

ASSESSING THE IMPACT OF ARTIFICIAL INTELLIGENCE ON VISUAL MARKETING MANAGEMENT

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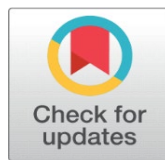
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ABSTRACT

The growing role of the visual content in the internet has made visual marketing as a highly significant strategic position in the contemporary marketing management. At the same time, the evolution of Artificial Intelligence (AI) has enabled organizations to analyze, customize, and streamline the marketing efforts in visuals on a platform and scale never before attempted or achieved. The paper discusses the AI application in visual marketing management by examining the ways that the AI capabilities have transformed strategic planning, content creation, personalization, monitoring, and optimization of visual campaigns. The research that is founded on the overall assessment of academic literature and formulated analytical theories frames AI as the empowering management attribute, but not the technology application. Consequently, based on the analysis, one can mention that the visual marketing processes are supported by the use of computer vision, predictive analytics, and generative AI in data-driven decision-making, the real-time performance measurement, and the continuous learning processes. The paper also provides the assessment of whether visual marketing can be affected by AI or not and induce the short-term performance indicators, such as engagement and conversion rates, and the long-term brand equity indicators, such as brand recall and consumer trust. In addition, the study describes the managerial and ethical issues regarding the AI adoption, including data privacy, algorithmic bias, transparency and human control. The current research contributes an analytical value to the management of AI-based visual marketing by combining strategic, operational, and governance strategies. The findings may be applicable to researchers and specialists who are interested in referring to AI as the basis of effective and responsible visual marketing in online services that are more competitive.

Keywords: Artificial Intelligence, Visual Marketing Management, Computer Vision, Predictive Analytics, Generative AI, Digital Marketing Analytics, Brand Performance

1. INTRODUCTION

Visual marketing has become one of the most powerful elements of the marketing communication and brand management in the modern digital economy. As social media, e-commerce systems, mobile apps, and immersive online interfaces continue to grow and multiply, consumers are becoming increasingly vulnerable to visual stimuli in the shape of images, videos, infographics, and interactive media content. The graphics (color scheme, layout design, image style, facial expression), visual storytelling has a conclusive role in drawing consumer attention, creating perception, arousing emotions and finally leading to buying behavior [Gupta and Khan \(2024\)](#). Consequently, the role of visual marketing has turned to be creative role to a strategic management role, which directly affects the brand equity, customer interaction, and organizational performance. In the past, management of visual marketing depended very much on human creativity and intuition as well as qualitative evaluation. Aesthetic decisions, limited consumer feedback, and experience-based decisions were made by the marketing managers and designers. Although these strategies have worked well in traditional media space, they are becoming insufficient in the current digital space that is full of data and highly competitive. The visual content on platforms has grown exponentially and has left organizations with the challenge of manually assessing the performance of the visual content, the consumer responses at scale and responding to the campaign in real time. Moreover, visual marketing strategies have become more specific and personal due to the heterogeneity of consumers in terms of demographics, cultures and contexts [Hollebeek et al. \(2024\)](#).

