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Investigating Authenticity-Related Features of Prominent AI Logo-Generators

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ABSTRACT

AI logo-generators have rapidly transformed the landscape of logo design by offering fast, cost-effective, and technically sophisticated tools for creating visual identities. However, persistent concerns about the authenticity and originality of AI-generated designs have raised important questions about creative ownership, ethical accountability, and the role of human input in automated design processes. This study investigates the authenticity-related features embedded in 20 widely used AI logo-generators to determine how algorithmic and interactive functions influence the production of distinctive and brand-authentic outcomes. Five key variables were systematically evaluated; algorithmic sophistication, template diversity, customisation depth, collaboration and feedback functions, and licensing and ownership rights, through a structured scoring matrix designed for cross-platform comparison. Our study suggests that platforms offering advanced prompt control, diverse templates, and flexible customisation options are more likely to produce designs with higher authenticity potential, whereas systems that prioritise automation often generate more generic visual patterns. Future research should generate samples using the selected platform to validate this finding. To strengthen authenticity assurance, a pilot study integrating the Exclusion Zone Mapping (EZM)—which identifies visual saturation and innovation zones to guide originality—and Provenance Metadata (PM) frameworks was applied to 50 publicly available housing developer logos. The finding demonstrated that the approach effectively eliminated repetitive motifs, validating EZM as a creative boundary system that promotes authenticity and, when combined with PM, aligns ethical verification with AI-driven design integrity. Together, EZM and PM establish a transparent and verifiable approach that transforms authenticity from an aesthetic ideal into a measurable and evidence-based practice. Although the sample of 20 platforms cannot represent all available tools, research provides actionable insights for designers, educators, and developers seeking to enhance authenticity, integrity, and creative accountability within AI-assisted design ecosystems.

Keywords: *authenticity-related features, AI logo-generators, authenticity*

INTRODUCTION

The advent of artificial intelligence (AI) has reshaped various industries, including the field of design, where AI logo-generators have gained popularity for being productive and cost-effective. These systems utilise machine learning algorithms to automate the logo creation process, offering users a convenient alternative to traditional design methods (Bertão et al. 2023). The acceptance of AI logo-generators stems from their ability to generate logos quickly and inexpensively, making them accessible to businesses and individuals alike. However, concerns have arisen regarding the authenticity of logos produced by AI systems. Critics argue that AI-generated logos may lack the originality and creativity inherent in designs crafted by human designers (Sun and Park 2019). The automated nature of AI logo-generators raises questions about the uniqueness and individuality of these generated designs, leading to debates about their authenticity within the design community. The authenticity of a logo is crucial for establishing a strong brand identity and fostering consumer trust. Consumers often associate logos with the values and personality of a brand, making authenticity a key determinant of brand perception (Murphy 2018).

To address concerns about the authenticity of AI-generated logos, researchers have begun to investigate the factors contributing to the controversy. By analysing the functionality of AI logo-generators, researchers aim to identify authenticity-related challenges. However, it is essential to acknowledge the limitations of existing research (Sabbar and Gustafsson 2021). While some studies have examined a wide range of AI logo-generators, others have focused on relatively small sample sizes, raising questions about the generalizability of their findings. Despite these limitations, research on authenticity issues associated with AI-generated logos remains critical for advancing our understanding of logo design practices in the digital age.

By addressing authenticity concerns and offering practical implications for stakeholders, researchers can help guide the development of AI logo-generators that strengthen brand identity and consumer trust. Nevertheless, ongoing concerns about the authenticity of AI-generated logos continue to pose challenges for brand identity. Addressing these authenticity issues requires a nuanced understanding of the factors contributing to the controversy and the adoption of proactive measures to improve design processes. By bridging the gap between AI technology and authentic logo design, researchers can contribute to the development and responsible utilisation of AI logo-generators that preserve the integrity and uniqueness of brand identities.

Authenticity

In this research, the term “authenticity” is contextually defined as the quality of being genuine, which ensures that a logo is both unique and distinctive in a competitive marketplace. Authenticity is not merely a desirable attribute but a critical factor that enhances brand recognition and differentiation. A truly authentic logo helps a brand stand out from its competitors while avoiding unintended duplication or resemblance to existing designs, which could undermine its originality and value. As Kapferer (2012) emphasises, a strong brand identity is built on a foundation of uniqueness, which serves as a prerequisite for thriving in an increasingly crowded and competitive market. Authenticity enables brands to establish a memorable and trustworthy presence, promoting loyalty and long-term consumer relationships. However, achieving authenticity in the context of AI-generated designs presents significant challenges. AI systems are typically trained on vast datasets of existing designs, and while they can generate creative outputs, they may inadvertently replicate elements of prior works. This raises concerns about originality and the risk of unintentional duplication, as such algorithmic limitations reflect the broader tension between leveraging data-driven creativity and ensuring

the uniqueness of outputs (Floridi et al. 2018). Addressing these challenges is crucial for maintaining the authenticity and ethical integrity of AI-generated logos in the design industry.

