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Adoption of artificial intelligence tools in digital marketing: empirical evidence and challenges in small women's fashion companies in Sobral-CE.

Adoption of artificial intelligence tools in digital marketing: empirical evidence and challenges among small women's fashion retail firms in Sobral, Brazil

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Summary

The incorporation of artificial intelligence (AI) into digital marketing has expanded possibilities for automation, personalization, and support for data-driven decision-making. This article analyzes the level of knowledge, use, and perceived impacts of adopting AI tools in small women's fashion companies located in Sobral, Ceará, Brazil. A mixed-methods approach was employed, with quantitative and qualitative data collected through a structured questionnaire applied in person to 71 companies. Closed-ended items were examined using descriptive statistics with frequency analysis, and open-ended responses were treated using thematic analysis. The results indicated low familiarity with AI in the context of digital marketing: 46% of companies reported being unaware of or unsure about the concept, and 27% stated that they used associated tools, notably chatbots, caption generators for social media, and ChatGPT. Among the reported effects, perceptions of increased sales and improved customer engagement stood out, although difficulty in measurement due to a lack of metrics and partial understanding of the functionalities used was recurrent. The main barriers identified were gaps in technical skills, perceived implementation costs, time constraints, and uncertainties about practical applications in the daily business routine. Despite this, a high level of interest in learning and applying AI in marketing actions was observed. It is concluded that the effective dissemination of AI in small businesses requires training initiatives and institutional partnerships adapted to the local reality, with an emphasis on strategic use and results measurement.

Keywords: Artificial intelligence; Digital marketing; Small businesses; Innovation; Sobral-CE.

Abstract

The incorporation of artificial intelligence (AI) into digital marketing has expanded opportunities for automation, personalization, and data-informed decision-making. This article examines awareness, usage patterns, and perceived impacts of AI tool adoption among small women's fashion retail firms in Sobral, Ceará, Brazil. A mixed-methods design was employed, combining quantitative and qualitative evidence collected through a structured questionnaire administered in person to 71 firms.

Closed-ended items were analyzed using descriptive statistics (frequency distributions), and open-ended responses were examined through thematic analysis. Findings indicate limited familiarity with AI in the digital marketing context: 46% of respondents reported not knowing or being unsure about the concept, and 27% reported using AI-related tools, most commonly chatbots, social media caption generators, and ChatGPT. Reported outcomes included perceived sales increases and improved customer engagement, although many respondents described difficulties in objectively assessing effects due to limited use of metrics and partial understanding of the technologies involved. Key barriers to adoption included lack of technical training, perceived implementation costs, time constraints, and uncertainty regarding practical applications in routine business activities.

Nonetheless, firms expressed strong interest in learning how to apply AI to marketing practices. The results suggest that broader diffusion of AI among small businesses depends on tailored training initiatives and institutional partnerships that support strategic use and performance measurement in local contexts.

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1. Introduction

In recent decades, artificial intelligence (AI) has established itself as a technological driver. of wide diffusion, with direct effects on production processes, decision-making routines and forms of Interaction between organizations and consumers. In the context of digital marketing, AI has become prominent. by enabling automation, customization, and optimization of strategies through processing of large volumes of data, combining machine learning techniques, data processing Natural language processing and recommendation systems. In this context, resources such as chatbots, Automated segmentation, predictive analytics, and campaign automation have become integrated, with different levels of maturity, the repertoire of digital practices available to companies (Davenport et al., 2020; Shankar, 2018).

The evolution of AI in digital marketing is not limited to expanding operational capacity, but it reconfigures the logic of planning and executing communication actions, by favoring decisions Driven by data and continuous adjustments based on consumer behavior. Segmentation of audiences, real-time monitoring, dynamic campaign readjustment, and analysis of Sentiments exemplify applications that tend to increase the responsiveness of organizations in online environment (Huang and Rust, 2021). However, access, understanding, and effective incorporation These solutions remain heterogeneous, especially among micro and small businesses, in What resource and digital skills constraints might limit adoption and strategic use?

The literature has increasingly examined the benefits associated with the adoption of AI in Marketing activities, with an emphasis on expanding reach and improving relationships. and in improving the customer experience. Bonfim, Lopes and Carvalho (2024) point out that the Digital transformation can benefit micro and small businesses by expanding potential markets. To facilitate contact with new audiences and support more responsive communication practices. In the sector Regarding fashion retailers, the authors highlight that the use of e-commerce and digital platforms can expand... Market presence and reducing geographical barriers, allowing smaller businesses to participate. They compete for attention and demand in highly competitive environments.