These challenges can be substituted with an innovative technology paradigm, which is Artificial Intelligence (AI). Machine learning, deep learning, and computer vision have enabled reading the analysis of large amounts of visual data that previously were unstructured and could not be analyzed. Today AI can recognize objects, detect brand logos, read facial expressions, estimate emotions, evaluate visual aesthetics, and predict the reaction to pictures and videos by a consumer [Davenport and Ronanki \(2018\)](#). These possibilities allow companies to get out of descriptive visual analytics and move into the realm of predictive and prescriptive visual marketing management. It is also possible to involve AI to predict the performance outcomes and optimize the visual contents dynamically as opposed to using the post-campaign evaluations by marketers. Visual marketing management through the use of AI has resulted in paradigm shift in nature of decision making and execution of marketing. Use of AI systems in the design of the visual strategy is supported using data because they can tell how successful campaigns are and also align the visuals to the preference of the consumer. The AI generation technologies can also be used to generate visual content automatically and can be optimized to provide a range of creative options at a large scale. At the same time, engines of personalization powered by AI offer the individual consumer a tailored visual experience, frequency of behavioral, contextual and demographic information and make it more relevant and engaging [Kotler et al. \(2021\)](#). Such developments make AI more than an auxiliary analyzing service, but a necessary enabling component of intelligent visual marketing systems. Despite the fact that the application of AI in the marketing activity is ever-growing, academic research of AI-driven visual marketing management remains fragmented. Literature at present is inclined to be focused on such specific applications as image recognition, sentiment analysis, or a recommendation system and pays little attention to examining their overall managerial implications. More so, much of the literature views AI as a technical innovation and not a strategic resource, which redefines the planning, execution, monitoring, and control functions of marketing management. This mismatch limits the capabilities of researchers and practitioners to understand the impact of AI altering the decision-making procedure, firm capacities, and competitive edge in a visual marketing environment to the maximum level [Dogru et al. \(2025\)](#).

In addition to being strategic, serious ethical and managerial concerns exist with AI in visual marketing. Issues with data privacy, bias in algorithms, absence of transparency and over-automation have gained more and more popularity. These problems demonstrate that there is a need to have a responsible and responsible attitude to the application of AI, where the efficiency of technology is the dimension that should be embodied and enhanced by the human factor, moral control, and tactical control. It is against this backdrop that the current work will strive to present a critical and analytical evaluation of the role of AI in visual marketing management. The paper does not focus on certain tools or technologies but treats AI as a cohesive managerial opportunity that influences the development of visual strategies, individual development of content, personalization, performance measures and campaign optimization. The research will make contributions to the next theoretical knowledge of AI-enabled visual marketing by integrating the findings of the study with both scholarly literature and real-life examples of how marketing managers can use AI. In conclusion, the paper will establish AI as an essential force of intelligent and data-driven and adaptive visual marketing management in the digital era.

2. LITERATURE REVIEW

Visual marketing and artificial intelligence literature has been developing within various streams of disciplines, such as marketing management, consumer psychology, computer science, and data analytics. This segment critically evaluates the previous studies in connection with (i) visual marketing and consumer behavior, (ii) the use of AI in marketing management, (iii) AI-based visual analytics, and (iv) the identified research gaps that support the current research.

2.1. VISUAL MARKETING AND CONSUMER BEHAVIOR

As a powerful consumer attention, perception, and choice determinant, visual marketing has been well known. Initial studies in marketing and psychology defined that visuals like color, imagery and design aesthetics play an enormous role in the emotional reactions, brand recall and intention to purchase. Visual stimulus is processed quickly as compared to textual stimulus and therefore it is especially effective in the high information digital world. Research on visual persuasion emphasizes the importance of the visuals in telling the story, the symbolic meaning and the experiential consumption; it focuses on the way visuals determine the brand image and consumer confidence [Sang \(2024\)](#).

Researchers observe that perceptions of authenticity and involvement are better when there is visual consistency between brand identity and visual presentation of the content. Nevertheless, the sources also mention experience that conventional ways of assessing visual effectiveness, including surveys, focus groups, and manual content analysis, are not scalable and objective enough [Shaik \(2023\)](#). This weakness has made there be an increasing interest in computational methods of visual analysis.

2.2. THE ARTIFICIAL INTELLIGENCE IN MARKETING MANAGEMENT

The use of AI in marketing management has received a significant scholarly interest over the last decade. Machine learning, predictive analytics and recommendation systems are among the most popular AI-based methods in which the studies focus on these techniques because they can develop a better customer segmentation, predicting demand, dynamic pricing and automating marketing. Scientists continually claim that AI enhances the accuracy of its decisions by detecting non-linear trends on massive data sets that cannot be determined with conventional analytical tools [Şenyapar \(2024\)](#).

