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AI FOR VISUAL BRAND MANAGEMENT IN PRINT MEDIA

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ABSTRACT

Management of visual brands in print media is an important aspect of preserving brand identity, recognition, and consistency of large amount of marketing collateral. Nonetheless, the conventional brand governance is highly manualized, working on fixed rules, and judgmental, which is hard to scale, audit, and conform to quickly changing design ecosystems. The paper suggests an AI-based visual brand management system in the print media that uses machine learning, computer vision, and generative modeling to automate the brand review, consistency evaluation, and layout standardization. The suggested methodology is a mixture of image classification and clustering tools that are used to identify brand assets, i.e., logos, color codices, typography, and repetitive motifs in a variety of print materials. The new AI-based brand consistency scoring model is proposed to objectively assess how well its brand guidelines are followed by quantifying the degree of visual similarity, stylistic deviation and alignment of motifs on a component and layout level. Moreover, generative AI models are used to aid the idea of template creation and layout optimization to allow a standardized but flexible design output that can maintain brand identity and save time. The proposed experimental framework compares the proposed framework with the traditional rule-based and designer-driven review processes in terms of accuracy, consistency deviation, processing time, and scalability. Findings indicate that AI-driven solution can greatly increase the rate of brand consistency detection, lessen the time to do the review process, and increase consistency in print campaigns. This piece of work displays the potential of AI to act as a decision-support tool to a designer/brand manager instead of taking away human creativity by connecting analytics with creativity. The suggested framework provides a platform of scalable intelligent brand governance and preconditions the future expansions to include real-time, cross-platform, and privacy-aware brand management systems.

Keywords: AI-Driven Branding, Visual Brand Consistency, Print Media Analytics, Generative Design Systems, Brand Asset Management

1. INTRODUCTION

Visual branding is a core component of organizational identity, which determines how viewers perceive, recognize, and respond to a brand in an emotional way. Visuals such as color patterns, typefaces, design, graphics and patterns are a determining factor in communicating brand values and guaranteeing consistency in recognisability among campaigns in print media (brochures, posters, magazines, packaging, and advertising collateral). It is imperative that these aspects remain consistent to create trust and reinforce the recollection as well as a consistent presence in the market. Nonetheless, the larger the brand in terms of geographical area, products, and creativity team, the more complex and resource consuming it is to control visual consistency in print media. Conventionally, print media visual brand management has been based on brand manuals, manual checks as well as human judgment of designers and brand managers. Although brand guidelines specify acceptable colors, fonts, use of logos and principles of layout, their implementation usually requires human intervention, which is slow, can be inconsistent and cannot be scaled. A large organization or agency with thousands of print materials often has a problem with drift like color, inconsistent type-face, misplaced logos, or loss of style through time Stancu and Panait (2025). Such challenges are also enhanced by the tight production schedules, teams spread across geographies, and constant updates of the campaign and thus manual brand governance is inefficient and prone to errors. New possibilities to eliminate these limitations are provided by the recent developments in artificial intelligence. The artificial intelligence methods, especially in computer vision, machine learning, and generative modeling, allow visual data to be analyzed automatically at the degree of detail and scale that is effectively impossible to be reviewed by human analysts alone. Logos, color schemes, typography, and layouts of large databases of print materials can be detected using image classification and feature extraction models Wisetsri (2021). The hierarchical AI structure in Figure 1 operates visual brand consistency in print media. The similarity analysis and clustering will be able to reveal stylistic differences and identify a break with the established brand identities. Due to this, AI can change visual brand management into a subjective, reactive process to a data-driven, proactive, and scalable system.

Figure 1

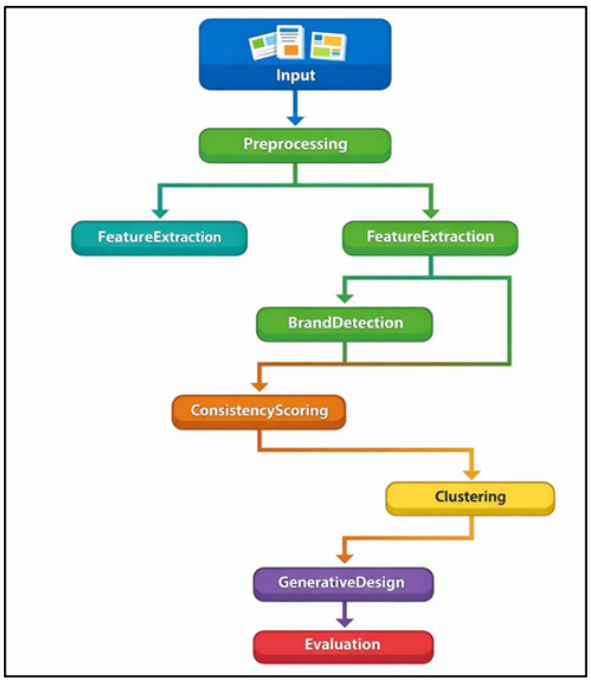

Figure 1 Hierarchical AI-Driven Visual Brand Management Framework for Print Media

