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Short Review: Artificial Intelligence Applications in Growth Hacking Methodology

Parisa Omidmand

Texas Tech University, Lubbock, TX, USA

University of Turin, Turin, Italy

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Abstract

Recent advancements in artificial intelligence have transformed industry practices, driving greater efficiency across multiple business sectors. This literature review investigates the implications of Artificial Intelligence (AI) in growth hacking methodology in business environments. This study utilizes peer-reviewed sources published between 2018 and 2024 to synthesize academic perspectives on how AI-driven tools enhance digital marketing, customer acquisition, personalization, and predictive analytics to improve the effectiveness of growth hacking. Through a qualitative review of selected scholarly articles from databases such as Scopus and Web of Science, the review identifies critical themes, including AI-powered data analytics, customer behavior prediction, and dynamic personalization. The findings reveal that AI technologies significantly enhance the effectiveness of growth hacking by enabling real-time decision-making, automating user segmentation, and optimizing marketing channels. The review demonstrates that integrating AI into growth hacking provides a strategic advantage for firms aiming to drive innovation, scalability, and customer-centricity in a highly competitive digital economy.

Keywords: Growth Hacking; Data Analytics; Personalization; Marketing Technology

Introduction

The growth hacking concept was introduced by Sean Ellis as a method to combine Marketing, data analytics, and product development to gain rapid growth in startups and established companies. This method contains continuous experimentation across the customer journey to identify the most effective ways to attract and retain customers. In this method, companies should turn data to develop learning and continue improvement to scale the business efficiently and effectively by acquiring and retaining active users [5]. Growth hacking optimizes marketing activities using virtual marketing techniques, leveraging social media platforms, and implementing customer relationship management (CRM) tools. This method focuses on finding “hacks” or shortcuts that enable companies to grow significantly with minimum resources. Companies should implement resource-light and cost-effective tactics to target the right customers at the right time, at the right place, and in the most efficient ways. This strategy is most effective in a digital landscape where companies can refine their strategies based on real-time data [1].

The traditional growth hacking method relies on digital marketing channels such as social media, email marketing and search engine optimization (SEO) for growth. These marketing tools are used in different stages of the “funnel” framework, including acquisition, activation, retention, revenue, and referral. This framework is central to growth hacking, enables customer journey optimization, and ensures they become loyal customers [5]. There are several challenges associated with growth hacking, such as managing the complexity of data and ensuring the relevance of marketing strategy to rapid market changes. Moreover, this strategy's reliance on digital channels and platforms requires investment in digital marketing, e-commerce, and customer relationship management systems to leverage synergy and stay ahead of the latest trends and technologies. Growth hacking's interactive nature requires constant monitoring and adjustment through gathering real-time feedback and adapting quickly to market change for maximum impact [2].

While existing literature has explored AI's role in digital marketing and business model innovation, there is a lack of consolidated research examining how AI specifically transforms and enhances growth hacking strategies as a holistic methodology. Most prior studies have treated AI applications in marketing and analytics in isolation, without integrating them into the structured stages of the growth hacking funnel (acquisition, activation, retention, referral, revenue). To address this gap, this study investigates the implications of Artificial Intelligence in growth hacking by synthesizing existing research from 2018 to 2024. The central research question guiding this review is: How does Artificial Intelligence improve the effectiveness of growth hacking strategies in modern business environments?

Methodology

This study aims to explore and synthesize existing academic research related to Artificial Intelligence (AI) and growth hacking by adopting a qualitative literature review to identify key themes, trends, and research gaps through thematic analysis. The research was conducted using reputable academic databases, including Scopus and Web of Science, focusing on peer-reviewed articles published between 2018 and 2024 in the management and business sectors. Keywords used in the search included “AI and growth hacking,” “AI and business model innovation,” and “AI and innovation.”

After applying eligibility and open-access criteria and screening the sources for relevance to the topic, the final sources were selected for analysis. They were examined using thematic analysis, which involved identifying recurring patterns and organizing the literature into key themes. The main themes that emerged included AI-driven data analytics, Personalization and customer segmentation, and Predictive modeling for customer behavior. This approach allowed for a structured understanding of how AI tools contribute to more effective, data-driven, and scalable growth hacking methodologies.

AI Integration in Growth Hacking

AI-driven Analytics and Data Mining

- Tools and Techniques

Growth hacking methodology has been revolutionized by AI-driven analytics and data mining,

which enabled organizations to process vast amounts of data and extract valuable insights from it. Big data analytics is a complex set of instruments and analytic techniques used to store, manage, and analyze large and complex amounts of data. Combining the strength of big data and continuing learning from experiments enables companies to adapt to ever-shifting competitive areas [5].

Digital technologies such as digital channels and platforms have a central role in reaching global customers effectively. Implementing Digital marketing, e-commerce, and customer management systems leads to leveraging growth hacking synergy and increases customer acquisition, engagement, and relationships in international markets [2]. Techniques such as natural language processing and Machine learning enable the analysis of unstructured data from different sources and provide valuable insights into customer preferences. They also predict customer preferences through algorithms and evaluate the performance of existing channels to identify the most effective one [3]. Utilizing NLP and ML in customer behavior prediction and channel optimization results in effective digital marketing strategies [7].