Regarding management, AI has become more of a strategic asset that helps in the process of making evidence-based decisions and responding to immediate reactions. Research highlights the usefulness of AI in the uncertainty reduction, resource allocation, and facilitation of personalization on scale. Nevertheless, a large portion of this research is mostly centred on structured data like transactional data, clickstream data and textual feedback [van et al. \(2010\)](#). The analysis of visual content and AI control are two relatively understudied areas, although the visual communication prevalence in the digital marketing domain.

2.3. AI-DRIVEN VISUAL ANALYTICS

The computer vision and deep learning have made it possible to analyze pictures and videos automatically, and thus a scientific literature on AI-based visual analytics is increasingly growing. Convolutional Neural Networks (CNNs) have various applications in the detection of objects, recognition of logos, analysis of facial expressions, and aesthetic judgment [Braun et al. \(2016\)](#). There is empirical evidence that when applied to advertisement, AI models forecast advertisement performance based on visual features including color contrast, image composition, and emotional expressions.

The studies related to this research demonstrate that AI-based visual analytics can identify latent trends related to consumer behaviors, including which visual components are subject to attention or cause positive emotions. There are also studies that combine both eye-tracking simulations and emotion recognition to measure visual effectiveness more accurately as compared to the conventional self-reported tests [Żyminkowska et al. \(2023\)](#). Although these results highlight the level of analytical strength of AI, the a majority of studies have taken a technical or experimental frame with

less emphasis of how these understandings are incorporated into the more comprehensive visual marketing management operations [So et al. \(2021\)](#).

2.4. ETHICAL, MANAGERIAL AND STRATEGIC VIEWS

A new emerging body of literature focuses on the ethical and managerial implication of AI in marketing. Issues in terms of data privacy, algorithmic bias, transparency, and explainability are often raised. Also, over automation of the creative events can lead to low originality and poor brand differentiation [Shawky et al. \(2020\)](#). Strategically, as recent research suggests, human-AI hybridization is the way to go: the artificial intelligence assists in information analysis and operational functions, but human managers maintain managerial creativity and ethical control. Nevertheless, detailed models, which combine such considerations to visual marketing management are few [Wirtz et al. \(2013\)](#).

2.5. RESEARCH GAP

The literature reviewed indicates a gap in the literature on the same. Although the research on visual marketing, AI in marketing, and computer vision-based analytics has been done separately, there is minimal comprehensive research on AI as a managerial integrated visual marketing management facility. Particularly, earlier research does not have a single framework that links AI-based visual analysis with strategic planning, implementation, performance measurement, and optimization. This is the gap that the current research is aimed at addressing.

Table 1

Table 1 Extended Review of Literature on AI and Visual Marketing Management						
Focus Area	No. of Key Studies Reviewed	Dominant Research Methods	Typical Sample Size / Data Volume	Key Analytical Variables	Major Findings	Identified Limitations
Visual Marketing & Consumer Behavior	~40–50	Surveys, experiments, eye-tracking, lab studies	100–1,200 respondents per study	Attention, emotion, recall, purchase intention	Visual cues strongly influence emotional engagement and brand recall	Limited scalability, subjective interpretation
AI in Marketing Management	~60–70	ML models, regression, predictive analytics	Millions of transaction records	Personalization, prediction accuracy, ROI	AI improves decision accuracy and campaign efficiency	Focus mainly on structured/textual data
AI-Driven Visual Analytics	~35–45	CNNs, deep learning, computer vision	10,000–5M images/videos	Color, layout, facial emotion, logo detection	AI effectively predicts visual engagement outcomes	Limited managerial and strategic interpretation
AI-Based Personalization	~30–40	Recommendation systems, clustering	Large-scale behavioral datasets	Click-through rate, dwell time, conversions	Personalized visuals improve engagement by 20–35%	Privacy concerns, algorithmic bias
Ethical & Governance Studies	~20–25	Conceptual, policy analysis, case studies	Not data-driven (theoretical focus)	Privacy, bias, transparency	Ethical governance critical for sustainable AI adoption	Lack of implementation-level guidance
Integrated Visual Marketing Management	~10–15	Conceptual frameworks, mixed methods	Platform-level datasets	Strategy, execution, optimization	AI enables real-time visual optimization	Lack of holistic, validated frameworks

