Prioritization of Key Criteria for Evaluating Social Media Advertising in Online Retail utilizing AHP

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Highlights

- This paper consolidates key criteria critical to evaluate social media advertising for online retail.
- AHP method was utilized as a suitable method to prioritize these key criteria.
- Based on our findings the most important criteria were Trust & Security and User Experience & Interface to evaluate and prioritize elements within advertising strategies.

ABSTRACT

This paper aims to establish a structured approach for evaluating social media advertising strategies in online retail by identifying critical evaluation criteria and then prioritizing them. Through a comprehensive literature review of over 25 papers, and categorized by AI tools this study suggests key factors that drive effective advertising outcomes, including audience engagement, conversion rates, and cost efficiency. The findings reveal that these criteria are essential in guiding marketers to make informed decisions that maximize ad effectiveness and customer reach. In examining multi-criteria decision-making (MCDM) methods, the Analytic Hierarchy Process (AHP) is identified as the most widely adopted technique in digital marketing contexts. In this study, we also utilized the AHP method to prioritize the social media advertising strategies.

Keywords (3-6): decision-making, MCDM, digital marketing, online shopping

1. Introduction

With increasing internet access and consumer digital literacy, online shopping is replacing traditional retail, offering growth opportunities for businesses that prioritize customer satisfaction (Ajripour, 2020). The pandemic accelerated digital marketing adoption, as businesses pivoted from conventional methods. However, the complexity of online consumer behavior, influenced by vast information and evolving needs, presents a challenge (Vineet Kaushik, 2020). Social media is integral to the consumer decision-making process, requiring effective strategies in targeting and engagement. Digital marketing today leverages data analytics and AI to optimize advertising, allowing targeted, personalized ads (Anil Kumar, 2018). Given the challenges of evaluating multiple,

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conflicting criteria in advertising, Multi-Criteria Decision-Making (MCDM) methods like Analytic Hierarchy Process (AHP), Analytic Network Process (ANP) have become popular tools in digital marketing. These methods provide structured frameworks to assess alternatives, aiding marketers in selecting optimal strategies. The shift toward data-driven, AI-enhanced digital marketing underscores the need for advanced decision support systems to navigate complex advertising strategies effectively. (Ajripour, 2020)

In the context of digital marketing, one of the key challenges lies in selecting the most appropriate Multi-Criteria Decision-Making (MCDM) methods and identifying the most effective criteria to consider. With the multitude of MCDM techniques available and the variety of factors that influence digital marketing outcomes, it becomes essential to determine which methods provide the most reliable and insightful results, as well as the criteria that should be prioritized to ensure optimal decision-making in this complex and dynamic field.

2. Literature Review

With the rise of technology and evolving customer expectations, e-commerce businesses must adopt innovative approaches. Online platforms have simplified transactions and improved user experience by providing interactive product details, videos, digital catalogs, and promotions, enabling customers to make informed purchasing decisions from home. However, with many shops offering similar products, satisfaction often hinges on factors beyond price, such as product quality, delivery speed, and transaction ease. A balanced combination of competitive pricing and quality service is essential for online shops to stand out in a crowded market. (Iswavigra, 2020)

The digital transformation has also reshaped marketing, as e-commerce offers easy access to products, saving time and maximizing profits. This shift reflects a growing consumer preference for online transactions, prompting research into factors driving consumer engagement and purchasing behavior. Understanding these factors is crucial for companies to refine their strategies in today’s digital landscape.

Digital marketing now relies on technology, particularly artificial intelligence (AI), which automates intelligent behaviors and enhances consumer research and engagement. AI's integration into marketing promises to shape its future, offering new opportunities and strategies for businesses. (Thanh, 2022)

As the volume of information on the internet grows exponentially, consumers face increasing challenges in processing and efficiently using available data. In an era where customers' needs and habits are rapidly evolving, only a comprehensive understanding of these preferences can enable e-commerce platforms to offer products that align with users’ expectations. E-commerce businesses leverage data from the internet to understand individual customer needs, enabling them to provide personalized products and services. This personalization, driven by automated features, not only increases income but also strengthens customer relationships. In contexts where multiple criteria must be weighed, such as choosing between competing products or services, balancing conflicting goals becomes essential. Multi-Criteria Decision Making (MCDM) methods offer a solution by helping customers navigate these complex decisions and enhancing the attractiveness of e-commerce stores. MCDM allows decision-makers to evaluate a set of alternatives based on multiple relevant factors, though the primary challenge lies in aggregating these diverse criteria into a cohesive decision-making framework. (You Rang Lim, 2021) (Bączkiewicz, 2021)