Inauthentic Designs

In logo creation, inauthentic design occurs when elements from one logo are replicated in another, leading to varying degrees of similarity (Sakici and Ayan 2012). This can range from minor resemblances to blatant duplicates, undermining the originality and uniqueness of a logo and reducing its effectiveness in representing and distinguishing brands. Such similarities weaken brand recognition by obscuring the distinct personality and values that differentiate one brand from another (Sakici and Ayan 2012). A non-unique logo fails to convey the brand's distinct personality, values, and message, impeding differentiation in a competitive market. Figure 1 presents a set of logos showing a notable degree of similarity. Inauthentic design can also lead to intellectual property disputes and legal challenges over copyright or trademark infringement, resulting in costly litigation and potential damage to the brand's reputation. Consumers who value originality and authenticity may lose trust and view the brand as lacking creativity or integrity. According to Foroudi et al. (2019), a unique and authentic logo is a powerful marketing tool, creating a memorable visual association with the brand. Similar logos can make marketing efforts less effective, as they fail to make a strong and lasting impression on the audience.

Figure 1 Sample of logos exhibiting visual similarity

AI Logo-Generators Authentic Capabilities

The emergence of AI logo-generators has revolutionised the design industry by providing quick and cost-effective solutions for logo creation. However, to understand the authenticity capabilities of these AI tools, several key factors should be evaluated. Algorithmic sophistication plays a critical role in shaping the quality and authenticity of AI-generated visuals (Messer 2024). In addition, advanced algorithms, leveraging deep learning and neural networks, analyse vast datasets of existing logos to generate designs that are not only visually appealing but also semantically meaningful. This capability allows AI to identify subtle design patterns and create contextually appropriate logos. However, the complexity of these algorithms varies across AI tools, influencing their ability to produce fully original designs. Moreover, while advanced algorithms offer significant advantages such as generating a wide range of options quickly and improving technical precision, their impact on design authenticity raises important concerns. Studies by Tanenbaum, Pufal, and Tanenbaum (2016) highlight that overly complex algorithms can limit user control, reducing opportunities for customisation and personalisation.

This highlights the need to balance technological advancements with human-centred approaches. By integrating user feedback, cultural insights, and contextual understanding, AI tools can achieve more authentic design outcomes. Furthermore, as Deptula, Hunter, and Sheehan (2024) suggest, combining algorithmic sophistication with personal expression and real-world engagement can enhance the authenticity of AI-generated designs, ensuring they resonate both aesthetically and meaningfully.

Template diversity is another critical factor in ensuring the authenticity of AI-generated logos (Otani 2019). For instance, a diverse template library offers a broader range of design styles and concepts, reducing the risk of repetitive and generic designs. In addition, platforms with extensive template databases allow users to find templates that closely align with their brand's unique identity. However, excessive reliance on templates may diminish originality if not complemented by robust customisation features. Customisation options, therefore, play a pivotal role in enhancing the authenticity of AI-generated logos (Osadcha and Osadcha 2023).

Overall, comprehensive customisation capabilities enable users to modify various design elements, such as colour, typography, and layout, tailoring the logo to their specific brand identity. This ability to extensively customise templates distinguishes authentic designs from generic ones, as it allows for greater personalisation and uniqueness.

Collaborative and feedback features are also among the key factors that contribute to refining AI-generated logos to achieve higher authenticity (Nah et al. 2023). Specifically, tools that facilitate collaboration between designers and stakeholders and incorporate feedback mechanisms, enable iterative improvements, ensuring the final design aligns with brand expectations. These features significantly contribute to the design process by allowing for real-time adjustments and the incorporation of diverse perspectives, ultimately enhancing the authenticity of the logo.

Likewise, licensing and ownership rights are crucial considerations when assessing the authenticity of AI-generated logos (Lindberg 2024). To illustrate, clear and fair licensing agreements ensure that users have the legal right to use and modify their logos without restrictions. Furthermore, ownership rights play a significant role in protecting the uniqueness of the design. Specifically, transparent licensing terms enhance user confidence in the originality, authenticity, and exclusivity of their AI-generated logos.

Ethical and Legal Complexities in AI-Assisted Logo Design

While AI logo-generators offer efficiency and accessibility to diverse users, they also introduce ethical and legal complexities related to ownership, originality, and accountability. Issues such as the unintentional replication of copyrighted elements, dataset bias, and uncertain authorship attribution highlight the need for verifiable mechanisms that preserve creative integrity and cultural sensitivity. Addressing these challenges requires a structured framework that enhances transparency, ethical compliance, and authenticity in AI-assisted design practices.