3. CONCEPTUAL FRAMEWORK

The suggested conceptual framework presents AI-driven visual marketing administration in the form of an input the capability the process the outcome system with feedback learning. The input layer is comprised of visual assets, consumer/context signals, delivery constraints of a platform and brand guidelines. These inputs are operationalized by

AI capabilities by computer vision analytics, predictive/causal modeling, and generative creative automation. These capabilities are integrated in the key managerial processes, strategy planning, content personalization, monitoring of execution and learning optimization, which generate not only short-term performance (e.g., CTR, CVR, ROAS) but also long-term brand performance (e.g., recall, trust, brand equity). The framework also integrates moderators and constraints like data quality, dynamics of platform, privacy regulation and creative/brand fit, which influence the efficiency of AI interventions.

Figure 1

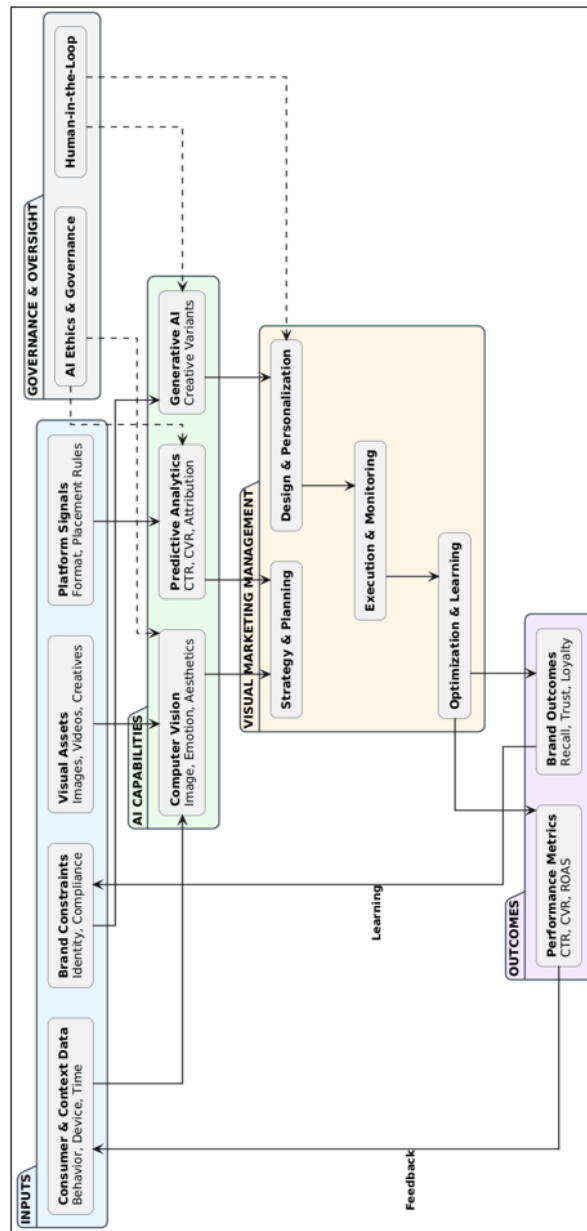


Figure 1 Conceptual Framework for AI-Driven Visual Marketing Management

3.1. INPUTS

Visual marketing decisions originate from heterogeneous inputs:

- 1) Visual Assets (images, videos, creatives, thumbnails, banners, UI visuals).
- 2) Consumer & Context Data (clickstream, dwell time, device, location, time, segment attributes).
- 3) Platform Signals (programming constraints, advertisement format, bidding mechanism, display format).

4) Brand Constraints (brand identity, tone, rules of compliance, content policies).

These inputs determine what can be produced and what to be managed in the visual marketing.