In addition to identification and analysis, the generative AI opens a new paradigm of creating and standardizing print designs. Rather than indicating discrepancies, AI can be used to provide assistance to designers, providing brand-compliant templates, layout modifications suggestions, and optimizing visuals to adhere to the brand rules. Such a strategy does not lead to the loss of creativity but does not damage the main features of identity. Notably, AI here can be

likened to an intelligent assistant, i.e. to enrich human creativity and decision-making instead of designers or strict automation Hagendorff (2024). Although the mentioned advancements were achieved, the use of AI in the specifically visual brand management of the print media is not a topic that has been fully researched either academically or applied. The literature tends to be devoted to the topics of digital branding, online advertising analytics, or specific design tasks, e.g. the detection of a logo or the analysis of colors. Visual analytics, consistency scoring and generative support based on the specific limitations and demands of print media, such as sensitivity to resolution, color reproduction, and layout integrity have an apparent need to be integrated into a unified framework Al-Kfairy et al. (2024).

2. LITERATURE REVIEW

2.1. VISUAL BRANDING PRINCIPLES AND IDENTITY SYSTEMS

The principles of the visual branding are the basis of the mechanism of how the organizations convey the identity, values, and positioning by means of visual tools. A visual identity system consists of the core elements; logos, color combinations, typography, the image styles, grid forms, repetitive patterns, etc. which all combine to form a consistent and recognizable brand presence. The literature on branding highlights consistency as an essential element of brand equity, and states that a consistent visual stimulus boosts brand memory, credibility, and perceived professionalism. In print media, where the artifacts tend to be tangible and enduring, breakages in the visual identity might have a long-term negative influence on the brand perception Wach et al. (2023). Brand manuals or style guides are the usual formal efforts to define acceptable visual variants and usage restrictions and thus identity systems. The purpose of these systems is to have a compromise between the monotony and the imaginative malleability of layouts so that designers can customize them without losing important brand identities. Nevertheless, conventional identity systems are mostly fixed and are based on the presumption of predictable geometries of design and centralized control Wang and Wu (2024). The increase in the number of brands that work on the international level and cooperate with various agencies makes it more difficult to be the strict respecter of adherence. Studies point to such problems as the subjective nature of the guidelines, the gradual change of the style, and the inequalities brought about by the different technologies of production.

2.2. AI IN GRAPHIC DESIGN, LAYOUT OPTIMIZATION, AND MEDIA ANALYTICS

Through the use of artificial intelligence, graphic design and production of various media forms have begun to affect the creative process and the operation of creative industries, particularly in terms of automation, optimization, and critical observation. Image refinement, layout recommendation, typography matching, and colour compatibility are some of the tasks that AI-based tools can advertise in the graphic design field. Such systems have been based on the concept of deep learning that is trained on vast design data to pick up aesthetics patterns and structural guidelines, thus aid designers in creating aesthetically balanced and appealing compositions He (2022). Instead of it substituting creativity, AI is poised as a co-creative agent, with the ability to hasten ideation and alleviate manual repetitive labor. One notable area of application has been the layout optimization especially in the print and advertising media. It is shown in research that optimization algorithms and neural networks can be used to enhance visual hierarchy, alignments, and the use of whitespace, using readability and aesthetic metrics Chen et al. (2022). The AI-driven systems are able to assess various options of layouts quicker, to find the arrangement that creates the maximum visual clarity and brand presence. Such optimization in media that require space resources where the issue of space is paramount and the costs of production are essential, leads to efficiency and consistency directly in print media. Media analytics goes further to allow mass testing of visual information. AI-powered analytics can determine the visual interaction, identify style tendencies, and the adherence to the established design rules. Although most of this research has been on digital platforms, the recent studies point to the increasing applicability of print analytics, especially in terms of recording brand compliance and campaign effectiveness Gamit et al. (2022). Taken together, this literature highlights that AI has the potential to mediate creative design and analytical governance in the visual brand management systems.