RESEARCH METHODOLOGY

Systematic AI Logo-Generators Platform Evaluation

This study was conducted by four design lecturers to objectively observe and evaluate the features embedded within selected AI logo-generators, focusing specifically on authenticity-related features. The research was carried out over a one-month period. The evaluation process involved a systematic exploration of each AI logo generator to minimise inconsistencies caused by non-comparable elements. Each AI logo generator was examined individually.

According to Guest et al. (2006), in qualitative research, a sample size of 15 to 20 participants (or units of observation) is often sufficient for thematic saturation. This principle can be applied to applications as units of observation. Creswell (1998) recommended ranges between five and 25 interviews for a phenomenological study, while Mason (2010) argued that the appropriate sample size depends on the depth of analysis and richness of data rather than sheer numbers. Observing 20 applications may align with a middle-ground approach to ensure depth.

The study aims to evaluate and enhance authenticity in AI-generated logo design by analysing key platforms' features and to introduce a working methodology to enhance originality, transparency, and ethical accountability. Twenty AI logo-generators were selected through a rigorous and systematic process to ensure that a variety of well-known and relevant tools were investigated. This process involves consulting reliable sources that provide curated lists of the most popular and effective AI logo-generators in 2024, such as TopDevelopers.co (2024), Naesen (2024), and Gwira (2024). These platforms are chosen based on important criteria such as user accessibility, popularity, and features, ensuring that the selected tools meet the diverse needs of users.

The selected tools are Logomaster.ai (2024), LogoAI.com (2023), Wix Logo Maker, Namecheap, Looka, Logo Maker, Designs.AI, Logobean, DesignEvo, BrandMark, Tailor Brands, Fiverr Logo Maker, Canva Logo Maker, Designhill, BrandCrowd, LogoGarden, Adobe Express, Namelix, LogoMakerr, and Ucraft. These tools were evaluated for their functionality and wide range of features. These platforms range from simple, easy-to-use options aimed at beginners to more advanced tools designed with better and more diverse design elements. This diversity allows the study to analyse the strengths and weaknesses of these platforms in addressing the challenges of originality and authenticity in AI-generated logo design.

Moreover, the selection process took into account different taxonomies within the AI logo generation landscape. For example, tools like Tailor Brands and Looka.com (2025) are designed to provide comprehensive branding solutions, making them ideal for startups and businesses. In contrast, platforms like Canva focus on versatile design, appealing to a broader audience by providing accessible design solutions (Qisthiano and Pramana 2023). Other tool, like Fiverr Logo Maker, integrates human collaboration with AI, providing a unique hybrid approach to

logo creation (TopDevelopers.co 2024). By including tools from different categories, this study ensures a comprehensive examination of AI logo-generators, in line with the study's objective of analysing tools that reflect current market trends. Platforms such as Wix Logo Maker and Canva Logo Maker were included for their large user bases and ease of use, making them relevant to mainstream audiences. Meanwhile, specialised tools like Designhill and BrandCrowd, known for their advanced customisation features, offer insights into how these capabilities affect the perceived authenticity of AI-generated logos.

This diverse selection enhances the robustness of the findings and helps to ensure their applicability across different contexts. Previous research supports this approach, highlighting the need to evaluate tools from different categories to gain a comprehensive understanding of their functionality. By taking these factors into account, this study may lead to a robust framework for exploring the capabilities and limitations of AI logo-generators, particularly with regard to authenticity and design originality.

Although the system architecture varies across the 20 selected AI logo-generators, several comparable features in logo creation were identified. Whenever necessary, the researchers tested the embedded elements and input features, including prompts, scroll menus, and keyboard and mouse controls to generate logos. The procedure was repeated consistently across all selected AI logo-generators, and observations were carefully documented, cross-compared, and organised into a table for analysis. The final table was then examined to identify patterns and commonalities among AI logo generator features. By employing this rigorous methodology, the study aimed to provide a comprehensive assessment of the authenticity-related features of AI logo-generators. This systematic approach ensured the reliability of the findings, offering valuable insights into the capabilities and limitations of these tools in producing authentic logo designs. The study involves a structural comparison of 20 AI logo-generators to examine functionality in logo generation. The comparison is based on five key variables: algorithmic sophistication, template diversity, customisation options, collaboration and feedback features, and licensing and ownership rights. Table 1 shows the summary of the five key variables and the sub-factors examined for every platform selected.