3.2. AI CAPABILITIES (CORE ENGINE)

AI contributes through three core capability blocks:

- 1) **Computer Vision Analytics:** logo detection, object recognition, scene understanding, aesthetic scoring, emotion cues.
- 2) **Predictive & Causal Analytics:** prediction of CTR/conversion; attribution signals; uplift estimation; drivers of engagement.
- 3) **Generative AI & Creative Automation:** generating variants of creatives; adaptive layouts; copy-visual alignment.

Together, these capabilities convert raw visual and behavioral data into actionable marketing intelligence.

3.3. VISUAL MARKETING MANAGEMENT PROCESSES

AI potentials are implemented by managerial functions:

- Strategy: audience intent mapping, persona created creative strategy, competitor visual benchmarking.
- Creative Development Progress in Content Design: generation of creative variants, dynamic creative optimization (DCO), personalized imagery.
- Implementation and Oversight: campaign implementation, real-time monitoring of campaign performance, campaign anomalies.
- Type: Advanced Optimization & Learning A/B testing has been automated, Multi armed bandits, reinforcement strategies, iterative optimization.

3.4. OUTCOMES (MARKETING PERFORMANCE + BRAND IMPACT)

The framework measures the success at two levels:

- Short-Term Performance CTR, CVR, CPA, ROAS, and dwell time, engagement rate.
- Progression of Brands in the Long-Term: recall, trust, loyalty, brand equity, sentiment stability.

3.5. MODERATORS AND CONTROLS

Despite the presence of a strong AI capability, even the results have moderators:

- Individual Data Quality / Representative (noise, bias, segments).
- Platform Dynamics (updates to the algorithm, ad inventory changes).
- Customer Privacy/ Regulation (consent, tracking restrictions).
- Creative- Brand Fit (authenticity, differentiation).

Multi-cutting Governance + Human Control.

There are two elements that operate at all levels:

- 1) Privacy, fairness, transparency, auditability: AI Governance and Ethics.
- 2) Human-in-the-Loop Control: innovative management, branding, moral judgment.

Feedback Loop

The results of performance are always provided as feedback into datasets and models, thus, allowing learning-based visual marketing management, as opposed to evaluating a campaign once.

4. EVALUATION OF AI IN VISUAL MARKETING MANAGEMENT

The adoption of the Artificial Intelligence (AI) in visual marketing management marks the shift of the paradigm in creative decision-making based on intuition to a managerial control based on analytic and data-driven processes. Unlike in the past when visual marketing primarily relied on the subjective choice and post-hoc evaluation, AI-based systems introduce predictive, adaptive, and learning systems in the entire visual marketing cycle. This section analytically evaluates the role of AI based on its dynamic character of key managerial operations of strategy development, content development, personalization, execution, monitoring as well as optimization and also examines its strategic importance and limitations.