Multi-Criteria Decision Making (MCDM) methods help consumers navigate complex choices by evaluating alternatives based on multiple criteria, enhancing decision-making in e-commerce. MCDM involves two primary components: alternatives and criteria, with the aim of ranking options. There are different MCDM methods, including Multi-Attribute Decision Making (MADM) and Multi-Objective Decision Making (MODM), with MADM being particularly relevant for prioritizing promotional items. Each method has its strengths and weaknesses, suggesting that using multiple approaches may lead to more robust and reliable decisions. Well-known MADM methods include AHP, ANP, ELECTRE, TOPSIS, and PROMETHEE, each offering unique frameworks for evaluating products and promotions. (Ajripour, 2020)

Social media advertising has become a pivotal strategy for online shops, as it enables businesses to engage with diverse audiences and build brand awareness on a global scale. However, effectively leveraging social media requires careful consideration of numerous factors that influence advertising outcomes. In this section, we review key factors that have a critical impact on the success of social media advertising for online shops, including audience targeting, platform selection, content quality, and engagement metrics. By examining these factors, this section aims to provide a comprehensive overview of the essential elements that online businesses should prioritize to enhance their advertising strategies and achieve desired outcomes.

3. Objectives

- To determine the most suitable decision-making processes in digital marketing, particularly in social media advertising.
- To identify and prioritize the key criteria in order to improve strategies for e-commerce business managers or digital marketing managers.

4. Research Design/Methodology

In this study, we designed a multi-stage approach to identify criteria for online shops, using a structured combination of literature review, expert input, and AI-driven analysis. Our process is as follows:

1. Identification of criteria and alternatives: We began our project by carrying out a comprehensive literature review. This process aimed to identify the essential criteria and alternatives for effectively evaluating social media advertising. By examining existing research and analyzing current trends, we gained valuable insights into the landscape of social media marketing. We reviewed several papers and extracted mentioned criteria and alternatives in this field. After conducting the literature review, we consulted 6 marketing experts from a manufacturing factory in Iran, which their experience in this field ranges from 2 years to 6 years. Besides, we used insights from 2 professors in field of marketing management from Tabriz university of Iran to validate our preliminary list to ensure the criteria and alternatives. We also used Chat GPT and Gemini to ensure the that our identified list was both comprehensive and relevant.

2. Assessment: Our main goal is to determine the best strategy in social media advertising. For this purpose, we prioritized the criteria and alternatives utilizing the analytic hierarchy process (AHP) proposed by Tom Saaty, T. L. (2010). Mathematical principles of decisions making. Pittsburgh: RWS Publications .A pairwise comparison questionnaire was prepared and distribute to aforementioned marketing experts and scholars.

5. Results/Model Analysis

The main goal of this model is choosing the best advertising strategy. The criteria and sub criteria are listed as below:

Main Criteria	Sub criteria	References
1. User Experience & Interface	User Friendliness	(Abd Aziz, 2024)
	Convenience	(Ecarma, 2021)
	Design	(Li, 2020)
	Web Quality & Performance	(Ajripour, 2020) (Rani, 2023) (Yilmaz, 2022)
2. Trust & Security	Trustworthiness	(Abd Aziz, 2024)
	Reliability	(Ecarma, 2021)
	Credibility	(Ecarma, 2021)
	Security/Privacy	(Li, 2020)
	E-reputation	(Rani, 2023) (Ajripour, 2020)
3. Customer Support & Responsiveness	Responsiveness	(Ecarma, 2021) (Abd Aziz, 2024)
	Customer Support	(Goceri, 2020) (Li, 2020)
	Chat Responses	(Iswavigra D. U., 2020)
	Incentives & Post-purchase Service	(Ajripour, 2020) (Rani, 2023)
4. Product & Pricing	Price	(Ecarma, 2021) (Goceri, 2020) (Iswavigra D. U., 2020)
	Discount	(Iswavigra D. U., 2020)
	Production Rating	(Iswavigra D. U., 2020)
	Product Variety	(Yilmaz Z. , 2022)
5. Marketing & Brand	Brand Image	(Thanh, 2022) (Goceri, 2020)
	Advertising	(Goceri, 2020) (Yilmaz Z. , 2022)
	Promotions	(Thanh, 2022) (Goceri, 2020)
	Market Layout Design	(Goceri, 2020)
	Brand Awareness	(Bulut, 2023)
6. Digital Presence & Engagement	Use of Social Media	(Thanh, 2022)
	Digital Creativity	(Rani, 2023)

