

ARTIFICIAL INTELLIGENCE IN COMMERCE: TRANSFORMING BUSINESS IN THE DIGITAL ERA

** Feba Maity & ** Aryan Pawar*

Sahyog College of Arts, Commerce and Science, Thane (W)

Abstract:

Artificial Intelligence [AI] is playing an important role in changing the field of commerce in the digital era. It helps businesses work more efficiently, accurately, and competitively. Today, many organizations use AI technologies to improve customer service, manage supply chains, make better decisions, and automate daily tasks. This paper explores the growing role of Artificial Intelligence in modern commerce and examines how it is revolutionizing various aspects of business activities.

AI tools such as machine learning, natural language processing, predictive analysis and automation help companies analyze large amount of data and gain useful information quickly. These tools support personalized marketing demand predictions, fraud prevention, and inventory control. As a result, businesses can reduce cost and increase profit. AI-based chatbots and virtual assistance also help in providing quick and correct responses to customers satisfactions and trust.

The study also highlights some challenges associated with AI implementations, such as data privacy issues, high costs, shortage of skilled workers, and ethical problems. However, with proper planning and rules, the advantage of AI are greater than its limitations.

This research emphasizes that the successful integration of AI into commercial practices requires a balanced approach that combine technologies innovation with human expertise. By embracing Artificial intelligence, businesses can achieve sustainable growth, enhance competitiveness, and adapt efficiently to the rapidly changing digital environment. The paper concludes that AI is not merely a technological trends but a strategic necessity for organizations seeking long-term success in the global market.

Keywords: Artificial intelligence, Commerce, Digital Business, Machines Learning, Automation, Customers Services, Data Analysis, Business Growth, Predictive Analysis, E-Commerce, Decision Making, Business Innovations.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

Introduction:

The Father of Artificial intelligence is widely considered to be **John McCarthy**. Artificial Intelligence (AI) refers to the ability of machines and computer systems to perform tasks that normally require human intelligence, such as learning, reasoning, problem-solving, and decision-making.

[NLP] Natural language processing: To communicate successfully in a human language.

AI has become an important tool in the field of commerce, transforming the way businesses operate and interact with customers. Most businesses now use computers, mobile phones, and the internet for selling products, keeping records, and communicating with

customers. This creates a huge amount of data every day. AI helps to study this data and turn it into useful information. It helps business owners understand what customers want, which products are popular, and how they can improve their services

In the field of commerce, AI is used in many areas such as customer support, online shopping, banking, marketing, and delivery services. Tools like chatbots, smart payment systems, and automatic recommendations make work easier and faster. They also reduce human effort and mistakes.

As AI becomes foundational information, the focus has shifted towards the responsible AI ensuring safety, data

privacy, and governance keep pace with technological speed.

Artificial Intelligence is very important in modern commerce. It saves time, reduces mistakes, improves customer satisfaction, and helps businesses grow in a smart way. In the digital era, AI has become a strong support system for business success.

AI helps in decision network helps a person or a business choose the best option when there is uncertainty it combines three important things :

- **Information [what we know]**
- **Choices [what we can decide]**
- **Results [what we will gain or lose]**

It uses the ideas of probability chance of event happening and utility how useful or beneficial an outcome is to guide a decisions.

Review of Literature:

Shreya Deshmukh (2024)¹, “Applications of Artificial Intelligence in Company Management and E-Commerce: A Review” explores AI’s influence not only on customer-facing functions but also on internal business management (e.g., predictive analytics, supply chain), showing that AI adoption enhances competitive capabilities across organizational processes.

Mubashir Alam, Kishore Bhattacharjee & Ajit Kumar (2025)², “The Role of Artificial Intelligence in E-Commerce: Emerging Trends and Challenges” review synthesizes over 100 scholarly articles and industry reports (2015–2024), categorizing AI applications in e-commerce such as recommendation

engines, dynamic pricing, customer service automation, and fraud detection. It also discusses constraints like data quality and infrastructure costs. AI applications enabling operational efficiency and innovation. Emerging challenges related to implementation and scalability.

