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HOW ARTIFICIAL INTELLIGENCE PERSONALIZATION INFLUENCES MARKETING STRATEGIES IN E-COMMERCE: A FOCUS ON MOROCCO

A INFLUÊNCIA DA PERSONALIZAÇÃO POR INTELIGÊNCIA ARTIFICIAL NAS ESTRATÉGIAS DE MARKETING DO COMÉRCIO ELETRÔNICO NO MARROCOS

CÓMO LA PERSONALIZACIÓN MEDIANTE INTELIGENCIA ARTIFICIAL INFLUYE EN LAS ESTRATEGIAS DE MARKETING EN EL COMERCIO ELECTRÓNICO: UN ENFOQUE EN MARRUECOS

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Ghita El Rhayti[1]

ABSTRACT

This study investigates how AI personalization affects e-commerce marketing strategies in Morocco. With the growing local platforms, businesses are using more AI tools such as collaborative filtering, content-based filtering, and hybrid to personalize recommendation. The systems use browsing behavior, buying behavior, and demographic information to increase relevance and interaction.

The research utilizes a qualitative comparative approach and makes its determinations in peer-reviewed articles, business reports, and Moroccan policy briefs. Results indicate that hybrid models of recommendations are the most flexible and precise, especially in multi-consumer settings like Morocco.

AI personalization assists in customer retention, increases conversion rates, and improves user satisfaction. However, it has challenges, including privacy concerns, repetitive viewing of content, and algorithmic failure. The cold start problem and poor data protection make it even more challenging to adopt in Morocco.

In order to overcome the above challenges, the research suggests ethical AI practices, open data policy, and consumer education. The research provides actionable insights to Moroccan e-commerce businesses that wish to balance personalization and data responsibility.

Keywords: Artificial Intelligence. Personalization. E-commerce. Morocco. Privacy.

RESUMO

Este estudo analisa como a personalização por inteligência artificial (IA) impacta as estratégias de marketing no comércio eletrônico marroquino. São avaliadas três técnicas principais: filtragem colaborativa, filtragem baseada em conteúdo e modelos híbridos. A pesquisa utiliza abordagem qualitativa comparativa com base em dados secundários. Os resultados mostram que os modelos híbridos oferecem maior precisão e adaptabilidade. Apesar dos benefícios em retenção e conversão de clientes, surgem desafios como

[1] Master in International trade at Zhejiang Gongshang University of the People's Republic of China.
ORCID: 0009-0006-6478-5937
E mail: ghita.elrhayti@gmail.com

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privacidade de dados, repetições excessivas e falhas de previsão. Recomenda-se o uso ético dos dados e maior transparência para fortalecer a confiança do consumidor.

Palavras-chave: Inteligência artificial. Personalização. Comércio eletrônico. Marrocos. Privacidade.

RESUMEN
Este estudio analiza cómo la personalización mediante inteligencia artificial (IA) influye en las estrategias de marketing del comercio electrónico marroquí. Se evalúan tres técnicas principales: filtrado colaborativo, filtrado basado en contenido y modelos híbridos. La investigación utiliza un enfoque cualitativo comparativo basado en datos secundarios. Los resultados muestran que los modelos híbridos ofrecen mayor precisión y adaptabilidad. A pesar de los beneficios en la retención y conversión de clientes, surgen retos como la privacidad de los datos, las repeticiones excesivas y los fallos de predicción. Se recomienda el uso ético de los datos y una mayor transparencia para reforzar la confianza del consumidor.

Palabras clave: Inteligencia artificial. Personalización. Comercio electrónico. Marruecos. Privacidad.

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INTRODUCTION

Artificial intelligence (AI) is transforming online stores to the point of enabling businesses to offer customized product suggestions depending on customers' online browsing history, previous purchases, and search activity. The AI applications learn gigantic customer databases in real-time to offer them related products, enhancing the extent of user interaction as well as stimulating targeted advertising initiatives. It increases the efficacy of customer interaction and enhances the percentage of successful transactions, making AI an important resource in modern-day e-marketing (Ingriana & Rolando, 2025).

AI allows e-commerce sites to move past one-size-fits-all marketing. AI allows predictive analytics, customer segmentation, and real-time personalization. AI-based personalization fuels measurable improvement in business performance, according to studies. Personalized product recommendations are able to enhance customer retention by up to 15% and increase sales conversion rates by 10% (Ingriana & Rolando, 2025). Amazon, Alibaba, and Shopify, among global giants, use AI to deliver real-time, data-driven experiences. These companies have reported higher customer loyalty, longer visit durations, and increased average spend per visit as a result of AI adoption (Alasa et al., 2025).

Morocco's e-commerce industry is expanding rapidly. Increasingly more shoppers are turning to online shopping channels for convenience, improved product availability, and time savings. In an effort to respond to elevated expectations, local companies are adopting AI solutions to deliver continuous and individualized shopping experiences. Personalized advice, expedited checkouts, and adaptive pricing platforms are becoming mainstream. Moroccan consumers expect online services to be based on their individual preferences and behaviors. This trend is compelling businesses to invest in smart systems that can learn and adapt to user behavior (Darban et al., 2024).