	Engagement	(Bulut, 2023)
	Sales	(Bulut, 2023)
7. Information & Accessibility	Information	(Li, 2020) (Rani, 2023)
	E-service	(Ajripour, 2020)
	Accessibility of Product	(Thanh, 2022)
8. Transaction & Payment	Payment Methods	(Yilmaz Z. , 2022)
	Delivery and Guarantee	(Yilmaz Z. , 2022)
9. Customer Satisfaction & Experience	Past Experience	(Yilmaz Z. , 2022)
	Customer Satisfaction	(Thanh, 2022)
	Family/Friend Effect	(Yilmaz Z. , 2022)

Pairwise comparison matrix for the criteria is given below. Pairwise comparison matrices for the sub-criteria are not given here because of the page limit given for the extended abstract. They will be provided during the presentation.

Criteria	C1	C2	C3	C4	C5	C6	C7	C8	C9
C1	1	0.14	2.97	5.13	4.93	6.92	4.96	0.34	5.01
C2	6.99	1	2.92	5.12	3.06	7.16	2.97	4.95	2.94
C3	0.34	0.34	1	3.01	3.03	4.98	3	0.33	1.01
C4	0.19	0.19	0.33	1	4.99	0.19	7.05	0.34	7.06
C5	0.20	0.33	0.33	0.20	1	5.05	4.89	2.97	0.33
C6	0.14	0.14	0.20	5.07	0.20	1	2.89	3.07	0.20
C7	0.20	0.34	0.33	0.14	0.20	0.35	1	0.33	0.34
C8	2.90	0.20	3.04	2.92	0.34	0.33	3.03	1	0.32
C9	0.20	0.34	0.99	0.14	3.06	5.11	2.98	3.09	1

And the priority for the criteria are:

C1 (User Experience & Interface)	0.33
C2 (Trust & Security)	0.19
C4 (Product & Pricing)	0.13
C3 (Customer Support & Responsiveness)	0.12
C5 (Marketing & Brand)	0.08
C6 (Digital Presence & Engagement)	0.05
C8 (Transaction & Payment)	0.04
C9 (Customer Satisfaction & Experience)	0.04
C7 (Information & Accessibility)	0.03

These priorities indicate that User Experience & Interface (C1) is the most important criterion, followed by Trust & Security (C2), while Information & Accessibility (C7) has the lowest priority.

Based on the computed priorities for the sub-criteria, we proceeded to evaluate the four alternatives (Data-Driven Advertising, Content-Centric Strategy, Optimized Campaigns, and Influencer Partnerships) using pairwise comparison matrices. The final results for this model is shown in Figure1.

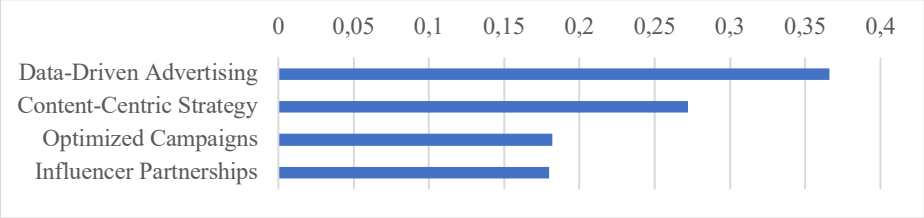

Figure 1 – final results of AHP model for best strategy

This figure illustrates that the most effective advertising strategy for online shopping is "Data-Driven Advertising."

6. Conclusions

The goal of this Analytic Hierarchy Process (AHP) model was to determine the best advertising strategy by evaluating various criteria and alternatives that influence the decision-making process. The model was structured in multiple layers, with the main criteria being User Experience & Interface, and Trust & Security, each of which had associated sub-criteria. In addition to these main criteria, alternatives such as Data-Driven Advertising, Content-Centric Strategy, Optimized Campaigns, and Influencer Partnerships were considered. These alternatives were assessed in relation to each criterion, and pairwise comparisons were made to establish their relative importance.
Through this approach, the AHP model provides that "Data-Driven Advertising" alternative stands out as the top choice for maximizing the impact of online shopping advertisements. As a result, the use of data allows for a more personalized and efficient approach to advertising, ensuring that marketing efforts align closely with consumer preferences and behaviors.

7. Limitations

The main limitation of this study was the access to more experts and the vast amount of information in this regard. To further refine the model, additional data and real-world performance metrics for each advertising strategy could be incorporated. This would allow for a more comprehensive evaluation and improve the reliability of the model's outcomes. Furthermore, gathering expert feedback or consumer insights on how they perceive these criteria and sub-criteria could help adjust the model for better real-world application.

8. Key References

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