Anush Deshpande (2022), The Impact of Artificial Intelligence on E-Commerce — Indian author analysing AI’s role in transforming e-commerce business processes. Anush Deshpande highlights that artificial intelligence has transformed Indian e-commerce by improving personalization, customer service, and operational efficiency. The study emphasizes the role of AI in marketing, decision-making, and fraud detection. However, it also points out challenges such as high costs, skill gaps, and privacy issues.

Objectives of the Study:

- To understand the concept of Artificial Intelligence and its relevance in the field of commerce.
- To examine the role of Artificial Intelligence in transforming modern business practices in the digital era.
- To evaluate the benefits of Artificial intelligence for business.
- To identify the challenges faced by organizations while adopting artificial intelligence in commercial activities.
- To assess the influence of Artificial Intelligence on employment patterns and skill requirements in the commercial sector.

¹ **Shreya Deshmukh (2024)**, AI’s influence not only on customer-facing functions, Internal business management, International Journal of Trend in Research and Development.

² **Mubashir Alam, Kishore Bhattacharjee & Ajit Kumar (2025)²**, “The Role of Artificial Intelligence in E-Commerce: Emerging Trends and Challenges, Journal For Research in Applied Science and Engineering Technology

³ **Anush Deshpande(2022)**, The Impact of Artificial Intelligence on E-Commerce — Indian author analysing AI’s role in transforming e-commerce business processes, International journal for legal research and analysis .

Scope of the Study:

The scope of the study is confined to examining the role and impact of Artificial Intelligence in commerce during the digital era. It focuses on how Artificial Intelligence is applied by businesses to enhance efficiency, improve customer experiences, and support strategic planning.

Significance of Study:

This study highlights the growing importance of Artificial Intelligence in the field of commerce in the digital era.

Overall, this research contributes to academic knowledge and helps businesses understand the practical implications of Artificial Intelligence in commerce.

Research methodology:

Research methodology refers to the systematic approach adopted to collect, analyze, and interpret data in order to achieve the objectives of the study.

• Sources of Data

The study is based on primary and secondary data. The secondary data have been collected from reliable and authentic sources such as Academic journals and research paper Books related to Artificial Intelligence and commerce Reputable websites, business magazines, and online databases. The primary data (Google form survey, questionnaire)

• Sample size

The sample size for the research is 78 respondent.

• Sampling Technique

The sampling technique adopted for this study was the survey method. (Questionnaire).

• Area of research

The area of research for the present study is the urban region of Thane.

• Hypothesis of the study

Hypothesis 1

H0:AI familiarity doesn't vary significantly across age groups in commerce.

H1:AI familiarity varies significantly across age groups in commerce.

Hypothesis 0032

H0:AI adoption is same among business professionals than students.

H1:AI adoption is higher among business professionals than students.

• Tools of data collection and Techniques of Analysis

The data has been analyzed with the help of chi square and percentage method.

The data has been systematically arranged with the help of table and graph

• Limitations of the Study

Time constraint

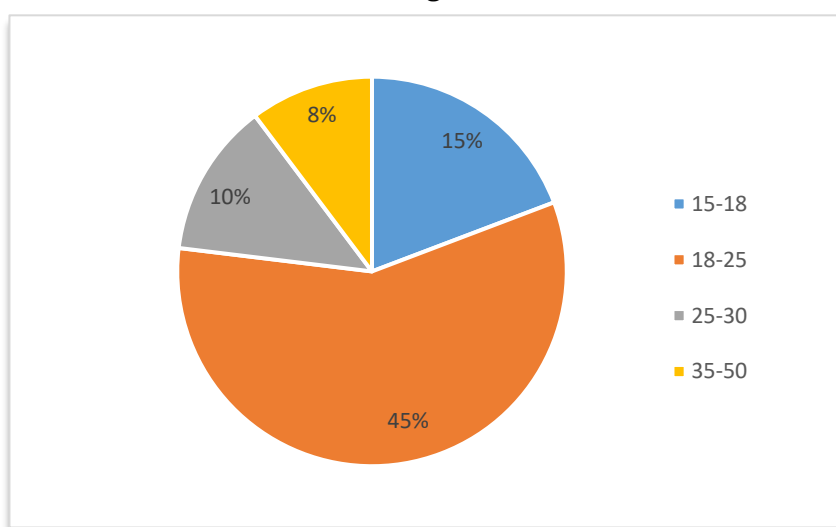
Area

Data Analysis & Interpretation:

The analysis of data related to the adoption of Artificial Intelligence (AI) in commerce reveals a significant shift in how businesses operate, compete, and deliver value to customers. Data collected from surveys, and google form indicate that AI technologies are growing being integrated into core commercial functions such as marketing, supply chain management, customer service, and financial forecasting.