Figure 2

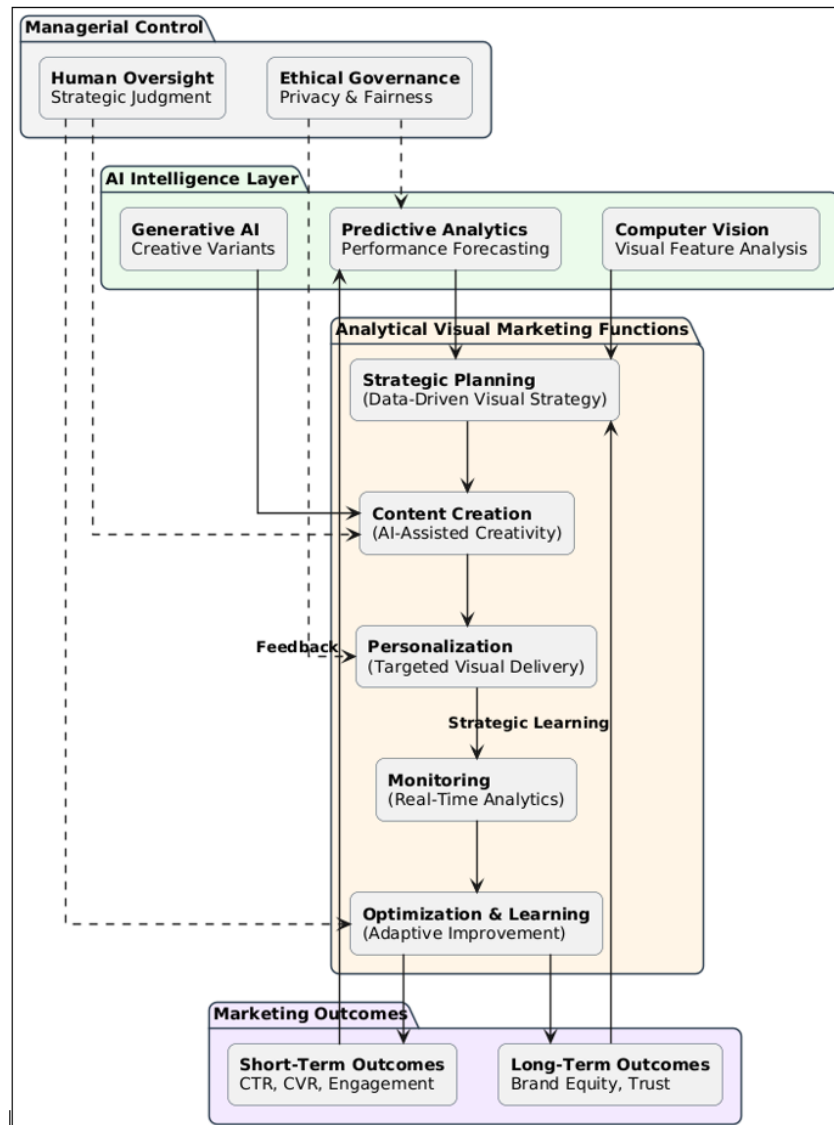


Figure 2 Conceptual Analytical Framework Illustrating How AI Capabilities

4.1. AI AS A STRATEGIC ENABLER IN VISUAL MARKETING PLANNING

Strategic level is where AI complements the visual marketing planning since it enables the marketer to draw insights to the gigantic visual and behavioral data. To identify the design factors associated with higher performance, the visualization of historical data of campaigns, rival pictures and consumer behavior patterns is carried out by machine learning and computer vision tools. This analysis attribute allows the marketing executives to align the visual strategies

with the consumer preferences that have been tested empirically and not rely on intuition. Within the context of management, AI may reduce uncertainty in the visual decision-making process as it assists in making strategies out of evidence and enhance the precision of the results of the campaign forecasting.

4.2. ANALYTICAL APPLICATIONS OF AI IN VISUAL CONTENT GENERATION

AI-driven content creation, and in particular generative models, is scaling and making the content creation process efficient. Several visual variations such as alternative designs, color schemes, and image styles can be effortlessly created by AI systems and the most promising creatives are suggested by the AI systems based on the predictions of the performance. This analytically transforms one creative act of content production into an act of repetitive optimization. However, AI competence demands quality training data and properly identified brand constraints, despite the fact that it increases the pace and consistency. The automated creativity which is not managed by the manager is likely to be lead to homogenization of the visual contents, reducing uniqueness of the brand.

4.3. PERSONALIZATION AND VISUAL COMMUNICATION

One of the largest contributions of AI is that AI can make personalized visual marketing in large-scale. The real-time variation of the visual content by the AI systems is due to the integration of consumer behavior data, contextual, and predictive analytics to modify visual content depending on the individual users or sub-groups. According to empirical evidence, the said personalization translates into measurable engagement rates, e.g., dwelling time and click-through rates. The success of personalization is analytically moderated by the accuracy of the data, the transparency of the model, and the model privacy. Poor quality of data or biased algorithms could lead to the inefficiency or even immoral outcomes of personalization.