Table 1 Summary of the five key variables and the sub-factor examined for each AI logo generator

Variables	Sub-factor
1. Algorithmic sophistication	Input steps (more steps are considered more control) Prompt type (more detailed prompts allow for greater control)
2. Template diversity	Template categories (more variety is better) Design elements (more advanced elements provide more creative potential)
3. Customisation options	Channels (more channels offer more granular control) Control type (direct manipulation is superior) Image precedents (an advanced feature)
4. Collaboration and feedback	Live chat (allows communication) Option to hire designer (possibility for collaboration)
5. Licensing and ownership	Ownership (clear ownership is critical) Free basic download (a significant value for users)

The first feature, algorithmic sophistication, refers to the specific capabilities that enable these systems to generate contextually relevant logo designs. The evaluation recorded the number of input options available for defining unique preferences or specifications, as well as the style of input used to create the logos. This research examines algorithmic sophistication as

one important variable. By focusing on this factor, this methodology aims to evaluate AI logo-generators in terms of their ability to generate authentic and contextually relevant logo designs. This analysis will help define the usability, ease of navigation, prompts' characteristics, and overall quality of interaction with AI logo generator platforms.

The second feature under investigation, template diversity, pertains to the range and variety of pre-designed templates provided as starting points for logo creation. This diversity allows researchers to explore and select from various design styles, structures, and layouts tailored to different industries and branding needs. The number of categories and the complexity of design elements were documented. The focus here is on ready categories of templates and design elements offered by different AI logo-generators. This study examines AI logo-generators to determine their effectiveness in supplying users with diverse and saturated choices of design elements that could meet the standard branding requirements for unique logos and thus create authentic logo designs.

The third feature, customisation options, focuses on the range of tools and functionalities that enable researchers to modify and personalise logo elements to align with specific branding requirements. These options enhance flexibility, creativity, and control, ensuring that the output reflects the unique identity of the brand. Metrics such as the number of customisation channels, modes of control, and the application's ability to incorporate existing logo image precedents were recorded. Personalisation and flexibility in customising the generated logo are essential aspects of assessing the level of customisation within these platforms. Moreover, it is crucial to investigate whether each logo generator allows the use of image precedents, as this feature could further contribute to personalising and authenticating the generated logo (Çelikkol 2018).

The fourth feature, collaboration and feedback functionalities, involves tools that facilitate interaction with the system, or, where applicable, the team behind the application during the design process. Features like chat options and the ability to hire designers were noted. The purpose is to explore how these generators facilitate mutual interaction during the design process. This study investigates the ability of these generators to support collaboration by providing sharing functionalities and feedback options. This understanding of collective contribution during the logo design process enhances authenticity and influences users' adoption of AI logo-generators. In addition, the study investigates the availability of chatting options between users and platforms, as well as any collaboration features that enable users to engage with a designer while creating the online logo. This investigation will help determine each logo generator's ability to chat with, guide, and interact with users' inputs, which will incorporate user preferences into the logo creation process.

Finally, the fifth feature examined was the presence of legal mechanisms for the transfer of licensing and ownership rights, within the application, with slight variations observed across the selected AI logo-generators. To assess licensing terms and ownership provisions in each AI logo generator, the analysis of this research aims to determine the extent of ownership rights and the overall authorship status that users can expect when producing logos using these platforms.

Scoring Matrix for Platform Evaluation

A scoring matrix, as shown in Table 2, is used to evaluate AI logo-generators based on the features identified in Table 1. The matrix assigns a numerical score to each feature, allowing for quantitative comparison between platforms. Higher overall score indicates richer features and a greater contribution to the overall quality of the platform. This study adhered to ethical research standards in its use of publicly accessible AI logo-generators. All platforms were used in accordance with their publicly available terms of service, and no proprietary data or content

was extracted beyond what is permitted for standard user interactions. Logos generated during the research were used strictly for academic analysis and illustrative purposes, ensuring no commercial misuse or violation of copyright. No direct contact with the platform owners was made, and the study maintains neutrality in its evaluations. To further preserve impartiality and avoid unintentional bias or reputational harm, all platform names have been anonymised in the comparative analysis.

Table 2 Summary of scoring metrics and platform feature criteria

	Criterion	Sub-factor	Scoring points
1.	Algorithmic sophistication (max 8 points)	Input steps (more steps are considered more control)	2 to 3 steps: 2 points 4 steps: 3 points 5 steps: 4 points 6+ steps: 6 points
		Prompt type (more detailed prompts allow for greater control)	Brief detailed prompts: 2 points Keywords prompts: 1 point
2.	Templates diversity (max 8 points)	Template categories (more variety is better)	51+ categories: 4 points 31 to 50 categories: 3 points 16 to 30 categories: 2 points 1 to 15 categories: 1 point No ready templates: 0 point
		Design elements (more advanced elements provide more creative potential)	Moderate-advanced/Advanced: 4 points Moderate: 3 points Simple-Moderate: 2 points Simple: 1 point
3.	Customisation options (max 9 points)	Channels (more channels offer more granular control)	10+ channels: 4 points 7 to 9 channels: 3 points 5 to 6 channels: 2 points 3 to 4 channels: 1 point
		Control type (direct manipulation is superior)	Selection and keyboard control: 3 points Selection control: 2 points No selection and keyboard control: 1 point
		Image precedents (this is a powerful, advanced feature)	Image precedents: 2 points No image precedents: 0 point
4.	Collaboration and feedback (max 4 points)	Live chat (allow communication) Option to hire designer (possibility for collaboration)	Live chat: 2 points Option to hire designer: 2 points
5.	Licensing and ownership (max 8 points)	Ownership (clear ownership is critical)	Ownership: 5 points Ownership uncertainty: 0 points
		Free basic download (a significant value for users)	Free basic download (JPG): 3 points No free basic download: 0 points