Conversely, academic production also describes obstacles that hinder the AI adoption in smaller companies, including gaps in technical knowledge and cost. perceived lack of training, limitations in integrating into existing processes, and resistance. organizational. Bonfim, Lopes and Carvalho (2024) observe that the shortage of professionals The lack of qualified personnel and the difficulty of incorporating technologies into already established routines tend to restrict the... Consistent and planned use, keeping adoption at a sporadic and poorly systematized level. When These barriers combine to intensify asymmetries in digital transformation, with effects on the

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competitiveness and sustainability of small businesses in progressively expanding markets data-driven (Schröder, 2016; Dwivedi et al., 2021).

In this sense, this study is justified by the limited availability of empirical evidence. Regarding the adoption of AI in small businesses, especially in specific segments, such as The women's fashion retail sector, and in territorial contexts outside of major urban centers. Although the acceleration Although technology has expanded the range of accessible tools, a gap persists between potential attributed to AI and the specific conditions for understanding, applying, and measuring it. results in a significant portion of the ventures. Furthermore, the concentration of studies in Larger organizations or those in more structured urban environments reinforce the need for Situated investigations, capable of capturing local specificities and socioeconomic constraints.

Given this scenario, the general objective of this article is to understand how small Women's fashion companies in Sobral, Ceará, are positioning themselves in the face of the advancement of artificial intelligence. in digital marketing. To operationalize this purpose, the following objectives were defined. Specifics: (1) Identify the level of familiarity of entrepreneurs with AI tools. applied to marketing; (2) map which tools are known and/or used by companies local; and (3) analyze perceived outcomes, perceptions, and challenges associated with the adoption of these technologies.

By offering an empirical diagnosis of knowledge, use, and barriers to adoption, the This research aims to contribute to the debate on technological diffusion and digital inclusion within the context of... small businesses, providing subsidies for managers, support institutions and policymakers public policies aimed at strengthening the competitiveness of local businesses in digital ecosystems increasingly demanding.

Perfect. Below is the **fully rewritten theoretical framework,** structured by Subtopics, with academic rigor and **authors cited within the text in the format (Author, year).** in accordance with ABNT standards. The references have been updated and expanded to provide greater conceptual precision and better dialogue with the article's results.

2. THEORETICAL FRAMEWORK

2.1 Artificial Intelligence and the Transformation of Digital Marketing

Artificial intelligence (AI) has emerged as one of the main drivers of contemporary digital transformation, promoting significant changes in strategies. In business and in interactions between consumers and brands. According to Davenport and Ronanki (2018), AI makes it possible to automate processes, expand the analytical capabilities of organizations, and personalize Consumer experiences at scale. In the context of digital marketing, these technologies enable Understanding purchasing behaviors, predicting trends, and optimizing campaigns based on...

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massive amounts of data and continuously learning algorithms (Davenport et al., 2020).

According to Huang and Rust (2018), AI redefines the nature of service and communication, by integrating machine learning, data mining, and natural language processing into Activities such as automated customer service, predictive analytics, and behavioral segmentation. Such Tools are making marketing more dynamic and evidence-driven, replacing intuition. managerial decision-making based on data (Shankar, 2018). This movement shifts the focus from Traditional marketing—centered on persuasion—is moving towards an adaptive and predictive model, in which... Real-time analytics and personalization are essential for competitiveness.

2.2 AI Applications in Retail and the Fashion Sector

Retail has been one of the sectors most impacted by AI, especially in integration. between digital and physical channels, in inventory management and in the personalization of offers. Shankar (2018) highlights that the application of recommendation algorithms and chatbots transforms the experience of For the customer, this reduces costs and increases operational efficiency. In the fashion segment, this... The transformation is even more noticeable because consumption is strongly linked to aspects emotional, symbolic and identity-related (Kanezaki, Oliveira and Canella, 2024).

According to Bonfim, Lopes and Carvalho (2024), small fashion companies, when using digital tools such as e-commerce, social media, and automatic generators of Content creators are able to expand the reach of their brands and compete with large retailers. However, This adoption still occurs unevenly. Most ventures begin with Automating simple tasks, such as generating captions and automated responses, without moving on to... The strategic use of data (Cortes, 2024). This indicates that digital transformation in the fashion sector... It is still in its early stages, being heavily dependent on technological familiarity and... training for managers.

