

# ‘Impact of AI And Automation on Mobile Growth Through Instagram’

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## Abstract

Artificial Intelligence (AI) and automation have emerged as key technological drivers transforming social media platforms. Instagram, being a mobile-first application, extensively uses AI for personalised content delivery, intelligent recommendations, and automated communication to enhance user engagement and platform growth. The present study analyses the impact of AI and automation on Instagram’s mobile growth from the users’ perspective. The research adopts a descriptive design and is based on primary data collected from 150 active Instagram users through a structured questionnaire. The findings reveal that AI significantly increases user engagement, time spent on the platform, and content interaction, while automation improves efficiency by reducing manual effort and response time. The study also identifies short-form video content and AI-based recommendations as the major growth drivers. The research fills the gap in existing literature by providing a user-centric and platform-specific analysis of Instagram’s mobile growth.

**Keywords:** Artificial Intelligence, Automation, Instagram, User Engagement, Mobile Growth, Personalisation

## 1. Introduction

The integration of Artificial Intelligence (AI) has transformed social media from a generic content distribution system into a highly personalised, user-centric communication environment. By analysing user behaviour, preferences, and interaction patterns in real time, AI enables platforms to deliver customised content that enhances user experience, increases engagement, and strengthens retention. It also supports functions such as targeted advertising, content recommendation, spam filtering, automated responses, and performance analytics, thereby improving both operational efficiency and communication effectiveness.

Instagram, as a mobile-first platform, extensively uses AI-driven algorithms for personalised feeds, Reels recommendations, explore page suggestions, and automated interaction features. These capabilities help users discover relevant content easily, increase time spent on the application, and accelerate platform growth. At the same time, AI tools assist content creators and businesses through real-time insights, automated scheduling, and predictive analytics, improving content strategy and communication efficiency.

Despite the growing importance of AI in digital marketing, limited research has examined its role in Instagram’s mobile growth from a user-centric perspective. Existing studies are largely organisation-focused and do not empirically explore how AI-based personalisation and automation influence user engagement, efficiency, and time spent on mobile platforms. Therefore, the present study aims to analyse the impact of AI and automation on Instagram’s mobile growth based on user perception and experience, providing practical insights into the role of intelligent technologies in shaping mobile social media engagement.

## 2. Review of Literature

Artificial Intelligence has revolutionised social media marketing by enabling advanced personalisation, predictive analysis, and automated interaction. AI-based systems have the capability to analyse large volumes of user-generated data, including browsing history, engagement patterns, content preferences, and demographic behaviour, to deliver highly relevant and customised content. This data-driven approach significantly improves customer engagement, enhances the effectiveness of marketing campaigns, and allows platforms to provide a more user-centric experience

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(Shah et al., 2024). By ensuring that users are exposed to content aligned with their interests, AI increases interaction levels and strengthens platform loyalty.

Kaplan and Haenlein (2020) highlighted that AI has transformed digital marketing by shifting the communication model from mass targeting to personalised user experiences. Their study emphasised that intelligent systems enable marketers and platforms to interact with users in a more responsive and adaptive manner. Features such as recommendation engines, chatbots, and automated content delivery not only improve customer satisfaction but also enhance operational efficiency. This transformation reflects a broader transition in social media from static communication channels to dynamic, intelligent ecosystems driven by data and algorithms.

AI-driven automation further enhances user engagement by simplifying both content discovery and communication processes. Automated recommendations and algorithmic feeds reduce the effort required by users to search for relevant content, thereby making the consumption experience faster and more convenient. This leads to increased interaction, higher time spent on the platform, and improved user retention (Sarıkaya, 2024). However, the study also cautioned that excessive reliance on automation may reduce the perceived authenticity of interactions, as users may feel that content and responses are machine-generated rather than human-driven. This indicates the need for a balanced integration of automation and human creativity in social media environments.

Automation tools such as scheduled posting, automated replies, and AI-powered analytics play a crucial role in improving response time, maintaining consistency, and enabling scalability in digital communication. These features are particularly important for mobile-focused platforms like Instagram, where real-time interaction and continuous content updates are key determinants of engagement (Starčević, 2023). By reducing manual effort and enabling faster communication, automation allows content creators, businesses, and influencers to manage their digital presence more efficiently while maintaining active user interaction.

AI-powered recommendation systems have also been identified as major drivers of social media platform growth. These systems continuously learn from user behaviour and optimise content delivery to maximise relevance and engagement. As a result, users spend more time on mobile applications, interact more frequently with content, and develop stronger platform dependency (Danendra & Latupeirissa, 2025). The integration of AI with mobile technology further enhances accessibility, speed, and convenience, which are critical factors in the expansion of mobile-based social networking platforms.

### 3. Research Objectives

1. To identify the key factors contributing to Instagram's mobile growth.

### 4. Study Area

The study focuses on active Instagram users who access the platform through mobile devices and interact with AI-driven features such as personalised feeds, recommendations, advertisements, automated replies, and analytics tools.

### 5. Research Methodology

The study adopts a descriptive research design. Primary data were collected through a structured questionnaire using Google Forms from 150 active Instagram users. Convenience sampling was used. Secondary data were collected from journals, books, and industry reports.

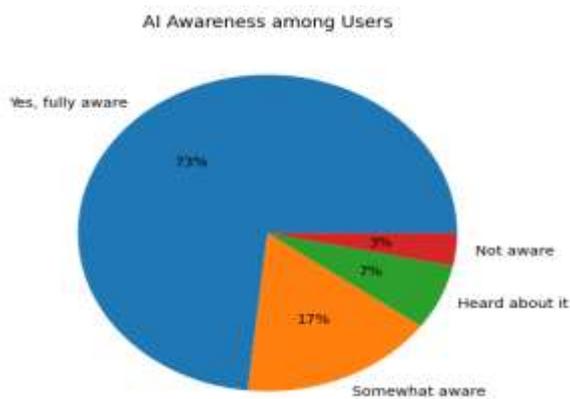
A five-point Likert scale was used to measure perception. Data were analysed using Microsoft Excel through frequency distribution, percentage analysis, tables, and charts.