Exclusion Zone Mapping and Provenance Metadata: A Pilot Case Study

To strengthen the methodological foundation of this research, a pilot case study involving Exclusion Zone Mapping (EZM) and Provenance Metadata (PM) were adopted as integrated frameworks for examining authenticity and ethical authorship in AI-assisted logo design. The EZM and PM frameworks were adapted from industry-provenance-tracking models and contextualised for academic evaluation of AI-generated logo authenticity. The approach is applied to the housing development sector, where repetitive use of visual motifs such as roofs, houses, and skylines heightens the risk of imitation, as demonstrated in Figure 2. EZM visually maps areas of saturation and innovation, defining creative boundaries that minimise redundancy, while PM systematically documents the reasoning, decisions, and processes underlying design development. Together, these frameworks establish a transparent and accountable methodology that bridges creative exploration with ethical verification, transforming authenticity from a conceptual ideal into a structured and evidence-based design practice.

Figure 2 Sample of AI-generated logos before applying Exclusion Zone Mapping

Figure 2 presents a sample set of AI-generated housing developer logos produced prior to the application of the EZM framework. These examples illustrate how automated systems, when left unguided, often converge toward visually similar outputs, dominated by predictable motifs such as peaked roofs, skylines, and blue-toned palettes. The recurrence of these elements demonstrates a high-risk similarity zone within AI-assisted design, where originality and brand distinctiveness are compromised by overused visual conventions. As part of the research sample, these logos exemplify the authenticity challenges addressed in this study, highlighting the need for structured methodologies like EZM and PM to guide AI tools toward more distinctive and contextually grounded creative outcomes.

Exclusion Zone Mapping

The pilot case study involving the EZM process begins with the collection and qualitative examination of 50 publicly available housing developer logos. To ensure methodological coherence, a convenience sampling approach was adopted for this selection. This method was considered suitable given the exploratory nature of this study, focusing on identifying recurring visual motifs, saturation zones, and innovation gaps rather than achieving statistical

generalisation. Fifty logos were collected from publicly accessible sources such as developer websites, branding directories, and design archives, representing authentic real-world outputs within the housing development sector. The sample reflects adequate variation in style, form, and composition, capturing both mainstream and niche branding approaches. Convenience sampling thus provides a practical and contextually appropriate means of obtaining data for EZM, aligning with the framework's intent to reveal design redundancies and guide future logo generation toward originality and authenticity.

Each design is assessed across 10 interpretive dimensions—form and geometry, symbolic theme, colour family, typography, composition, and graphic treatment, symbolism, adaptability, cultural resonance and brand narrative—to identify recurring visual tropes and underexplored design territories. Instead of employing algorithmic similarity measures, this study emphasises perceptual analysis, in which frequency and recurrence of motifs indicate saturation and potential overlap. The analysis revealed that the majority of housing developer logos fall within a predictable visual range dominated by peaked roofs, blue-grey colour palettes, serif or geometric sans-serif typography, and emblem-based compositions. These elements form the high-risk similarity areas, conceptualised as "Red Zones," where visual identity tends to lose distinctiveness and risks overlapping with existing marks. In contrast, the innovation spaces, identified as "Green Zones," emerge from abstract modular geometries, material-inspired palettes such as charcoal, clay, and copper, and typographic forms with subtle humanist characteristics. These design territories provide room for originality while maintaining relevance to the architectural identity of the sector. By translating these observations into an analytical matrix, the EZM framework establishes a visual map that distinguishes between saturated and innovative territories. The Red Zones encompass literal roof shapes, metallic gradients, emblem-based compositions, and generic mid-blue branding, whereas the Green Zones highlight modular architectural abstractions, earthy or mineral colour families, flat vector execution, and horizontally flexible systems. Rather than serving as a restrictive tool, the EZM matrix acts as a pre-ideation reference guiding both human and AI-assisted designers toward less saturated conceptual spaces. This enhances the possibilities that new logo outcomes not only depart from visual clichés but also uphold intellectual property integrity through proactive differentiation. Table 3 presents the exclusion zone matrix of housing developer logos used in this pilot study.