2.3 Adoption of Technologies in Micro and Small Enterprises

The literature on technology adoption in micro and small enterprises (MSEs) has emphasized that the process is conditioned by internal and external factors. According to Rogers (2003), the The diffusion of innovations depends on the perception of relative advantage and compatibility with existing practices. existing factors, perceived complexity, and observability of results. In small companies, These dimensions are directly related to investment capacity and the level of confidence. of managers in digital technologies (Dwivedi et al., 2021).

From an individual perspective, the Technology Acceptance Model (TAM), proposed by Davis (1989) explains that the intention to use a technology depends on its perceived usefulness and... Ease of use. This theory is especially relevant in SMEs, where the manager often... It accumulates functions and tends to adopt technologies only when it perceives a quick return and low cost.

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(Venkatesh et al., 2003). Furthermore, Ajzen (1991), in formulating the Theory of Behavior Planned, it adds social and behavioral variables, such as subjective norms and perception of control, useful for understanding the hesitation observed in entrepreneurs who recognize the value They are familiar with AI, but feel unable to implement it.

At the organizational level, Tornatzky and Fleischer (1990) developed the model Technology–Organization–Environment (TOE), which integrates three critical dimensions of adoption. technological: the technological conditions (infrastructure and availability of tools), the conditions organizational (resources and skills) and environmental conditions (competitive pressure and support) (institutional). In SMEs, the combination of these dimensions explains why innovation does not depend on institutional development. not only does it depend on the individual decision of the manager, but also on the ecosystem that surrounds him — including Support institutions, universities, and public policies.

2.4 Digital Barriers and Skills in SMEs

The barriers to the adoption of artificial intelligence in small businesses are widespread. documented. Schröder (2016) highlights the lack of qualified professionals and the limitation of Financial resources are the main obstacle to digital transformation. The Organization for The Organization for Economic Cooperation and Development (OECD, 2021; 2025) reinforces that the scarcity of Digital skills, coupled with a lack of infrastructure and organized data, compromises the The ability of SMEs to incorporate technologies in a structured way.

Davenport et al. (2020) state that digital maturity is an essential prerequisite for the use Advanced AI, since the value generated depends on the quality of the data and the ability to... analysis. In many cases, companies use automated tools without understanding fully utilizes its operating mechanisms, which reduces the effectiveness of strategies and limits the measurement of results. This finding directly relates to the findings of this study, in which shows the punctual and intuitive use of AI, without integration with performance indicators or Clearly defined marketing objectives.

Furthermore, resistance to organizational change constitutes a symbolic barrier. associated with traditional corporate culture. According to Dwivedi et al. (2021), technological innovation In small businesses, this requires not only acquiring tools, but also transforming... mindsets and management practices. Therefore, training programs, mentoring, and policies of Incentives are fundamental conditions for AI to be incorporated effectively and sustainably.

2.5 Data Governance and Ethics in the Use of Artificial Intelligence

The advancement of artificial intelligence in digital marketing also brings ethical and legal challenges. In Brazil, Law No. 13.709/2018 — the General Data Protection Law (LGPD) — establishes principles. and obligations related to the processing of personal data, imposing on companies the duty to guarantee

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security, purpose, and transparency (Brazil, 2018). Thus, the use of AI in activities of Segmentation, recommendation, and personalized communication should consider not only criteria of Performance, but also legal compliance and respect for consumer privacy.

De Bruyn et al. (2020) emphasize that the inappropriate application of algorithms can generate biases. and discrimination, affecting consumer confidence and organizational reputation. Therefore, the Data governance should be treated as an integral part of the digital marketing strategy. ensuring that AI systems are transparent, auditable, and supervised by professionals. qualified. This aspect is particularly relevant for small businesses, which frequently They use third-party solutions without full control over data usage and storage.

2.6 Synthesis of the Framework and Connection with the Research Results

Based on the approaches presented, the study articulates three interpretative axes: (i) level (i) familiarity and digital literacy, associated with understanding and perception of the usefulness of AI; (ii) Technological adoption and structural barriers, related to lack of training and limitations of resources; and (iii) perceived effectiveness and governance, relating to the impact of the tools on the Performance and ethical and legal compliance.