## 6. Data Analysis and Interpretation

The analysis shows:

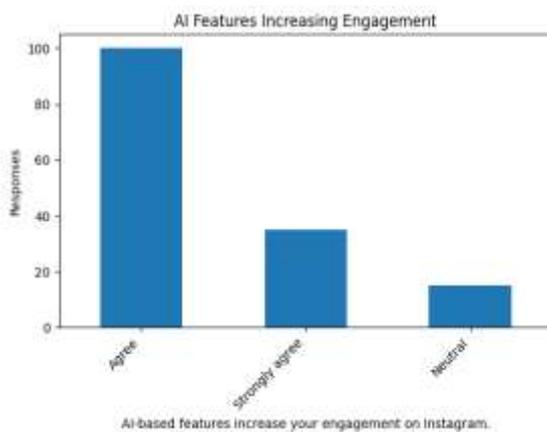
- High awareness of AI among users
- AI increases engagement and time spent
- Automation improves efficiency and response time
- Reels and AI recommendations are the strongest growth drivers

### 1. Awareness of Artificial Intelligence (AI) on Instagram



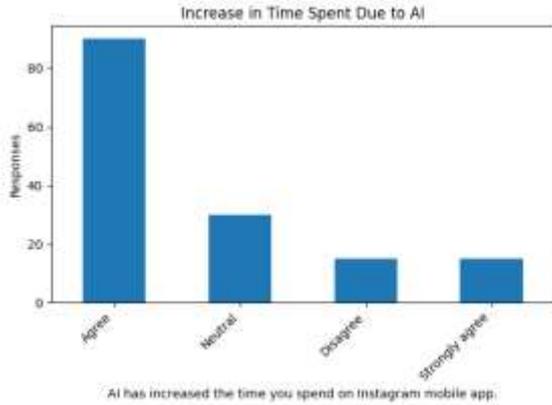
The majority of respondents (73%) are fully aware that Instagram uses Artificial Intelligence. This indicates a high level of technological awareness among users, which strengthens the validity of their responses regarding AI-driven engagement and platform experience.

### 1. Impact of AI on User Engagement



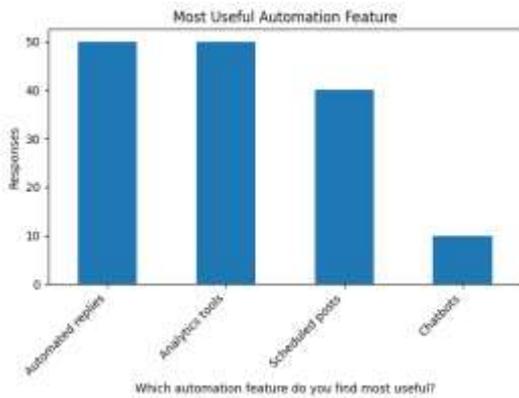
A significant majority of respondents (90%) either agree or strongly agree that AI-based features increase engagement. This clearly shows that AI plays a crucial role in enhancing user interaction and content consumption on Instagram.

### 3 AI Influence on Time Spent on Instagram



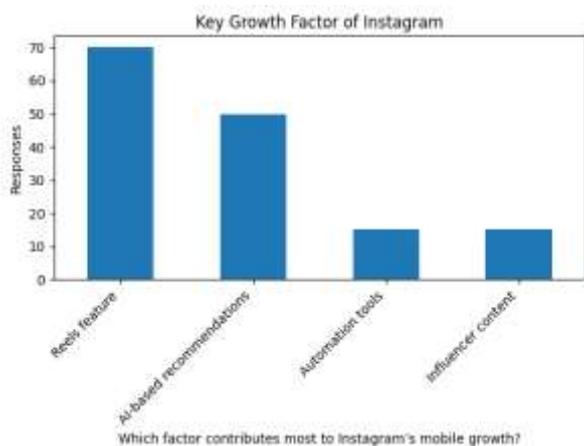
70% of respondents believe that AI has increased their time spent on Instagram. This reflects AI’s strong ability to retain users through personalised content and intelligent recommendations.

### 4 Most Useful Automation Feature



Automated replies and analytics tools are considered the most useful automation features. This highlights that users value efficiency in communication and performance tracking the most.

### 5 Key Growth Factor of Instagram



The Reels feature emerges as the strongest growth driver, followed by AI-based recommendations. This confirms that short-form video content combined with AI-powered personalisation is the primary reason for Instagram’s mobile growth.

## 7. Findings

- AI-driven personalisation significantly enhances user engagement.
- Users spend more time on Instagram due to intelligent content delivery.
- Automation reduces manual effort and improves communication speed.
- Mobile interface combined with AI creates a seamless experience.
- Reels and AI-based recommendations drive platform growth.

## 8. Conclusion

The study concludes that Artificial Intelligence and automation play a crucial role in Instagram's mobile growth. AI enhances content relevance, engagement, and retention, while automation improves efficiency and scalability. The research provides user-centric empirical evidence and contributes to the existing literature by addressing the platform-specific research gap.

## 9. Future Scope

Future research can:

- Use larger and more diverse samples
- Conduct comparative studies across platforms
- Apply advanced statistical tools
- Analyse creator and business perspectives separately

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