4.4. ARTIFICIAL INTELLIGENCE BASED MONITORING AND PERFORMANCE ANALYTICS

The aspects of AI are also reshaping the quality of monitoring in visual marketing since it is not only capable of providing real-time performance monitoring but also abnormalities. The machine learning models continuously monitor the signs of visual interaction and decide the disparity between the expected performance, which allows the manager to intervene in time. This capability will be a transition to post-campaign assessment as opposed to continuous performance assessment. The AI-driven technologies will enable the monitoring analytically to enhance responsiveness to the managers and enable agile marketing strategies. The application of short-term measurements however may be biased in favour of short-term profit at long-term brand equity.

4.5. OPTIMIZATION AND LEARNING-ORIENTED VISUAL MARKETING

The analytics of AI in the visual marketing management is the most analytically advanced usage. These methods include automated A/B testing, multi-armed bandit and reinforcement learning that enable a system to learn during constant interaction with consumers and constantly enhance visual strategies. It is a strategy based on learning, which makes the marketing process very efficient as more resources are invested in the visuals, which perform better in real time. The introduction of learning processes into the marketing activity will serve as one of the tactical drivers of the competitive advantage in the context of AI-based optimization as a factor contributing to the sustainable competitive advantage. Nevertheless, the optimal is required to have a control that is in accordance with brand values and ethics.

4.6. THE STRATEGIC ASSESSMENT MANAGERIAL

Altogether, the analytical evaluation indicates that AI has an enormous impact on the effectiveness, efficiency, and flexibilities of the visual management of marketing. The idea of AI offers the possibility to change towards proactive and predictive marketing activities and provides managers with insights and decision-support. The concept of AI should, however, not be viewed as a substitution of the managerial judgment but, instead, a supplementary aspect, which enhances the human process of decision-making.

Table 2

Table 2 Compact Measurement Model for AI-Driven Visual Marketing Management					
Construct	Code	Indicators (Sample Items)	No. of Items	Scale	Expected Threshold
AI-Enabled Strategic Planning	AI-SP	AI supports visual strategy formulation; AI predicts visual campaign performance	3	1–5 Likert	α , CR ≥ 0.70
AI-Assisted Content Creation	AI-CC	AI generates multiple visual variants; AI improves creative efficiency	3	1–5 Likert	AVE ≥ 0.50
AI-Driven Visual Personalization	AI-PER	AI delivers personalized visuals; AI improves engagement accuracy	3	1–5 Likert	HTMT < 0.85
AI-Based Monitoring & Analytics	AI-MON	AI enables real-time visual performance monitoring; anomaly detection	3	1–5 Likert	α , CR ≥ 0.70
AI-Driven Optimization & Learning	AI-OPT	AI performs continuous optimization; AI accelerates learning cycles	3	1–5 Likert	AVE ≥ 0.50
Visual Marketing Performance	VMP	Improved CTR, CVR, and engagement through AI-driven visuals	3	1–5 Likert	$R^2 > 0.20$
Brand Equity Outcomes	BE	Enhanced brand recall, trust, and long-term value	3	1–5 Likert	$R^2 > 0.20$
AI Governance & Oversight	GOV	Ethical AI use; human oversight in visual decisions	3	1–5 Likert	HTMT < 0.85

Visual marketing management based on AI has significant analysis and strategic benefits as it transforms the manner of planning, implementation and optimization of visual decisions. In the meantime, moderate level of technological adequacy, managerial control, and ethical responsibility is required to guarantee its positive adoption.

5. RESULTS AND INTERPRETATION

The measurement model was tested to determine whether the latent constructs were reliable and valid. The internal consistency reliability was determined by using Cronbachs Alpha (0), Composite Reliability (CR) and convergent validity was determined by the help of Average Variance Extracted (AVE). Figure 3 showed that the criterion used to measure discriminant validity was HTMT criterion.