- **Age Group**

Table 1.1
Age



Source: (Primary Data)

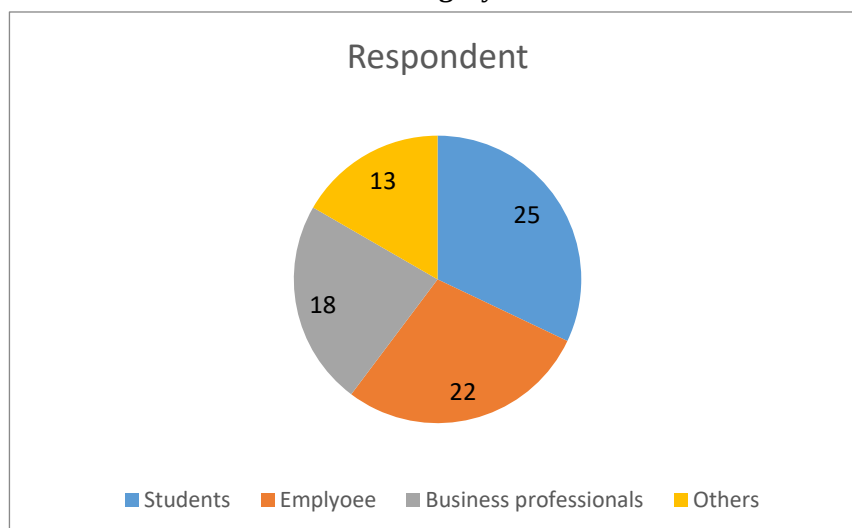
Age group

- 15-18
- 18-25
- 25-35
- 35+

According to the graph, 45% of youngsters in the 18–25 age Along with this, 15% of the respondents The majority of the respondents are belonged to young generation which is upto 35 age.

- Category

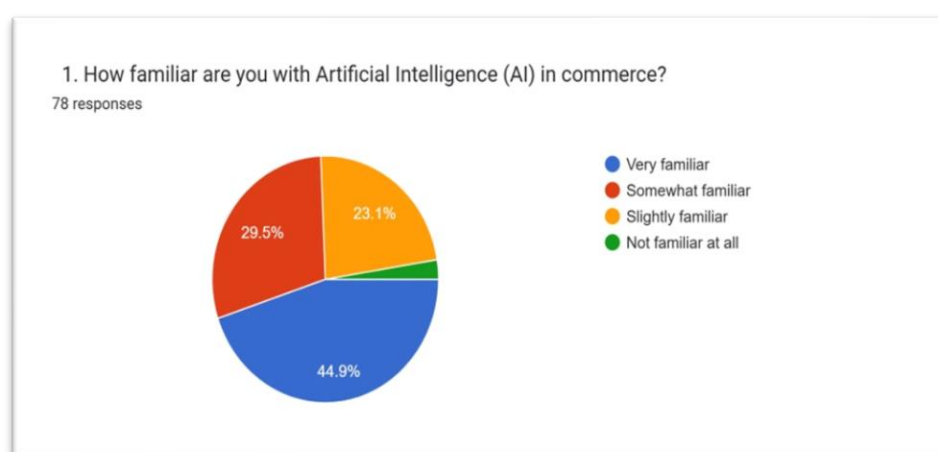
Table 1.2
Category



Source: (Primary Data)

According to the graph, students (25%) and employees (22%) hence, majority of the respondents are students and working professionals.