Table 3 Exclusion zone matrix of housing developer logos

Design axis	Observed typical patterns (common traits)	High-risk similarity zone (red zone)	Innovation and differentiation zone (green zone)
1. Form and geometry	Predominantly peaked roofs, house boxes, keyholes, and urban skylines; high use of literal architecture	Repetition of roofline silhouettes and building outlines that create visual redundancy across brands	Abstract modular or grid-based forms inspired by spatial planning, courtyards, and architectural apertures
2. Symbolic theme	Frequent portrayal of "home security," "growth," and "trust" motifs	Overuse of conventional icons—house, family, leaf, and shield symbols—reduces originality	Conceptual themes centred on community resilience, adaptive living, sustainability, and human-centred design
3. Colour family	Dominance of mid-blue, navy, and grey tones with minor accent colours	Blue-grey combinations symbolising "trust and stability" are now oversaturated in the sector	Material-inspired palettes such as terracotta, charcoal, ochre, and copper tones suggest locality and tactility

(continued on next page)

Table 3 (*continued*)

Design axis		Observed typical patterns (common traits)	High-risk similarity zone (red zone)	Innovation and differentiation zone (green zone)
4.	Typography	Balanced but predictable use of geometric sans-serifs or classical serifs	Generic sans-serif logotypes (e.g., Gotham, Open Sans) and formal serif styles lead to visual convergence	Humanist sans-serifs with subtle calligraphic modulation, ink traps, or crafted ligatures reflecting individuality
5.	Composition and layout	Most compositions are stacked emblems or centred wordmarks	Symmetrical emblem locks and vertical stacking echo traditional property seals	Horizontal and modular layouts emphasising negative space, flexible systems adaptable for sub-brand extensions
6.	Graphic treatment and finish	Heavy use of metallic gradients, bevels, and glossy renderings for "premium" appeal	Shaded, 3D, or metallic finishes reproduce visual clichés and cause logo saturation	Flat vector line work, soft gradient restraint, and micro-detail cues referencing architectural texture and precision
7.	Structural symbolism	Simple linear outlines conveying buildings or rooftops	Linear grids forming roof angles and skylines resemble competitors' registered marks	Structural abstraction from site plans, façades, or urban grids that communicate place identity rather than object form
8.	Context adaptability	Designed primarily for signage or brochure headers	Logos collapse at small sizes or lose legibility in digital micro-formats	Scalable marks optimised for both architectural signage and digital icons, maintaining clarity and visual integrity
9.	Cultural resonance	Westernised "corporate-modern" aesthetic dominates	Lack of localised or regional reference leads to generic outcomes	Integration of local material, vernacular motifs, or cultural geometry (e.g., courtyard plans, weaving patterns)
10.	Brand narrative integration	Focus on the visual icon alone, with minimal narrative linkage	Isolated icons disconnected from brand vision create weak storytelling	Embedded symbolism linking brand to social value, place-making, or sustainable architecture ethos

Interpretative Strategy: Innovation and Risk Boundaries

Building upon the empirical findings presented in Table 3, this interpretative strategy translates the observed visual patterns into actionable design principles that delineate where innovation can safely occur and where the risk of similarity remains high. The analysis of 50 housing developer logos demonstrates that the sector's visual identity is heavily concentrated within a narrow stylistic band. Most existing marks rely on familiar symbolic conventions: roof peaks, house boxes, and blue-grey corporate tones that reinforce one another to create an overpopulated visual field. Within this field, originality becomes constrained, and the likelihood of unintended resemblance or brand confusion increases. To guide designers and AI-assisted systems toward more authentic outcomes, the EZM framework classifies these visual territories into two conceptual domains: Green Zones, which signal innovation spaces, and Red Zones, which identify high-risk areas of convergence.

The Green Zones encompass approaches that reinterpret architectural identity through abstraction, material resonance, and contextual storytelling. These include the use of modular

or grid-based geometries derived from site planning rather than literal buildings, as well as colour palettes inspired by tangible materials- earth, clay, stone, or copper, which evoke local character. Typography within this zone favours humanist sans-serifs with crafted ligatures or rhythmic contrast, offering subtle individuality and legibility. Likewise, horizontal and modular compositions with generous negative space allow scalability across both print and digital applications, supporting flexible brand systems. Flat vector finishes, micro-line precision, and a restrained tonal palette replace metallic gradients and overworked shading to give the identity a contemporary and sustainable aesthetic.

Conversely, the Red Zones represent oversaturated, legally sensitive visual territories. These include emblematic logos featuring roof silhouettes, keys, or skylines, rendered in predictable blue or grey palettes and paired with generic sans-serif or classical serif typography. Such designs perpetuate visual repetition and reduce distinctiveness, weakening brand memorability. Similarly, stacked emblems and metallic premium badges, while once signalling prestige, now risk blending into a landscape of indistinguishable corporate marks. Operating within these zones compromises authenticity because the outcomes become traceable to common stock templates rather than the brand's intrinsic narrative.