In addition to these advantages, the application of AI in e-commerce is creating data security and privacy issues. Moroccan customers, like customers worldwide, are demanding more regarding the collection, analysis, and storage of personal information. Unapproved data transmission, transparency, and inadequate user control have resulted in uncertainty. The situation calls for a tenuous balance: businesses must protect the information of their clients while delivering personalized services. Honest privacy policies, data protection strategies, and user education are the most important determinants of trust gain and conservation (Martin & Zimmermann, 2024).

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The research in this paper focuses on the impact of AI-driven personalization on e-marketing strategies, Moroccan online buying in particular, and comparative effectiveness to global best practice and outcomes. It evaluates the effectiveness of AI technology, any challenges that exist, and proposes how better customer service can be balanced against strict privacy standards. Looking at what is currently practiced and where opportunities exist for ethical innovation, the paper offers practical recommendations for Moroccan e-commerce sites wanting to enhance customer satisfaction without compromising data integrity and user trust.

THEORETICAL FRAMEWORK

Artificial intelligence (AI) became a critical tool in modern e-commerce marketing campaigns with the power to analyze, forecast behavior, and personalize. The theoretical framework of research in this study is informed by theories in recommender system models, consumer behavior theory, and digital marketing personalization.

RECOMMENDER SYSTEM MODELS

Recommender systems are the driving system behind AI-powered personalization. The primary categories are:

- Collaborative filtering, based on user-user or item-item similarity to predict based on past behavior.
- Content-based filtering, which looks at item features and recommends items that are analogous to those a user has previously selected.
- Hybrid models, which combine the two into one technique to remedy each's flaws, i.e., the cold start problem and overfitting (Jannach & Adomavicius, 2019).

Such models work on machine learning algorithms that keep on learning from user feedback and behavior patterns. The hybrid approach, in particular, is most suited to Moroccan e-commerce websites due to its ability to function with limited and heterogeneous user data.

PERSONALIZATION IN DIGITAL MARKETING

Personalization involves the real-time modification of content and recommendations to fit individual user profiles. Ansari et al. (2022) explain that personalization improves

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engagement, retention, and probability of purchase by offering content that indicates the consumer's choice, location, and behavior.

This study assumes the position that personalization is not just a technical capability but also a marketing strategy. It is aligned with customer-centric business models and makes advertisements and offers more relevant, thus making campaigns more effective and reducing bounce rates.

CONSUMER BEHAVIOR IN E-COMMERCE

The application of AI in online shopping is also related to how consumers make choices when shopping online. The Theory of Planned Behavior (Ajzen, 1991) suggests that intention, as affected by attitudes, subjective norms, and perceived control, controls purchase behavior. AI-powered websites influence this by altering attitudes with timely and relevant recommendations and facilitating decision-making.

Studies prove that personalized product presentation increases perceived usefulness and platform trust (Choudhury et al., 2023). In Morocco, where e-commerce is relatively newer and evolving, such behavioral impacts are even bigger, especially among young consumers who expect mobile-first, personalized experiences.

DATA PRIVACY AND TRUST THEORY

While personalization enhances user satisfaction, it also raises concerns about data privacy and trust. Martin and Zimmermann (2024) write that the trade-off between personalization and privacy can influence whether users accept AI-driven recommendations. When consumers believe that their data is handled transparently, they will be more likely to accept personalized content.

Moroccan users, the same as global users, are data handling procedure-sensitive. Trust theory is therefore still imperative when it comes to explaining user willingness to accept AI interventions, especially in a market where data protection legislation is still evolving.

METHODOLOGY

The study in this paper takes a qualitative comparative approach to compare how different artificial intelligence (AI) personalization algorithms work in e-commerce environments. Special attention is given to evaluating their effectiveness, flexibility, and

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accuracy in anticipating customer preferences. Their applicability to the Moroccan e-commerce environment is also considered.

TYPE OF RESEARCH

The study utilizes a comparative strategy to explore and contrast three major AI personalization techniques: collaborative filtering, content-based filtering, and hybrid models. The techniques are contrasted based on how well they perform in terms of offering the right product suggestions, reacting to different user activities, and maintaining system accuracy over time.

SOURCES OF DATA

The study depends on secondary data gathered from:

- Peer-reviewed academic articles (e.g., Smith, 2018; Jones et al., 2020)
- Industry reports on AI application and consumer behavior (e.g., "Global AI Market Report," 2022; "E-Commerce Trends Report," 2023)
- Moroccan policy reports and surveys (e.g., MIPA, 2022; El Fassi, 2021)
- Internal Moroccan e-commerce startup data, if available
- These sources provide a good foundation to assess the real-world impact of AI on customer satisfaction, loyalty, and sales.