This theoretical framework supports the analysis of the results obtained, allowing us to understand like women's fashion companies in Sobral, although they recognize the potential of intelligence. Artificial intelligence is still in the early stages of digital transformation. Its low maturity... Technological factors and the lack of structured training explain the predominance of basic uses. limited to content and service automation, without strategic integration or measurement of return. The benchmark, therefore, reinforces the need for policies promoting technological dissemination and training. skills that make AI an accessible and sustainable innovation tool for Brazilian small businesses.

3. Materials and Methods

This study is classified as descriptive and exploratory, with a mixed-methods approach. (quantitative and qualitative), suitable when simultaneously seeking to map patterns of occurrence and understanding participants' perceptions of a phenomenon that has been little examined. in a given context (Gil, 2008; Creswell and Plano Clark, 2018). The descriptive design was used to characterize the level of knowledge, use, and interest in tools of Artificial intelligence (AI) in digital marketing, while the exploratory component was adopted for To deepen interpretations regarding perceived impacts and barriers to adoption in the daily operations of companies. investigated (Gil, 2008). The integration between quantitative measures and qualitative evidence allowed to capture objective indicators and, at the same time, attributions of meaning expressed by

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entrepreneurs, expanding the interpretative density of the findings (Creswell and Plano Clark, 2018).

Data collection was carried out using a structured questionnaire created in Google. The forms are applied in person by researchers at participating companies. The instrument included closed-ended items designed to identify (i) familiarity with AI in digital marketing, (ii) (i) adoption and types of tools known/used and (ii) interest in expanding knowledge and application; and open-ended items focused on describing observed results and perceptions of usefulness. and the main difficulties encountered. The combination of closed and open-ended questions is recommended in Mixed-methods studies are used to promote standardization in measurement and, simultaneously, allow... the emergence of analytical categories that adhere to the respondents' experience (Creswell and Plano) Clark, 2018).

The sample consisted of 71 companies in the women's fashion sector located in the municipality. from Sobral (CE). The selection was based on accessibility and availability, characterizing a Non-probability convenience sampling is relevant when the objective is to produce a diagnosis. Empirical field testing with operational constraints and a need for immediate participant buy-in. (Gil, 2008). The companies were approached in person by members of the research group, and the The on-site application was adopted to encourage participation and reduce difficulties in understanding the... instrument, taking into account the heterogeneity of digital familiarity among respondents.

The data was collected during in-person visits in the first half of 2025, with records kept. The responses are collected directly into Google Forms, ensuring organization and consolidation of the database. data for analysis. The closed items were examined using descriptive statistics, with calculation of frequencies and distribution of responses, allowing for a description of the incidence of knowledge and adoption. and interest in AI tools in digital marketing (Gil, 2008).

The open-ended responses were analyzed using thematic analysis, guided by the identification of recurring meanings, encoding of units of meaning and subsequent grouping into categories interpretative (Braun and Clarke, 2006). This strategy made it possible to understand, with greater clarity. Depth, as entrepreneurs describe perceived benefits, limitations, and conditions. for the adoption of AI, contributing to linking quantitative results to qualitative explanations. (Braun and Clarke, 2006).

4. Results and Discussion

4.1 Knowledge and use of Artificial Intelligence

Analysis of the data collected from the 71 participating companies revealed a low level of Familiarity with artificial intelligence (AI) tools applied to digital marketing. When When asked about prior knowledge, 46% of companies responded that they had never heard of it. They are unsure about the topic or what characterizes AI in this context. Among the respondents, 19

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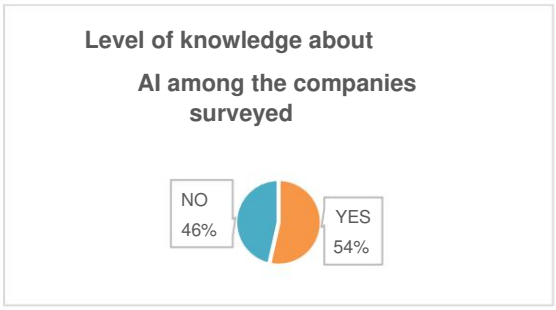
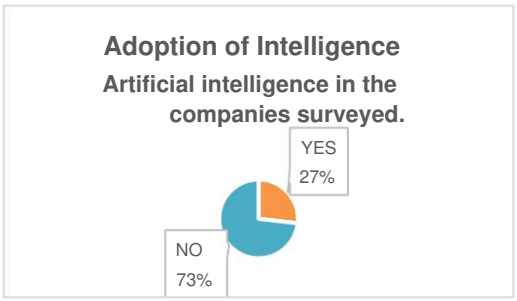
Companies have stated that they use some kind of AI-related tool in their marketing efforts, which This corresponds to approximately 27% of the total.