By distinguishing between these zones, the interpretative framework provides a navigational tool rather than a rigid formula. Designers can consciously redirect their creative exploration from literal representation toward conceptual expression, transforming property branding into symbols of place-making, adaptability, and cultural identity. Within AI-assisted workflows, this boundary awareness serves as an embedded ethical filter, ensuring that algorithmic suggestions remain within authentic creative parameters while avoiding infringement or imitation. Thus, the "Green–Red Zone" distinction forms the operational heart of the EZM framework, linking aesthetic differentiation to ethical responsibility and establishing the conceptual bridge to PM documentation, in which the authenticity of each design decision can be transparently recorded and verified.

Transition to Provenance Metadata

The delineation of innovation and risk boundaries through the EZM framework provides not only a visual safeguard but also a conceptual foundation for ethical authorship. However, identifying creative boundaries alone does not guarantee authenticity unless the design process is documented with clarity and accountability. This is where the PM framework extends the EZM framework by recording the decision-making trail that leads from initial exploration to final approval. PM ensures that each design iteration, refinement, and justification is transparently captured, reinforcing the integrity of the design process and transforming authenticity into a verifiable outcome. The following section elaborates on how provenance documentation functions as the ethical complement to boundary mapping, to establish a traceable link between creative intent, execution, and ownership within AI-assisted logo generation.

Provenance Metadata

The PM framework complements the EZM by establishing an ethical and traceable record of design authorship. While EZM defines the visual boundaries of authenticity, PM documents how those boundaries are navigated throughout the creative process. It ensures that each decision—from initial ideation to final refinement—is transparently recorded, demonstrating that the design's originality is both intentional and verifiable.

PM is structured as a qualitative record rather than a technical audit. It captures key elements such as design intent, contextual rationale, sources of visual reference, refinement notes, and

client or reviewer feedback. Each record outlines how specific design choices avoid high-risk zones identified in EZM and advance into innovation spaces. This traceable authorship narrative reinforces ethical accountability and mitigates intellectual property disputes, particularly in AI-assisted workflows, where ownership and originality are often ambiguous.

By embedding PM documentation within project archives or brand guidelines, designers and organisations create an enduring reference for creative provenance. This record provides not only evidence of authenticity but also a learning mechanism for future design innovation. Together, EZM and PM form a unified authenticity assurance system—one that safeguards creative integrity, strengthens transparency, and transforms ethical compliance into a structured component of the design process. Table 4 presents the integrated framework used in this study.

Table 4 Framework of Exclusion Zone Mapping (EZM) and Provenance Metadata (PM) application in the research

Phase	Process/activity	Outcome	Documentation approach (PM integration)
1. Data collection and preparation	Collected 50 housing developer logos; anonymised dataset; identified design variables (form, colour, typography, etc.)	Established a representative visual corpus for analysis	PM recorded data origin, acquisition date, and anonymisation method
2. EZM analysis	Coded each logo qualitatively across six axes; mapped visual repetitions and originality indicators	Produced Table 3 showing red (risk) and green (innovation) zones	PM logged coding rationale, interpretation notes, and team consensus decisions
3. Interpretative strategy	Translated EZM findings into innovation–risk boundaries; derived conceptual design principles	Identified creative and ethical boundaries for authentic design	PM documented the reasoning behind boundary classifications and visual pattern interpretation
4. PM documentation	Compiled process notes, rationale, and evolution of design judgements	Created a transparent authorship trail of all analytical and design decisions	PM structured as narrative logs and appended to the research archive
5. Integration and synthesis	Combined EZM and PM findings into an authenticity assurance model	Established a defensible framework for originality verification and ethical design	PM verified consistency between analysis, interpretation, and design documentation

The PM integration functions as a documentation layer that runs parallel to the analytical stages of the research. It records every major decision and methodological step—from data sourcing and coding within the EZM process to the interpretation and synthesis of results. In this study, PM serves as an ethical and procedural log, capturing the reasoning behind logo classification, justifying boundary mapping, and tracing the evolution of interpretative judgements. Instead of employing computational tracking, PM was implemented as qualitative documentation embedded within research worksheets and narrative summaries. This ensured that the entire analytical process remained transparent, traceable, and ethically accountable. Through PM integration, the study transforms traditional design evaluation into a verifiable research-based framework that upholds both creative authenticity and intellectual property integrity.