2.3. MACHINE LEARNING FOR BRAND RECOGNITION AND PATTERN EXTRACTION

The extensive use of machine learning has been on brand recognition and visual pattern extraction that has been achieved majorly in computer vision. Earlier solutions were based on the detection of logos with the help of manually constructed features, and nowadays, people are using convolutional neural networks that are able to learn hierarchical

representations of forms, colors, and Jain (2025) textures. These models are very accurate in finding brand logos under diverse backgrounds, scales and even print conditions and are applicable in automated brand asset detection of the print media. In addition to the logo recognition, researchers have delved into pattern extraction methods that would absorb more on brand identity Lim and Park (2025). Color distribution analysis, extractions of typographic features, and texture modeling can help systems to detect the features of a style that goes beyond explicit symbols. The similarity measures which are based on clustering and embedding are often applied to cluster the visual assets based on the brand style, unveiling the deviations and inconsistency in the large datasets. Table 1 demonstrates AI technology moving in visual branding, analytics and brand consistency management. These methods endorse the idea that brand identity can be developed as a visual pattern of multiple dimensions, as opposed to being a single graphic component. The recent literature also indicates the combination of supervised and unsupervised learning to analyse the brand.

Table 1

Table 1 Overview on AI-Based Visual Branding, Design Analytics, and Brand Consistency Management

Application Domain	ML Technique Used	Visual Elements Analyzed	Dataset / Scale	Limitations
Logo Recognition	CNN	Logos	50K brand images	No brand consistency analysis
Digital Branding Fulton et al. (2024)	Deep CNN	Color, logo	Web banners	Limited to digital media
Graphic Design Support	GAN	Layout, typography	Magazine layouts	No governance or compliance scoring
Print Advertising	Rule-based + CV	Color palettes	Print ads	Static rules, low scalability
Brand Monitoring Phan et al. (2024)	CNN + Clustering	Logos, motifs	Social media images	Ignores print constraints
Media Analytics	ML classifiers	Visual style	Mixed media	No guideline-based consistency
Typography Analysis	Deep feature learning	Fonts, strokes	Poster datasets	No holistic branding view
Creative AI Tools Strycharz and Segijn (2022)	VAE	Layout patterns	Design templates	Lacks brand identity enforcement
Visual Compliance	CV + heuristics	Logo placement	Corporate assets	Limited adaptability
Brand Consistency	Siamese Networks	Color& layout	Marketing creatives	No generative correction
Generative Design	Diffusion models	Layout, imagery	Print + digital ads	No consistency scoring
Multimodal Branding Kamila and Jasrotia (2023)	Vision + NLP	Image–text alignment	Campaign assets	Print media not addressed
Brand Governance	ML + analytics	Brand assets	Enterprise DAM	No generative support
Print Brand Management	CV + ML + Generative AI	Color, typography, motifs, layout	Large-scale print assets	Addresses gaps in prior work

3. METHODOLOGY

3.1. IMAGE CLASSIFICATION, CLUSTERING, AND GENERATIVE MODELING APPROACHES

The research approach will combine image segmentation, classification, and generative modeling to make it possible to study the print media visually comprehensively. The initial level of analysis is image classification where deep convolutional neural networks were trained to detect brand-specific features like logos, prevailing color schemes, typography, and layout. These models are based on high resolution print assets and optimized with respect to accommodating variations that are created by printing processes, scanning artifacts, and format differences. The visual characteristics used in branding are compact yet expressive features obtained through intermediate network layers as feature embeddings Sands et al. (2024). These embeddings are then clustered using clustering techniques to cluster print assets by visual and stylistic coherence. Unsupervised clustering allows to locate repetitive design patterns, campaign-based styles and any possible outliers that do not comply with the traditional brand standards. The step is especially handy with large brand repositories, in which it is not feasible to manually view thousands of assets. The system can demonstrate possible slight shifts in the style and inconsistency in how the brand should be used by examining the intra-cluster variance. The last element of this strategy is generative modeling. Generative adversarial networks and diffusion-

based models are utilized so as to learn brand-compliant visual distributions using approved assets. These models help in the creation of standard templates and variation of layouts that comply with the limits of brand identity. The combination of a set of analytical and generative features allows the framework to not only estimate the currently existing print designs in terms of their evaluation but also helps in creating a coherent and brand-oriented output.