These results suggest the presence of a gap between the social diffusion of the topic and its incorporation into the daily operations of small businesses, which is consistent with the literature on adoption of innovations, according to which the perceived complexity and low observability of results reduce the likelihood of adoption in contexts of lower technological maturity (Rogers, 2003). Under the From the perspective of the Technology Acceptance Model, low familiarity may imply limitations. in perceived usefulness and perceived ease of use, central elements for intention and behavior. of use (Davis, 1989; Venkatesh et al., 2003).

Among the companies that reported using AI-related tools, the solutions The main topics mentioned were chatbots and caption generators for social media, in addition to mentions. to ChatGPT, indicating a still initial insertion, concentrated in operational applications of communication and customer service. This standard aligns with approaches that suggest small Companies tend to begin adoption with more accessible tools that can be implemented immediately and with a quick perceived return, before moving on to more analytical and data-driven applications. (Davenport and Ronanki, 2018; Shankar, 2018).

Even among companies that claimed to know and/or use resources associated with AI, the The reported domain was shown to be predominantly superficial, frequently linked to This is a one-off experiment, with no evidence of integration into systematic marketing strategies. This finding is consistent with literature highlighting the scarcity of digital skills and limitations of... resources as recurring barriers to the consistent adoption of advanced technologies in micro and small businesses (Schröder, 2016; OECD, 2021).

The set of results reinforces the need for dissemination and training actions aimed at to the local context, given the absence of practical references, the low conceptual familiarity and Episodic adoption tends to increase the perception of difficulty and reduce the perceived control. implementation, which limits the conversion of interest into effective use (Ajzen, 1991; Tornatzky and Fleischer, 1990).

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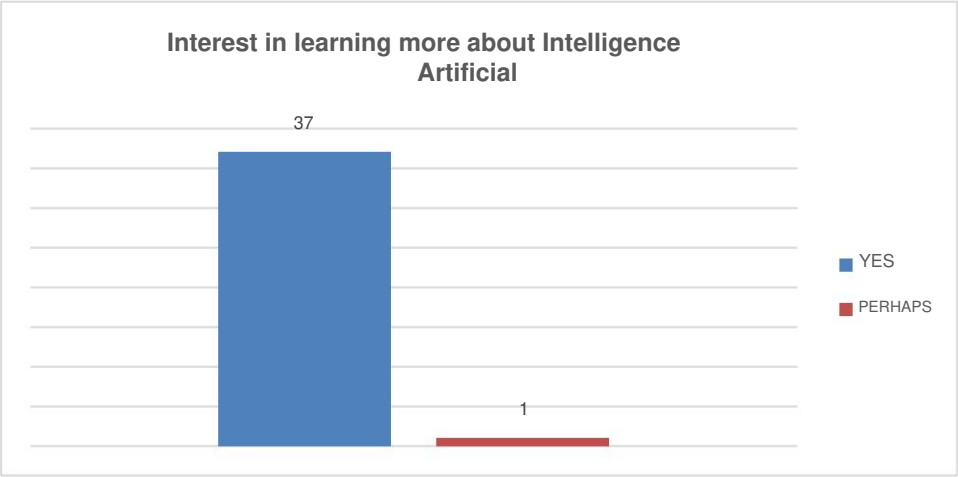
4.2 Perceived Results

When questioned about the effects observed from the use of associated tools
Regarding AI in digital marketing, most user companies reported perceived benefits, with
These reports highlight increased sales and improved customer engagement.
that, although adoption is still limited, value is being attributed to technology in various dimensions.
operational and commercial aspects, which aligns with the literature that associates AI with efficiency gains.
communication, responsiveness and personalization in relationship activities (Huang and Rust,
2018; Davenport et al., 2020).



Still, some companies indicated difficulties in accurately measuring the effects.
of the tools used. This limitation was associated with the absence of objective metrics and, in some cases...
In some cases, this leads to a partial understanding of what actually characterizes artificial intelligence, which may...
compromising the evaluation of return and the consolidation of use in a strategic way. The literature suggests
that, without monitoring routines and clear indicators, technology tends to produce gains of
perceived efficiency, but remains limited with regard to strategic effectiveness and...
evidence-based management learning (Davenport et al., 2020; De Bruyn et al., 2020).