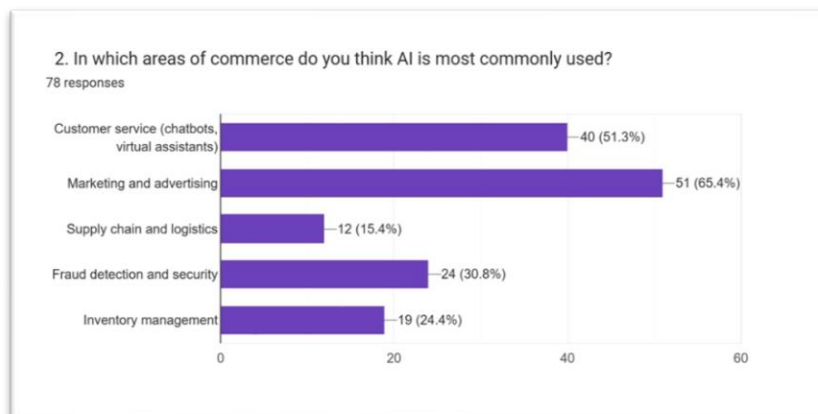
Table 1.3
Familiarity with Artificial Intelligence in Commerce



Source:(Primary data)

From the graph, it is clear that a large number of respondents are familiar with Artificial Intelligence in commerce. About **44.9%** of the respondents are **very familiar**, while **29.5%** are **somewhat familiar** with AI . It shows that commerce students and working class, both are using AI into there daily life

Table 1.4
Areas of commerce do you think AI is most commonly used



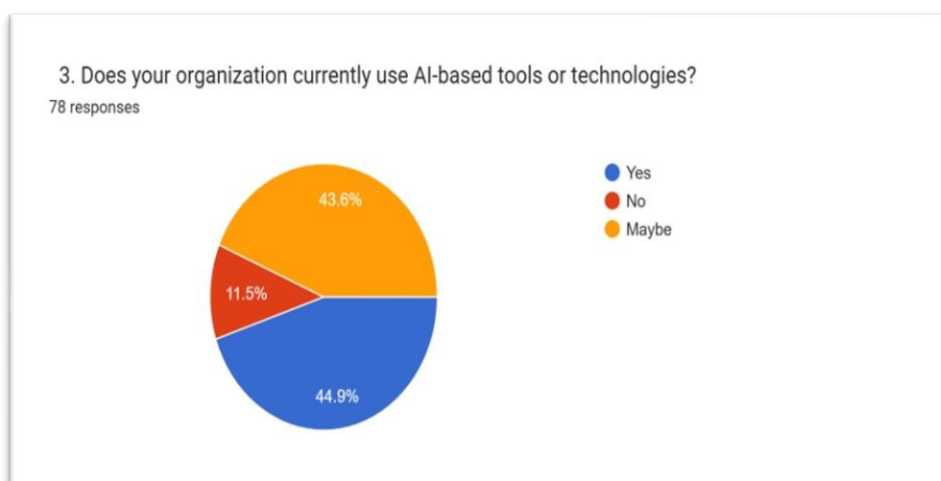
Source: (Primary Data)

According to the graph, Artificial Intelligence is mostly used in marketing and advertising (65.4%) and customer service (51.3%).

Overall, AI improves business efficiency and customer satisfaction in the field of commerce.

Example : Canva, lovable AI, Boulton AI etc.

Table 1.5
Organization currently use AI-based tools or Technologies

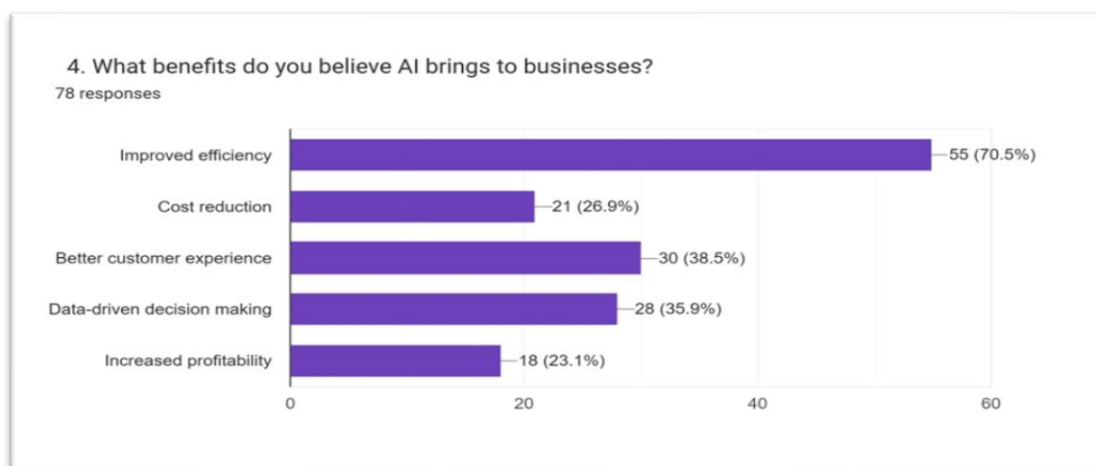


Source: (Primary Data)