Personalization and Customer Insights

- AI for Targeted Marketing and User Segmentation

AI enables personalized marketing based on customer behavior, preferences, and demographics. For instance, big data tools retrieve, process, analyze, and report customer online opinions and behaviors to help companies create tailored products and services and improve their business model innovation [6]. AI algorithms exploit information exchange between businesses and customers, resulting in a co-specification of products or services. These algorithms rely on broad numeric and non-numeric databases for given customers, which can be compared with other customers' data and provide high-level, objectively tailored results where customers' preferences constantly evolve [4]. AI systems empower growth hacking by facilitating user acquisition and retention through customization. Tools like cognitive computing systems (machine learning, decision support systems, and group decision-making), API (Application Programming Interface), and web crawlers are trained to understand technical and industry-specific content. They use advanced reasoning and predictive modeling to create and deliver personalized experiments to customers [1]. Organizations can increase their conversion rates and customer satisfaction by using AI-driven data analysis of user interactions, product views, and purchase histories to tailor personalized offers and recommend them to users [3].

- Predictive Analytics for Customer Behavior

AI systems analyze historical data, market trends, and external factors to provide accurate predictions, optimizing inventory, server capacity, and marketing efforts. AI-automated analyses of customer behavior enable targeted product and service suggestions and campaigns designed based on customer desires and enhance product-market fit. This analysis facilitates strategy adjustments and leads to effective communication campaigns, re-targeting, and grants a higher engagement rate [3].

Case Study-Success Story

IKEA efficiently integrated AI into its growth hacking strategy. This company trained sales,

distribution, and pricing employees to utilize new technologies, analyze data, and leverage AI to enhance the online shopping experience and customer satisfaction. IKEA streamlined its operations with cloud migration and optimized its e-commerce website with AI-enabled systems to optimize product recommendations and customer services and provide a unique online shopping journey. Moreover, IKEA developed an augmented reality (AR)- powered application called the Place app, which allows customers to try the products and experience the purchasing process virtually. This integration enhanced company customer acquisition and retention while helping customer data collection for further optimization [5].

Conclusion

In conclusion, this review highlights the transformative role of Artificial Intelligence in evolving growth hacking from a reactive, intuition-based approach to a data-driven, scalable methodology. By leveraging AI tools such as machine learning, natural language processing, and predictive analytics, businesses can personalize customer experiences, optimize marketing funnels, and respond rapidly to market changes. This study emphasizes that AI empowers companies not only to attract and retain users more effectively but also to enhance their marketing strategies by enabling predictive analysis and fostering innovation, ultimately accelerating performance. Despite these strategic benefits, the review identifies gaps in empirical research concerning the long-term impacts of AI implementation and its applicability across industries. Although AI offers clear advantages to business practices, challenges remain, including ethical considerations, rapid technological evolution, and the need for updated skill sets to support integration. Future research should investigate ethical frameworks for AI in growth hacking and address emerging AI-driven technologies that can enhance business practices and guide preparation for their adoption. Ultimately, AI integration positions growth hacking as a sustainable, adaptive strategy in the face of ongoing technological change.

Conflict of interest

The authors declared no conflict of interest.

References

- [1] Troisi, O., Maione, G., Grimaldi, M., & Loia, F. (2020). Growth hacking: Insights on data-driven decision-making from three firms. *INDUSTRIAL MARKETING MANAGEMENT*, 90, 538–557. <https://doi.org/10.1016/j.indmarman.2019.08>.
- [2] Petersen, N. H. (2024). Digital and International Growth Hacking Business Models: Born Globals, Born Digitals, and Synergies. *Digital Technologies Research and Applications*, 3(2), 104–114. <https://doi.org/10.54963/dtra.v3i2.247>
- [3] Santoro, G., Jabeen, F., Klietnik, T., & Bresciani, S. (2024). AI-powered growth hacking: Benefits, challenges and pathways. *MANAGEMENT DECISION*. <https://doi.org/10.1108/MD-10-2023-1964>
- [4] Grandinetti, R. (2020). HOW ARTIFICIAL INTELLIGENCE CAN CHANGE THE CORE OF MARKETING THEORY. *INNOVATIVE MARKETING*, 16(2), 91–103. [https://doi.org/10.21511/im.16\(2\).2020.08](https://doi.org/10.21511/im.16(2).2020.08)
- [5] Bargoni, A., Santoro, G., Petruzzelli, A., & Ferraris, A. (2024). Growth hacking: A critical review to clarify its meaning and guide its practical application. *TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE*, 200. <https://doi.org/10.1016/j.techfore.2023.123111>
- [6] Mariani, M., Machado, I., Magrelli, V., & Dwivedi, Y. (2023). Artificial intelligence in innovation research: A systematic review, conceptual framework, and future research directions. *TECHNOVATION*, 122. <https://doi.org/10.1016/j.technovation.2022.102623>
- [7] Jin, K., Zhong, Z., & Zhao, E. (2024). Sustainable Digital Marketing Under Big Data: An AI Random Forest Model Approach. *IEEE TOEM*, 71, 3566–3579. <https://doi.org/10.1109/TEM.2023.3348991>