Even among companies that don't use AI, the perception has emerged that its use can...
To represent a competitive advantage, especially in productivity and customer relations.
This assessment is similar to the concept of perceived relative advantage, often cited as
A condition for the diffusion of innovations, although not sufficient for adoption when they persist.
internal and environmental barriers (Rogers, 2003; Tornatzky and Fleischer, 1990).

4.3 Barriers and opportunities

The research also identified the main barriers to the adoption of tools associated with
AI, as well as opportunities perceived by managers. Lack of training was the biggest obstacle.
recurring issue, with most companies indicating they do not have sufficient knowledge to apply it.
AI in the business itself. This result is consistent with evidence pointing to shortcomings in

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(Schröder, 2016; OECD, 2021), in addition to engaging with acceptance models that associate intention from use to perceived effort and ease of application (Davis, 1989; Venkatesh et al., 2003).

Other obstacles mentioned included:

• Implementation cost (the perception that the tools are expensive);

• Lack of time or priority for learning new technologies;

• Lack of understanding about how AI can be useful for the type of business they have.

These elements can be interpreted in light of the TOE framework, as they highlight... technological constraints (perceived cost and access), organizational constraints (time and skills) and environmental factors (perceptions about applicability and sectoral standards) that influence decisions of adoption (Tornatzky and Fleischer, 1990).

At the same time, a high level of interest in obtaining information and training was identified. Among the 38 companies that said they had heard about the topic, 37 expressed interest in it. Receive more information on how AI-related tools could benefit your stores. while only one responded with hesitation.

This pattern suggests a favorable disposition towards innovation, which can be understood as Positive intention conditioned by limitations of perceived control and by practical barriers to implementation (Ajzen, 1991). In this direction, the results support the existence of a window of opportunity for training and technology dissemination initiatives — such as workshops, mentoring and Partnerships with educational institutions — capable of translating AI applications into everyday life. companies and reduce the gap between interest and effective use (OECD, 2021; Rogers, 2003).

In summary, the findings point to a context in which the adoption of AI in marketing... Digital technology remains nascent and predominantly operational, although gains have been perceived. accompanied by measurement limitations and structural barriers associated with competencies, time and perceived costs. The connection with the theoretical framework indicates that the consolidation of use It depends on organizational and environmental conditions that favor learning, routines, monitoring and strategic appropriation of technology (Davenport et al., 2020; Tornatzky and Fleischer, 1990; OECD, 2025).

Final Considerations

This study aimed to understand how small businesses in the fashion industry... Women's organizations, located in Sobral-CE, position themselves regarding the incorporation of tools associated with Artificial intelligence (AI) in digital marketing, considering levels of knowledge, patterns of

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Usage, perceived impacts, and barriers to adoption. The results allowed for the development of a diagnosis. empirically supported by a growing phenomenon in the field of marketing, but which, in the specific context... The investigation, although still in its initial stages, is marked by asymmetries in access and understanding. and strategic appropriation.

Based on quantitative and qualitative analysis, it was found that a significant portion of The companies under investigation lack conceptual familiarity with AI applied to digital marketing. This is evidenced by the 46% who declared they were unaware of or uncertain about the topic. This data, when interpreted in light of the diffusion of innovation theory, indicates that the perception of Complexity and low observability of results can act as factors that delay the adoption, especially in environments where digital literacy is limited and prior experience is scarce. with advanced technologies is restricted (Rogers, 2003). Furthermore, from the perspective of the Model of Acceptance of technology, the absence of conceptual clarity tends to reduce perceived usefulness and... perceived ease, hindering the formation of an intention to use and the conversion of that intention into action. Effective adoption behavior (Davis, 1989; Venkatesh et al., 2003).

Regarding usage, it was found that only 27% of companies reported using any [technology/tool/method]. A tool associated with AI, with a predominance of applications focused on automation and support for... Communication and customer service activities, such as chatbots, caption generators, and ChatGPT. This The pattern suggests that technological incorporation has occurred in a pragmatic and incremental manner. focusing on low-cost solutions, rapid implementation, and immediate perceived return. Such This configuration is consistent with the argument that, in micro and small businesses, adoption tends to... start with applications that require less infrastructure and analytical expertise, before evolve towards more advanced uses driven by data and structured decision-making processes (Davenport and Ronanki, 2018; Shankar, 2018).