3.2. AI-BASED BRAND CONSISTENCY SCORING MODEL

One of the main additions of the suggested methodology is the AI-based brand consistency scoring model, which will be used to measure the compliance with visual brand guidelines quantitatively. In contrast to binary compliance checks, the scoring model gives a continuous score of consistency that is an indication of levels of congruency or variance on several visual dimensions. The model sums the characteristics of the color harmonies, typographic homogeneity, and the precision of the logo locations, repetition of the motifs, and the layout framework into a single scoring system. The similarities in each of the visual dimensions are measured with similarity measures based on learned feature embeddings. The scores of AI flowchart computing brands come out as a result of visual design features as illustrated in Figure 2. An example is color consistency, which is determined by distributional similarity in perceptual color spaces, and typography consistency which is determined by learned font and stroke representations.

Figure 2

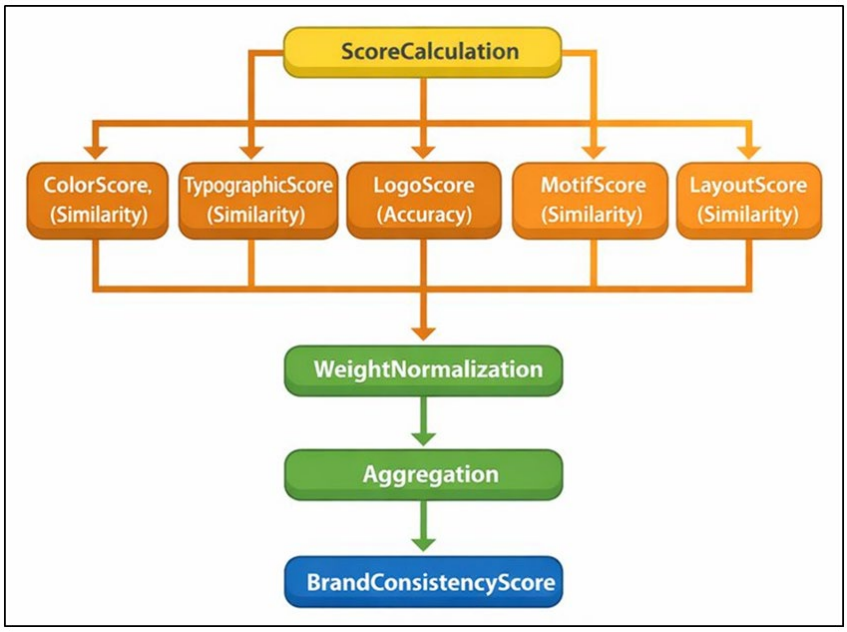

Figure 2 Flowchart of the AI-Based Brand Consistency Scoring Model

The usage of logos is measured against the reference distributions based on approved brand assets by comparing the detected logo scale, position and clearance. These personal scores are made normalized and weighted to show their comparative significance in the brand identity system. Finally, brand consistency score is calculated as weighted composite index, which allows both asset and campaign-level assessment to be interpretable.

3.3. EXPERIMENTAL SETUP AND BENCHMARKING PROTOCOLS

The experimental design will provide inflexible assessment of the performance of the given AI-based visual brand management framework. An edited collection of print media materials is created including brochures, posters, advertisements and packaging materials gathered during several campaigns and production cycles. There are brand-compliant and deliberately perturbed assets in the dataset to recreate deviations in color usage, typography, layout, and other aspects in the real world. The brand compliance ground truth labels are formulated based on the review of experts to reinforce the supervised review. The protocols of benchmarking are used to compare the proposed framework with the traditional rule-based checks and manual review processes. The performance measures are brand element detection

accuracy, clustering coherence and consistency scoring reliability. Efficiency will be measured by processing time per asset and scalability when scales of assets are increased. In order to evaluate robustness, experimentation includes perturbations in resolution, color calibration, as well as print artifacts that are typically experienced in printing environments. Structural similarity and brand consistency scores are used in assessing the performance of generative models between generated templates and approved reference designs. Also user-oriented evaluation is performed, in which designers and brand managers can test the usability of recommendations generated by AI and perceived value. The statistical significance testing is also used in the comparison of results of the methods to guarantee the possibility of reproducibility and fairness. This detailed experimental guide will guarantee that the suggested method is not considered just in terms of technical accuracy but also in the way it can be applied in real-life print brand management conditions.

