument.

SAMPLING PLAN:

As it is practical to attempt a survey of the entire population, a limited number of people have been surveyed owing to the time constraint.

SAMPLING DESIGN:

It deals with the method of selecting items to be observed for the given data.

SAMPLING UNIT:

Employees in the Unit.

SAMPLE SIZE:

Convenience sampling has been used to the data from respondents.

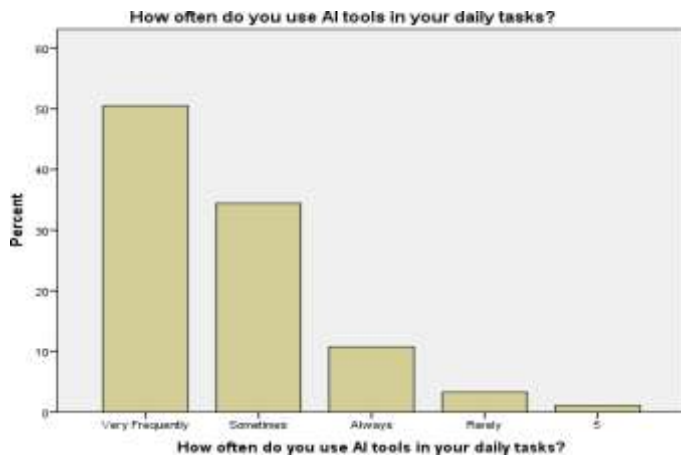
A convenience sampling IS obtained by selecting "convenient population unit".

DATA ANAYSIS AND INTERPRETATIONS

HOW OFTEN DO YOU USE AI TOOLS

UN YOUR DAILY TASKS

DAILY TASKS	NO OF RESPONDS	PERCENTAG E
Very Frequently	47	50.5
Sometimes	32	34.4
Always	10	10.8
Rarely	3	3.2
5	1	1.1
Total	93	100.0



Inference

Half the employees (50.5%) use AI tools very frequently; 34.4% use them sometimes. AI tools have become part of routine work for a majority, indicating high AI penetration and dependence in daily operations.

CHI SQUARE

Null Hypothesis (H_0):

There is **no significant association** between receiving formal training to use AI/automation tools and how the organization measures the impact of automation.

Alternative Hypothesis (H_1):

There is a **significant association** between receiving formal training to use AI/automation tools and how the organization measures the impact of automation

Have you received formal training to use AI/automation tools? * How does your organization measure the impact of automation? Crosstabulation

Count		How does your organization measure the impact of automation?					Total
		Increased output	Cost reduction	Quality improvement	Employee productivity	Not measured	
Have you received formal training to use AI/automation tools?	Yes/comprehensive	32	0	0	0	0	32
	Yes/basic	4	23	3	0	0	30
	Selflearned	0	0	15	0	0	15
	No	0	0	2	7	4	13
	5	0	0	0	0	3	3
Total		36	23	20	7	7	93

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	241.206	16	.000
Likelihood Ratio	198.763	16	.000
Linear-by-Linear Association	83.726	1	.000
N of Valid Cases	93		

a. 17 cells (68.0%) have expected count less than 5. The minimum expected count is .23.

RESULT:

The Chi-Square test shows a **significant association** between AI/automation training and how organizations measure automation impact, indicating that perceptions differ across training levels and the **null hypothesis is rejected**.

ANNOVA

Null Hypothesis (H_0):

There is **no significant relationship** between automation improving customer satisfaction and the frequency of using AI tools in daily tasks.

Alternative Hypothesis (H_1):

There is a **significant relationship** between automation improving customer satisfaction and the frequency of using AI tools in daily tasks.

ANOVA					
Has automation improved customer satisfaction?					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	76.575	4	19.144	128.367	.000
Within Groups	13.124	88	.149		
Total	89.699	92			

Test of Homogeneity of Variances			
Has automation improved customer satisfaction?			
Levene Statistic	df1	df2	Sig.
549.4	3	88	.001

Descriptives							
Has automation improved customer satisfaction?							
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum
					Lower Bound	Upper Bound	
Very Frequently	47	1.17	.380	.055	1.06	1.28	1
Sometimes	32	2.16	.369	.065	2.02	2.29	2
Always	10	3.20	.422	.133	2.90	3.50	3
Rarely	3	4.67	.577	.333	3.23	6.10	4
5	1	5.00					5
Total	93	1.88	.987	.102	1.68	2.09	1

RESULT

The ANOVA result shows a **significant difference** in customer satisfaction levels, with an F-value of **128.367** and a p-value of **0.000**, indicating that automation has **significantly influenced** customer satisfaction across the groups.

FINDINGS:

- Most respondents rate AI accuracy as excellent or good (54.8% + 33.3%), reflecting high user satisfaction with AI performance.
- A major group started using AI as early as 2010 (50.5%), showing that the organization has long-term exposure to AI and automation tools.
- Most employees received either comprehensive or basic training (34.4% + 32.3%), indicating organizations make efforts to provide learning support for AI adoption.
- Most rated training support as excellent/average (38.7% + 31.2%), indicating moderate to high satisfaction but still a need to improve training quality.
- AI is mainly used for routine and analytical tasks (39.8% + 33.3%), proving AI is reducing repetitive work.
- Majority report more than 50% of manual work replaced (45.2% + 29%), showing significant productivity enhancement with AI.

CONCLUSION:

The study on “Analyzing the Influence of AI and Automation on Employee Performance” reveals that

artificial intelligence and automation technologies have significantly transformed modern workplaces by reshaping job roles, productivity levels, and employee efficiency. The research findings indicate that while AI and automation contribute to higher accuracy, faster task completion, and improved decision-making, they also create challenges related to job security, skill adaptation, and employee morale.

Overall, the integration of AI tools has enhanced employee performance by reducing repetitive tasks and enabling workers to focus on creative and strategic aspects of their jobs. However, the extent of improvement largely depends on organizational support, proper training, and employee readiness to embrace technological change.

article). Examines AI as an enabler of productivity and knowledge work.

WEBSITES :

<https://www.mckinsey.com>

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