According to the graph, **44.9%** of organizations are currently using AI-based tools and technologies. It shows that college students and working class people that they are using Chat bots, it means now its inevitable in every organizations.

Example : Chat bots, Meta, Chatgpt etc.

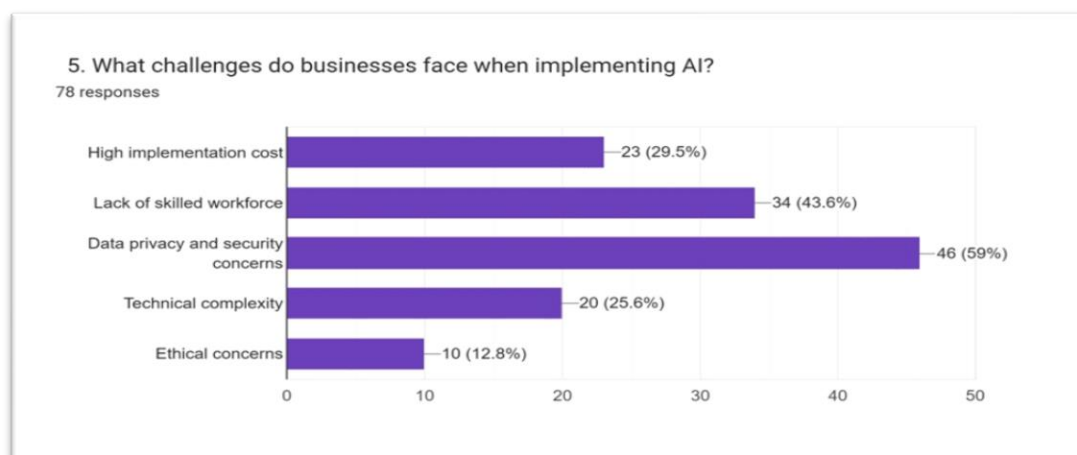
Table 1.6
Do you believe AI brings to businesses



Source: (Primary Data)

According to the above graph, most respondents believe that Artificial Intelligence improves business efficiency and provide better customer experience, making work faster, more accurate, and more convenient for consumers. Overall improving efficiency in commerce Eg:- Smart email replies save typing time etc.

Table 1.7
Do businesses face when implementing AI



Source: (Primary Data)

According to the graph, the biggest challenge businesses face while implementing Artificial Intelligence is data privacy and security concerns, as most respondents feel worried about protecting sensitive information and maintaining safety.

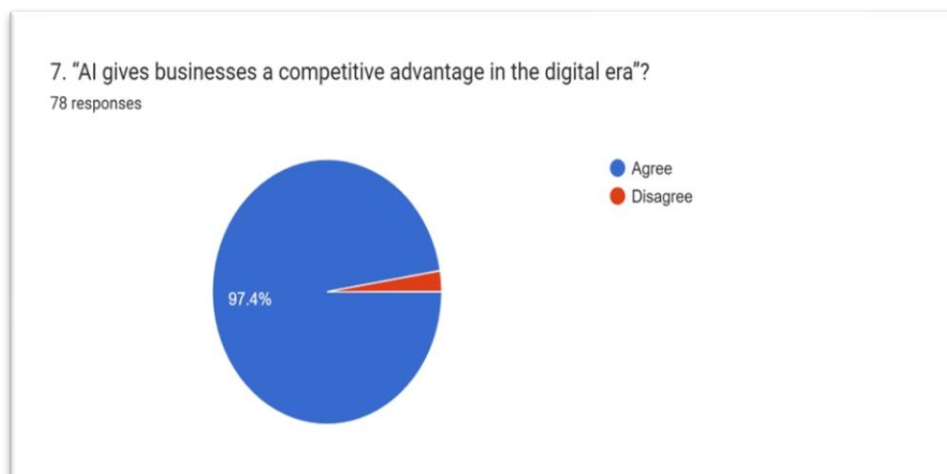
Table 1.8

AI impacted customer experiences in commerce


Source: (Primary Data)