4. PROPOSED AI FRAMEWORK FOR VISUAL BRAND MANAGEMENT

4.1. BRAND ASSET DETECTION AND FEATURE EXTRACTION MODULE

Brand asset identification and feature extracting module is the basic layer in the suggested AI framework. Its main task is to automatically recognize and encode core brand contents entrenched in print media assets. All these are comprised of logos, brand marks, predominant color areas, typography, imagery patterns, and layout. The preprocess of high-resolution print artifacts is initially done to equalize the scale, resolution, and color profiles, to be resistant to the changes added during the printing and scanning process. Computer vision models based on deep learning are used to identify and identify brand assets. The networks of logo detections recognize brand symbols and their spatial characteristics, i.e. size, location, clearance. These dissimilar attributes are converted into homogenous embedding vectors that capture the low-level visual features as well as stylistic attributes on high-level features. Embeddings obtained are used in two ways. They, first, facilitate efficient searching and retrieval of brand resources in big print libraries. Second, they serve as uniform downstream consistency evaluation inputs as well as generative modules. The module is modular and scalable by separating the interpretation component and the detection component. Such automated level of understanding of assets substitutes manual tagging and subjective examination and provides a credible computational foundation of intelligent visual brand administration in print media settings.

4.2. COLOR, TYPOGRAPHY, AND MOTIF CONSISTENCY EVALUATION

Based on extracted features, the consistency evaluation module is a quantitative evaluation of alignment with the established brand identity standards. This module dwells on three fundamental aspects of visual branding; color application, typography, and motifs. The dimensions are assessed separately and then are combined into a comprehensive consistency check. The consistency of colors is evaluated with the dominant and secondary distributions of color in comparison to reference brand color palette. The perceptual similarity measures resolve low-level changes of hue, saturation drift or uneven variation in contrast levels which may arise in any batch of prints. Typography consistency check is a test that lays out font families, stroke features, spacing, as well as typographic hierarchy. The learned representations enable the system to detect unauthorized font replacement or inappropriate typographic emphasis which can actually water down the brand tone. Consistency analysis of motifs This approach identifies repetitive visual patterns, icons, textures or illustrative styles that are implicit brand signatures. The system is able to determine the consistency with which the motifs are applied among assets through similarity analysis and pattern frequency modeling and the inconsistency with which they are fragmented. The individual dimensions generate a normalized score of consistency, which allows a fine-granular diagnosis of the sources of deviation. The principles of qualitative design can be converted into quantitative indicators by this module to provide objective, repeatable, and auditable brand evaluation. It enables the provision of asset-based feedback to the designer as well as aggregate understanding to campaign-based brand management, which greatly lessens the dependence on manual examination that is subjective in nature.

4.3. GENERATIVE AI FOR TEMPLATE AND LAYOUT STANDARDIZATION

The generative AI is an extension of the passive analysis to proactive design assistance. It is designed to help it generate standardized, brand-conforming templates and layouts in print media and maintain creative flexibility.

Training generative models Using approved brand assets only, they acquire the structural and stylistic constraints within which acceptable visual identity expressions are learned. These models create layout templates, which observe brand specific regulations pertaining to grid systems, logo location, typographic order, and color ratios. Instead of creating complete designs, the system will create flexible templates, which the designer can refine to meet content-specific needs. This provides a structural level consistency but creative content level variation. Also the generative module will be able to propose corrections to the current designs that have been identified as inconsistent. E.g. it can propose different color schemes, scaled typography, or rearranged brand to increase compliance scores. These guidelines are cues of decision support and not dictates to be followed, which strengthen human centred design processes. The framework brings together generative and analytical feedback capabilities to bring about a closed loop between production and evaluation. This method cuts out manual designing time and speedy generation of campaigns and provides scalable implementation of brand identity with high volumes of print materials, making AI a strategic facilitator of smart visual brand management.

5. FUTURE RESEARCH DIRECTIONS

5.1. REAL-TIME BRAND MONITORING USING MULTIMODAL AI

The visual brand management systems can be further expanded on the visual brands monitoring towards real-time by incorporating the multimodal artificial intelligence in future research. Outside of the fixed print resources, brand communication is being more and more a dynamic activity between visual, written and contextual cues. In the case of print media, this can be in the form of real-time checking of design drafts, proofs, and pre-press printouts and enabling inconsistencies to be identified and corrected prior to mass production. This would allow these systems to integrate computer vision with natural language processing to match visual data with the slogans, headlines, and brand stories. To illustrate, discrepancies between brand communication and visual tone might be automatically pointed out. Temporal modeling can also be added to trace the development of the brand over time and reveal the gradual shift in style, which is hard to notice with single audits. Multimodal real-time monitoring would revolutionize the brand governance practices of periodic audits to proactive quality control. Nevertheless, there are still issues in having low-latency inference, incomplete input protection, and designers and brand managers to understand the alerts. Further development needs to be on scalable architecture, explainable multimodal representation and integration with existing design and print production processes to provide practical, real time brand intelligence systems.