Regarding the effects attributed to the use of these tools, the reports pointed to perceptions of significant benefits, with particular emphasis on increased sales and improved engagement with customers. Although these results were presented in a predominantly perceptual way, Without standardized measurement, they suggest that AI can contribute to improving efficiency. communication and strengthening responsiveness in digital environments, aspects emphasized by Literature on the application of AI in services and marketing (Huang and Rust, 2018; Davenport et al., 2020). However, the recurring difficulty in measuring results, coupled with the absence of metrics and the A partial understanding of what characterizes AI highlights a central limitation to the consolidation of evidence-based practices. This finding aligns with studies that warn of the risk of instrumental and episodic adoption, without integration with indicators and without data governance, which reduces strategic effectiveness and weakens organizational learning capacity (De Bruyn et al., 2020; OECD, 2021).

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In terms of barriers, lack of technical training was the most frequent obstacle.
mentioned, accompanied by perceived cost, lack of time for learning, and lack of knowledge.
Regarding practical applicability. Interpreted by the Technology–Organization–Environment framework,
These elements indicate that adoption depends not only on technological availability, but also on...
interaction between skills and internal resources, organizational characteristics and incentives
environmental factors, such as institutional support and competitive pressure (Tornatzky and Fleischer, 1990). From
From the Theory of Planned Behavior, it is also observed that the declared interest in learning
Regarding AI — particularly among companies that have already heard about the topic — it can be interpreted...
as a positive intention conditioned by low perceived control, that is, there is a willingness to adopt,
but the perceived conditions for implementing the change are lacking (Ajzen, 1991).

A relevant finding is precisely the coexistence between low adoption and high adoption rates.
Interest in training, which points to a window of opportunity for intervention with the potential for impact.
regional. The concentration of uses in simple applications and the fragility of measurement indicate that
The increase in adoption should not be understood merely as an expansion of tools, but as
building digital skills, developing monitoring and dissemination routines
of management practices guided by indicators. In this sense, short-term training initiatives
duration, practical workshops, teaching materials adapted to the entrepreneur's profile and programs of
Mentoring can contribute to reducing perceived complexity and increasing the compatibility of AI.
with the routines of local commerce, favoring technological diffusion (Rogers, 2003; OECD, 2021).

From an applied perspective, the results suggest recommendations aimed at different...
Actors. For managers, the need to organize minimum performance metrics is evident.
digital (e.g., reach, engagement rate, conversion, average order value, and campaign return)
In order to more objectively assess the effects of AI use and guide future decisions.
educational institutions, trade associations, and innovation environments, the study highlights the relevance
collaborative actions that translate AI applications into practical, contextualized solutions and
Low cost, with a focus on productivity, relationship building, and content planning. For the power
Given the public and funding entities involved, the relevance of programs aimed at strengthening the
Digital transformation in small businesses, reducing inequalities in access and promoting
Technological inclusion in cities outside of major urban centers.

In addition to the contributions, it is necessary to acknowledge methodological limitations. The sample by
Convenience, along with sectoral and territorial delimitation, limits the generalization of the results to others.
contexts. Furthermore, the reported impacts are predominantly perceptual, which indicates that
need for subsequent studies with objective performance measures, designs
Comparative and longitudinal monitoring to observe changes over time and isolate
Factors that influence adoption and its outcomes.

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As a research agenda, further investigations into (i) maturity are recommended.
(i) digital and managers' skills; (ii) relationship between adoption of AI tools and indicators of economic and digital performance; (iii) institutional barriers and possibilities for network support innovation sites; and (iv) ethical and compliance implications, including data protection and transparency in the use of automated solutions in customer relations, especially due to the requirements established by the LGPD (Brazil, 2018).

It is concluded that, although the adoption of tools associated with artificial intelligence in Although digital marketing is still limited in the small women's fashion companies investigated, there are evidence of perceived benefits and, above all, a favorable disposition towards learning and... Innovation. The consolidation of this process, however, depends on the reduction of structural barriers — especially capacity building and measurement — and the integrated action of local actors to build organizational and institutional conditions that make the use of AI more understandable, accessible and strategically oriented towards the objectives of competitiveness and sustainability of small businesses business.

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