According to the graph, most respondents believe that Artificial Intelligence has had a positive impact on customer experience in the market. About **69.2%** feel it has impacted positively, while **23.1%** feel it has impacted very positively. This shows that AI has helped improve services, convenience, and overall customer satisfaction in commerce.

Table 1.9

A competitive advantage in the digital era


Source: (Primary Data)

According to the graph, a large majority of respondents (97.4%) agree that Artificial Intelligence gives businesses a competitive advantage in the digital era. This shows that most people believe AI helps companies improve performance, innovation, and market position.

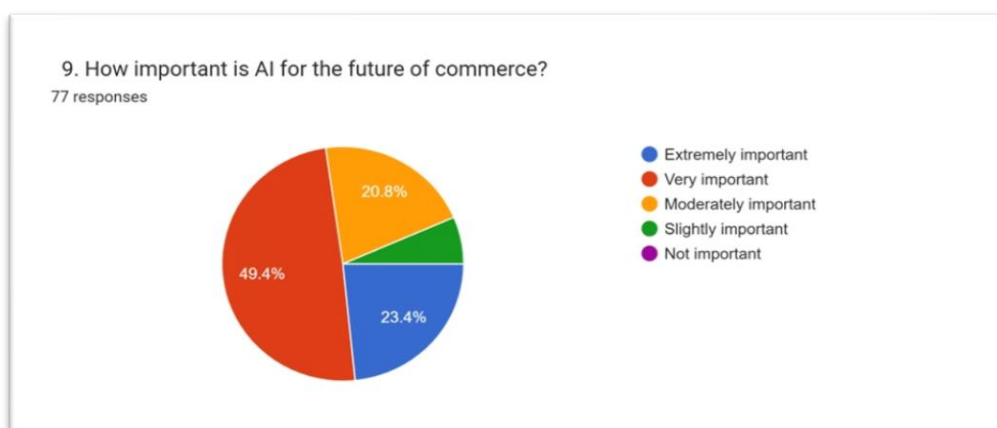
Table 2.0

Will AI replace human jobs in commerce


Source: (Primary Data)

According to the graph, many respondents believe that Artificial Intelligence will replace human jobs in commerce, as a large percentage feel that AI will take over many or some job roles.

Table 2.1

Is AI for the future of commerce


Source: (Primary Data)

According to the graph, most respondents believe that Artificial Intelligence is very important for the future of commerce, as the majority have rated it as very important or extremely important. This shows that people feel AI will play a major role in improving business growth, efficiency, and innovation in the coming years..

Hypothesis testing:

- Hypothesis 1**

H0: AI familiarity doesn't vary significantly across age groups in commerce.

H1: AI familiarity varies significantly across age groups in commerce.

Table no 1.1

Age

Age group	Not familiar	slightly	Somewhat	Very familiar
15-18	0	5	5	5
18-25	2	13	13	26
25-30	0	0	2	2
30+	0	0	3	3

(Source: Primary data)

Table

Chi square test

Chi-square value (χ^2)	Degrees of Freedom (df)	P-value
6.65	9	0.673

On the basis of above table it is proved that P value, 0.673 is greater than the level of significance, 0.05. Thus The table shows how AI familiarity is distributed among different age groups.

- Hypothesis 2**

H0:AI adoption is same among business professionals than students.

H1:AI adoption is higher among business professionals than students.

Table

Chi square test

Category	Yes	No	May be
Student	28	7	25
Employee	4	1	6
Business professional	4	1	3

Chi square value (χ^2)	Degrees of Freedom (df)	P-value
1.91	6	0.928

On the basis of above table it is proved that P value, 0.673 is greater than the level of significance, 0.05. Therefore, the null hypothesis is accepted, indicating that respondent category does not significantly influence AI adoption.