5.2. CROSS-PLATFORM BRAND CONSISTENCY ACROSS PRINT AND DIGITAL MEDIA

With the growing use of brands by both print and online media, consistency of appearance cross platform is an important issue of research. Print media are limited in terms of resolution, color reproduction as well as layout rigidity, and the digital media offers dynamic content, interactivity and responsiveness. The challenge of the future research should be to conduct unified AI models that are capable of predicting brand identity in these diverse environments. These structures would discover platform-independent brand images that represent key identity aspects and allow variations in the medium. One example is that color consistency models need to take into consideration the variations in print color spaces and digital displays whereas typography analysis should take into consideration responsive scaling and readability on a screen. The cross-platform consistency scoring may allow organizations to test how a campaign can be coherent in its branding on posters, websites, social media visuals, and mobile apps. It also requires research on the transfer learning methods where the knowledge gained on print branding can be used on the digital design and vice versa.

5.3. FEDERATED AI FOR BRAND ASSET PRIVACY AND IP PROTECTION

The brand assets are a rich intellectual property, and therefore privacy and security are important issues in AI-based brand management systems. Data aggregation at a central point during model training can be sensitive to design material, proprietary templates, or unreleased campaign material. The next generation of research ought to explore federated AI that allows collaborative learning of models, without necessarily sharing raw brand information. With federation, AI models are trained directly within organizational scopes, e.g. design agencies, regional offices, or print vendors, but only encrypted model updates are exchanged to be aggregated on a global scale. This will maintain privacy

and yet enjoy the advantage of group learning on dispersed datasets. The federated learning also contributes to adherence to data protection laws and contractual limitations typical of branding and advertising businesses. Other areas of research involve the combination of differential privacy and secure aggregation strategies in order to reduce even more the risks of data leaks. Watermark-aware and IP-sensitive learning may also be another opportunity, in which models are trained specifically to acknowledge the boundaries of ownership and identify illegal use of the brand. With privacy and IP protection as part of the fundamental AI design, future brand management systems will provide a balanced approach of intelligent automation and robust protection of creative and commercial property, and they can have trust and adoption in real-world applications.

6. RESULTS AND ANALYSIS

As the experimental assessment shows, the suggested AI-based framework proves to be a powerful tool in terms of managing visual branding of print media than in the case of conventional manual and rule-based methods. High detection rates were reported of brand assets in terms of logos, color palettes and typography features and made it possible to study various brand assets on a large scale. The AI-based brand consistency scoring model was useful in quantifying deviations that were originally determined by the subjective review and enhancing the audit transparency and repeatability. The outcome of clustering showed previously unknown stylistic drift between campaigns, which justified proactive correction of the brand. Templates generated with the help of generative AI lowered the variability in layout and retained the intent of the creation in terms of creative intent, and review time and rework were essential in terms of quantifiable measures.

Table 2

Table 2 Brand Asset Detection and Consistency Evaluation Performance

Metric	Rule-Based System	AI-Driven Framework
Logo Detection Accuracy (%)	78.6	94.8
Color Palette Matching Accuracy (%)	74.3	92.5
Typography Classification Accuracy (%)	71.9	90.6
Motif Recognition Precision (%)	69.4	88.7
Overall Brand Consistency Score (%)	73.2	91.4
False Brand Deviation Rate (%) ↓	18.6	6.3
Inconsistency Detection Recall (%)	70.8	93.1

As the findings in Table 2 show, the AI-based framework has a clear performance benefit compared to the old rule-based framework in visual brand consistency recognition and measurement. The accuracy of logo detection increases significantly, 78.6 percent to 94.8 percent, which means that the visual model developed by means of learning is much more effective in identifying brand symbols, when using a variety of print levels, such as scale change and noise.