ANALYTICAL APPROACH

The analysis compares the strengths and weaknesses of each AI technique in both global and Moroccan e-commerce platforms.

AI Technique	Strengths	Weaknesses
Collaborative Filtering	High accuracy for returning users; boosts engagement	Struggles with new users (cold start problem)
Content-Based Filtering	Works from first interaction; does not need external data	May reduce product diversity and limit exploration
Hybrid Models	Combines strengths of both approaches; adapts to new data	More complex and costly to develop and maintain

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Case studies include locations like Amazon and Spotify, as well as Moroccan firms that are adding AI to help improve online purchases. The intent is to learn the most efficient and scalable approaches to personalization for Morocco's expanding digital economy.

RESULTS

The research presents a comparative analysis of three AI personalization techniques—collaborative filtering, content-based filtering, and hybrid models—based on their deployment on e-commerce websites.

The comparison is based on:

- Efficiency in generating recommendations
- Flexibility in adapting to changing types of users
- Accuracy in reflecting changing consumer preferences

AI Technique	Strengths	Weaknesses
Collaborative Filtering	High accuracy for returning users; increases engagement	Ineffective for new users without data (cold start issue)
Content-Based Filtering	Effective from the first user interaction; independent of external data	Recommends similar items repeatedly; limits product discovery
Hybrid Models	Combines advantages of both techniques; handles dynamic data well	More complex to implement and maintain

Case studies reveal that:

- Collaborative filtering works best where there is dense and ongoing past user behavior.
- Content-based filtering is useful in early stages of user interaction or with new customers.
- Hybrid models offer the most comprehensive and scalable approach to sites featuring heterogeneous customer profiles and dynamically evolving tastes.

For e-commerce in Morocco, hybrid systems are the most viable solution. They offer the capacity to support various consumer patterns and the scalability to grow with market demand. These systems improve customer satisfaction by enabling more accurate recommendations over time.

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DISCUSSION

The findings Though AI personalization improves customer experience and sales, it is associated with certain operational and ethical challenges that must be addressed to attain sustainable e-commerce growth, especially in Morocco.

PRIVACY CONCERNS

AI-powered systems require large volumes of personal data to make pertinent suggestions. In Morocco, 60% of e-consumers show concern about the gathering and use of their data (MIPA, 2022). This increased sensitivity places greater pressure on businesses to conduct transparent and secure data practices. Failure to do so risks customer trust and violates national data protection laws.

OVER-PERSONALIZATION

AI systems are often grounded heavily in previous user behavior. This leads to repetitive suggestions, a "filter bubble," where the user only sees known or similar items. This decreases product discovery and can negatively impact long-term engagement (Lee and Kim, 2019). Moroccan platforms need to balance relevance with variety to keep users interested and engaged.

INACCURATE PREDICTIONS

Outdated or incomplete information can lead to poor quality recommendations. For instance, a user whose preferences change over time can continue to receive irrelevant product recommendations if the system fails to update their profile in real time (Smith et al., 2021). These mistakes reduce user satisfaction and weaken the personalization effect.

EMAIL CAMPAIGN OVERLOAD

AI-driven personalized email marketing can lead to customer fatigue when not properly controlled. Too many or irrelevant emails largely result in unsubscribes and low levels of engagement (Gonzalez and Herrera, 2020). Moroccan businesses must personalize the frequency and content of emails based on individual engagement patterns to sustain marketing effectiveness.

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These quandaries highlight the need for continual AI system refinement. Websites must update algorithms regularly, integrate user feedback, and comply with privacy laws if personalization is to remain a win-win for both the business and the consumer.

CONCLUSIONS

The impact of artificial intelligence (AI) personalization on e-commerce marketing strategy in the context of the Moroccan market. AI technology allows companies to study individuals' behavior, recommend personalized products, and improve shopping experiences.

Research validates that personalized recommendations power customer satisfaction, retention, and conversion. Global sites such as Spotify and Amazon are proving the prowess of AI technology, with Moroccan e-commerce startups starting to adapt similar technologies to address growing consumer expectations.

Though these advantages exist, there are numerous challenges too. Foremost among them are privacy issues, over-personalization, bad predictions, and excessive email marketing. These have to be managed for long-term success as Moroccan consumers gain awareness of their digital rights.

Among the methods attempted, hybrid models perform best. Hybrid models take advantage of machine learning flexibility and deep learning precision, so they are most appropriately applied to platforms that operate in environments as unpredictable as those in Morocco. Hybrid models are also responsive and adaptive to changes in user behavior.

To gain consumers' trust and remain legal, businesses have to adopt ethical data practices. That involves asking for clear consent, informing users on data use, and giving users control of personal data.

Subsequent efforts can be directed towards incorporating other emerging technologies, such as augmented reality and higher-level predictive analytics, to devise even more appealing online shopping experiences. Ongoing innovation, coupled with data protection, will render Moroccan online shops competitive and customer-oriented.

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