Findings:

- According to the graph, 45% of youngsters in the 18–25 age. Along with this, 15% of the respondents the majority of the respondents belong to young generation which is upto 35 age.
- According to the graph, students (25%) and employees (22%) hence, majority of the respondents are students and working professionals.
- About **44.9%** of the respondents are **very familiar**, while **29.5%** are **somewhat familiar** with AI. It shows that commerce students and working class, both are using AI into their daily life.
- According to the graph, Artificial Intelligence is mostly used in marketing and advertising (65.4%) and customer service (51.3%)
Overall, AI improves business efficiency and customer satisfaction in the field of commerce.
- It shows that college students and working class people that they are using Chat bots, it means now its inevitable in every organizations.
Example : Chat bots, Meta, Chatgpt etc.
- Most respondents believe that Artificial Intelligence improves business efficiency and provide better customer experience, making work faster, more accurate, and more convenient for consumers. Overall improving efficiency in commerce Eg:- Smart email replies save typing time etc.
- Artificial Intelligence is data privacy and security concerns, as most respondents feel worried about protecting sensitive information and maintaining safety.
- Artificial Intelligence has had a positive impact on customer experience in the market. About **69.2%** feel it has impacted positively, while **23.1%** feel it has impacted very positively. This shows that AI has helped improve services,

convenience, and overall customer satisfaction in commerce.

- Artificial Intelligence gives businesses a competitive advantage in the digital era. This shows that most people believe AI helps companies improve performance, innovation, and market position.
- According to the graph, many respondents believe that Artificial Intelligence will replace human jobs in commerce, as a large percentage feel that AI will take over many or some job roles.
- Artificial Intelligence is very important for the future of commerce, as the majority have rated it as very important or extremely important. This shows that people feel AI will play a major role in improving business growth, efficiency, and innovation in the coming years..

Conclusions:

Based on the analysis of all the graphs, it can be concluded that most respondents are aware of Artificial Intelligence and are familiar with its use in commerce. Young people, students, and working class show high interest and understanding of AI, which indicates strong acceptance of new technology. AI is mainly used in marketing, advertising, and customer service, helping businesses improve efficiency and customer experience.

Although AI provides many benefits such as improved efficiency, better decision-making, and competitive advantage, businesses also face challenges like data privacy, security concerns, and lack of skilled workforce. Many people believe that AI may replace some human jobs, which creates concern about employment. However, most respondents agree that AI has a positive impact on the market and is very important for the future of commerce. Overall, the study shows that AI is becoming an essential tool for business growth, innovation, and long-term success in the digital era.

Suggestions:

- Since most respondents are familiar with AI, institutions and companies should provide advanced AI training to improve practical skills.
- Students and employees, who are the most aware groups, should be encouraged to use AI for innovation and productivity.
- Businesses should strengthen data privacy and security systems to reduce major concerns.
- Employees should be trained to work along with AI instead of being replaced by
- Companies should expand AI use in areas like supply chain and inventory management. Ethical guidelines should be followed while using AI in business.
- Management should support research and development in AI applications.

Overall, AI should be adopted in a balanced and responsible way for sustainable growth.

References:

1. **Shreya Deshmukh (2024)** *This article explores AI's influence not only on customer-facing functions but also on internal business management* vol 11(2), ISSN: 2394-9333
2. **Mubashir Alam, Kishore Bhattacharjee & Ajit Kumar (2025)** *"The Role of Artificial Intelligence in E-Commerce: Emerging Trends and Challenges"* vol 13, ISSN: 2321-9653
3. **Anush Deshpande (2022)** *The Impact of Artificial Intelligence on E-Commerce — Indian author analysing AI's role in transforming e-commerce business processes.* Vol 2, ISSN: 2582-6433
4. <https://www.ijtrd.com>
5. https://www.ijraset.com/research-paper/a-comprehensive-review-of-emerging-trends-applications-and-challenges?utm_source=chatgpt.com
6. <https://www.ijlra.com/details/the-impact-of-artificial-intelligence-on-e-commerce-by-anush-deshpande>

Cite This Article: Maity F. & Pawar A. (2026). Artificial Intelligence in Commerce: Transforming Business in the Digital Era. In *Aarhat Multidisciplinary International Education Research Journal*: Vol. XV (Number III, pp. 19–30)