Figure 3

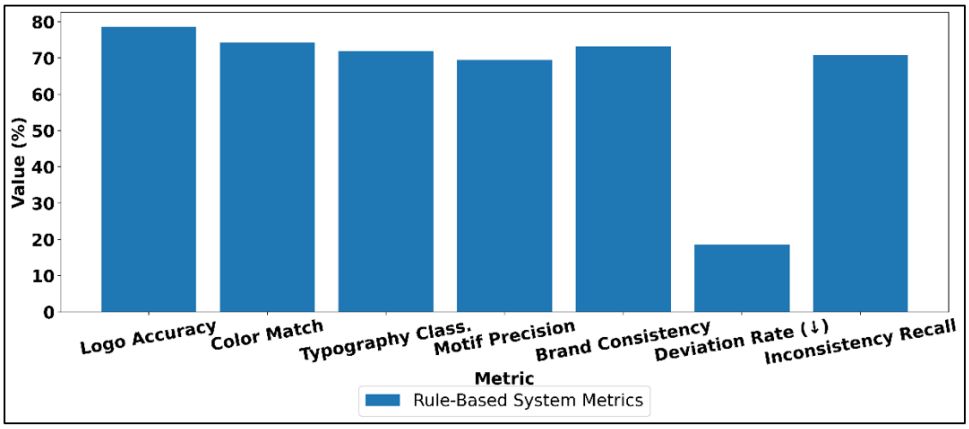

Figure 3 Performance Metrics of Rule-Based Visual Brand Management System

In the same way, matching accuracy of color palette increases to 92.5-74.3 percent, demonstrating that AI system can detect more subtle differences in perception in terms of hue, saturation, and contrast, which can be easily missed using rigid rules. Figure 3 indicates poor performance of rule-based visual brand management in all the evaluation metrics. There is also a significant improvement in typography classification as it is gone to 90.6% as compared to 71.9% which indicates the strength of the learned typographic feature representations in the recognition of font families, and subtle stylistic differences.

Figure 4

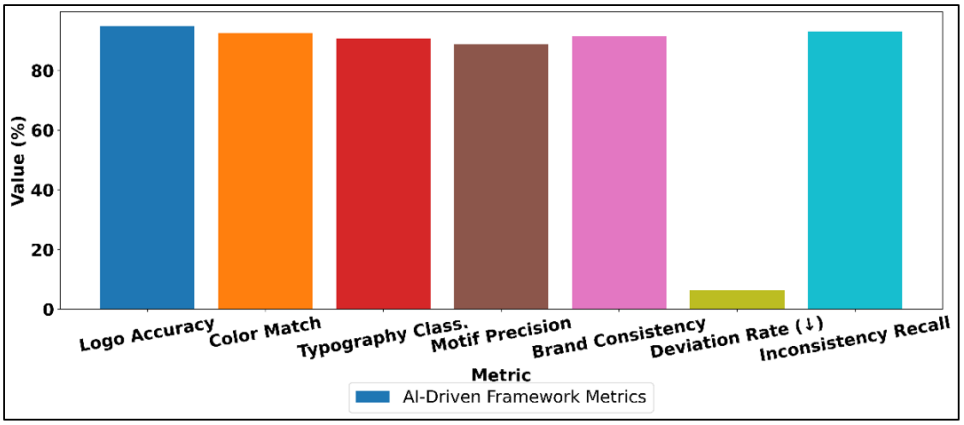

Figure 4 AI-Driven Brand Framework Metrics – Color Variant

The recognition of the motives increases to 88.7 percent (compared to 69.4 percent) indicating better ability of recognition of recurring visual patterns that help in implicit brand identity. Figure 4 demonstrates that AI-based framework enhances the metrics of color consistency of print branding assets. The total brand consistency rating goes up by over 18 percent points and this supports the fact that combining multi-dimensional visual messages has a more credible gauge of brand compliance. Significantly, the rate of false brand deviation is lowered by 18.6 percent to 6.3 percent, which avoids the needless redesign work. Meanwhile, the recall of inconsistency detection increases greatly to 93.1 which makes sure that the real brand violations are not overlooked.

7. CONCLUSION

This paper proposed an integrated AI based visual brand management system in print media overcoming long-standing issues in brand management as being manual, unscalable, and subjective. The suggested solution combines computer vision and machine learning with generative AI and leaves behind the stagnant brand rules in favor of an intelligent, data-driven system that can analyze, evaluate, and assist the brand-consistent design on the scale. The findings point out evident benefits as compared to traditional workflows. Computer-assisted detection and feature extraction greatly decrease the amount of labor involved in manual inspection, and the brand consistency scoring model adds objectivity and auditability to the brand compliance evaluation. Notably, the generative AI element proves the fact that adherence to standardization is not presupposed at the expense of creativity but can provide designers with organized brand-compliant initial points, which facilitate the production process and minimize the possible error rates. Such an anthropocentric outlook makes AI a decision support system and not a substitute of creative expertise. It also lays a groundwork on further developments in real time monitoring, cross platform security, and privacy conscious brand intelligence. Although the present research is on print media, the principles of the study are generalizable to print-digital branding economies.