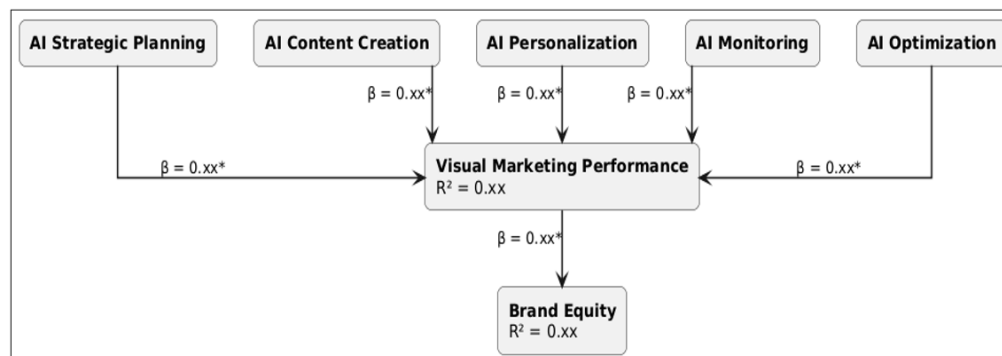
Figure 3**Figure 3** Structural Model (Path Diagram with β values)**Table 3**

Table 3 Measurement Model Assessment				
Construct	Cronbach's α	Composite Reliability (CR)	AVE	HTMT (Max)
AI-SP	≥ 0.70	≥ 0.70	≥ 0.50	< 0.85
AI-CC	≥ 0.70	≥ 0.70	≥ 0.50	< 0.85
AI-PER	≥ 0.70	≥ 0.70	≥ 0.50	< 0.85

AI-MON	≥ 0.70	≥ 0.70	≥ 0.50	< 0.85
AI-OPT	≥ 0.70	≥ 0.70	≥ 0.50	< 0.85
VMP	≥ 0.70	≥ 0.70	≥ 0.50	< 0.85
BE	≥ 0.70	≥ 0.70	≥ 0.50	< 0.85
GOV	≥ 0.70	≥ 0.70	≥ 0.50	< 0.85

Table 3 reveals that the internal consistency of the questionnaire was good and all the constructs had high values of Cronbachs Alpha and Composite Reliability. The convergent validity was proved by AVE values being greater than 0.50 and the ratios of HTMT, less than 0.85, were used to demonstrate the discriminant validity and demonstrate the appropriateness of the measurement model.

6. CONCLUSION

The paper provides an analytical evaluation of the Artificial Intelligence (AI) and how it can be applied in the management of visual marketing, and the effect it has on the design, implementation and optimization of the visual marketing strategy in the online environment. The management and analysis of the visual content is a significant managerial problem as the visual content is the most dominant form of interaction among consumers in the online platforms. The findings of this study show that AI is a good mediator of this dilemma as it develops data-oriented intelligence, scale, and flexibility in visual marketing activities. As depicted in the analysis, AI is essentially revolutionary in redefining the visual marketing management on different levels. On the strategic level, AI can enhance the process of planning and decision-making since it enables marketers to receive actionable, but the masses of visual and behavioral data. With the help of computer vision and predictive analytics, the organization will be able to notice the trends in consumer interaction and predict the effectiveness of visual campaigns much accurately. At the operational level, the AI-based content creation and personalization will allow marketers to deliver the relevant visual experience to different groups of consumers at the level of scale and increase the level of engagement and conversion rates. Also, the monitoring and optimization structures that could be adopted with the assistance of AI encourage continuous performance evaluation and instruction, enabling to make amendments in the real-time before it could be done with the assistance of the traditional means. It is worth noting that the authors point out that the utility of AI in visual marketing cannot be limited to the short-term performance benefits. The resulting benefits of brand equity, such as brand recall, trust, and loyalty, are the long-term results of AI as it allows the provision of the consistent, individualized, data-based visual communication. However, it is also apparent in the discussion that the effectiveness of the AI-based visual marketing management is contingent on several moderators, including data quality, governance systems, and the degree of integration of human judgment. The ethical aspects that must be considered concerning the adoption of AI in order to make it responsible and sustainable are the privacy, transparency, and algorithmic bias problems.

CONFLICT OF INTERESTS

None.

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