CONFLICT OF INTERESTS

None.

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REFERENCES

Al-Kfairy, M., Mustafa, D., Kshetri, N., Insiew, M., and Alfandi, O. (2024). Ethical Challenges and Solutions of Generative AI: An Interdisciplinary Perspective. Informatics, 11, 58. https://doi.org/10.3390/informatics11030058

Chen, J., Ablanedo-Rosas, J. H., Frankwick, G. L., and Jiménez Arévalo, F. R. (2022). The State of Artificial Intelligence in Marketing With Directions for Future Research. International Journal of Business Intelligence Research, 12, 1–26. https://doi.org/10.4018/IJBIR.297062

Fulton, R., Fulton, D., Hayes, N., and Kaplan, S. (2024). The Transformation Risk-Benefit Model of Artificial Intelligence: Balancing Risks and Benefits Through Practical Solutions and Use Cases. arXiv. https://doi.org/10.5121/ijaia.2024.15201

Gamit, R. M., Chaudhari, S. P., Trivedi, D., Mandalia, S., Vanik, H., and Chak, A. D. (2022). Sixteen Years of Research Journey of Webology: Bibliometric Visualization Approach. Towards Excellence, 14, 1306–1324. https://doi.org/10.37867/TE1404119

Hagendorff, T. (2024). Mapping the Ethics of Generative AI: A Comprehensive Scoping Review. Minds and Machines, 34, 39. https://doi.org/10.1007/s11023-024-09694-w

Jain, R., (2025). Digital Media in the 21st Century: A Comprehensive Review of Trends, Societal Impact, and Future ShodhVichar: Journal of Media and Mass Communication, 1(1),56-59. https://doi.org/10.29121/ShodhVichar.v1.i1.2025.13

He, W. (2022). Research Hotspot and Prospect of Artificial Intelligence in Marketing in China—Visual Analysis Based on CiteSpace. BCP Business and Management, 20, 472–478. https://doi.org/10.54691/bcpbm.v20i.1021

Kamila, M. K., and Jasrotia, S. S. (2023). Ethical Issues in the Development of Artificial Intelligence: Recognizing the Risks. International Journal of Ethics and Systems, 41, 45–63. https://doi.org/10.1108/IJOES-05-2023-0107

Lim, C. V., and Park, H. W. (2025). Evaluating the Functionality and Integration of AI Tools in VOSviewer for Enhancing Research Outcomes. ROSA Journal, 2, 13–20.

Phan, Q. A., Ho, M.-T., Vuong, Q.-H., Pham, H.-H., Vu, M. H., Nguyen, T. T. H., and Phan, T. T. T. (2024). Science Communication Matters: An Exploratory Study of Academic Public Engagement in Vietnam Using Bayesian Statistics. Journal of Contemporary Eastern Asia, 23, 35–57.

Sands, S., Campbell, C., Ferraro, C., Demsar, V., Rosengren, S., and Farrell, J. (2024). Principles for Advertising Responsibly Using Generative AI. Organizational Dynamics, 53, 101042. https://doi.org/10.1016/j.orgdyn.2024.101042

Stancu, A., and Panait, M. (2025). Marketing Strategy Metamorphosis Under the Impact of Artificial Intelligence Services. Systems, 13, 227. https://doi.org/10.3390/systems13040227

Strycharz, J., and Segijn, C. M. (2022). The Future of Dataveillance in Advertising Theory and Practice. Journal of Advertising, 51, 574–591. https://doi.org/10.1080/00913367.2022.2109781

Wach, K., Duong, C. D., Ejdys, J., Kazlauskaitė, R., Korzynski, P., Mazurek, G., Paliszkiewicz, J., and Ziemba, E. (2023). The Dark Side of Generative Artificial Intelligence: A Critical Analysis of Controversies and Risks of ChatGPT. Entrepreneurial Business and Economics Review, 11, 7–30. https://doi.org/10.15678/EBER.2023.110201

Wang, X., and Wu, Y. C. (2024). Balancing Innovation and Regulation in the Age of Generative Artificial Intelligence. Journal of Information Policy, 14, 385–416. https://doi.org/10.5325/jinfopoli.14.2024.0012

Wisetsri, W. (2021). Systematic Analysis and Future Research Directions in Artificial Intelligence for Marketing. Turkish Journal of Computer and Mathematics Education, 12, 43–55. https://doi.org/10.17762/turcomat.v12i11.5825