DATA COLLECTION

Table 5 provides a structural summary of the data collected from the evaluated AI logo-generators, serving as a bridge between the descriptive exploration of platform features and the subsequent analytical process. Rather than reiterating individual characteristics, the table consolidates the observable design tendencies and functional distinctions among the platforms in a single comparative view. This arrangement allows the reader to perceive overall distribution patterns and inter-platform variability at a glance, offering a neutral reference point before numerical scoring is introduced. The table thus performs a methodological role, anchoring the qualitative findings within a transparent and verifiable comparative framework. Building upon this foundation, Table 2 earlier introduces the scoring matrix that translates these qualitative observations into quantifiable measures for comparative analysis.

Table 5 Comparative evaluation of AI logo-generators based on authenticity-related features (anonymised for ethical considerations)

Platform	Algorithmic sophistication	Templates diversity	Customisation options	Collaboration and feedback features	Licensing and ownership rights
1	5 steps Preset options and keywords	13 categories Simple	5 channels Keyboard control No image precedents	Live chat No designer	Ownership unclear No free (JPG)
2	4 steps Preset options and keywords	20 categories Simple-moderate	4 channels Selection control Image and font precedents	Live chat Designer option	Ownership unclear No free (JPG)
3	4 steps Preset options and keywords	25 categories Simple	7 channels Selection, keyboard control Image precedents	Live chat Designer option	Ownership unclear Free basic download (JPG)
4	10 steps Preset options and keywords	8 categories Simple	5 channels No selection and keyboard control No image precedents	Live chat No designer	Ownership unclear No free (JPG)
5	6 steps Preset options and keywords	13 categories Simple	9 channels No selection and keyboard control Image precedents	Live chat No designer	Ownership unclear No free (JPG)
6	4 steps Detailed prompts	22 categories Simple	3 channels No selection and keyboard control Image precedents	Live chat Designer option	Ownership unclear No free (JPG)
7	6 steps Preset options and keywords	No templates Simple-moderate	5 channels No selection and keyboard control No image precedents	No live chat No designer	Ownership unclear No free (JPG)
8	4 steps Preset options and keywords	35 categories Moderate-advanced	5 channels No selection and keyboard control No image precedents	No live chat No designer	Ownership unclear No free (JPG)

(continued on next page)

Table 5 *(continued)*

Platform	Algorithmic sophistication	Templates diversity	Customisation options	Collaboration and feedback features	Licensing and ownership rights
9	4 steps Preset options and keywords	19 categories Moderate-advanced	4 channels Selection and keyboard control No image precedents	Live chat No designer	Ownership unclear No free (JPG)
10	3 steps Detailed prompts	No templates Simple-moderate	5 channels No selection and keyboard control No image precedents	Live chat No designer	Ownership unclear Free basic download (JPG)
11	4 steps Detailed prompts	No templates Simple	5 channels No selection and keyboard control No image precedents	Live chat No designer	Ownership unclear Free basic download (JPG)
12	4 steps Detailed prompts	11 categories Moderate-advanced	6 channels Selection control No image precedents	Live chat Designer option	Ownership unclear No free (JPG)
13	2 steps Preset options and keywords	33 categories Moderate-advanced	5 channels Selection and keyboard control Image precedents	Live chat No designer	Ownership unclear Free basic download (PNG)
14	5 steps Detailed prompts	120 categories Simple-moderate	10 channels Selection control No image precedents	Live chat Designer option	Ownership unclear Free basic download (JPG)
15	2 steps Preset options and keywords	48 categories Moderate-advanced	10 channels Selection and keyboard control No image precedents	No live chat Designer option	Ownership unclear No free (JPG)
16	3 steps Preset options and keywords	32 categories Simple-moderate	6 channels Selection control No image precedents	No live chat No designer	Ownership unclear No free (JPG)
17	5 steps Preset options and keywords	24 categories Simple-moderate	10 channels Selection, keyboard control; Image precedents	No live chat No designer	Ownership unclear Free Download (PNG, JPG, PDF)
18	5 steps Preset options and keywords	No templates Simple-moderate	5 channels No selection and keyboard control No image precedents	Live chat No designer	Ownership unclear No free (JPG)
19	5 steps input Preset options and keywords	20 categories Simple	4 channels Selection control No image precedents	No live chat No designer	Ownership unclear No free (JPG)
20	4 steps input Preset options and keywords	22 categories Simple	5 channels customisation Selection control No image precedents	Live chat No designer	Ownership unclear No free (JPG)

Table 6 consolidates the total scores derived from the quantitative evaluation of all 20 anonymised AI logo-generators. It presents a comprehensive overview of each platform's cumulative performance across the five authenticity-related dimensions, allowing direct comparison of their relative strengths and weaknesses. The table functions as the culmination of the scoring process introduced in Table 2, integrating the weighted results into a single, interpretable dataset. This synthesis highlights variations in feature richness and design flexibility among platforms, revealing how combinations of algorithmic sophistication, customisation depth, and licensing clarity contribute to overall authenticity potential. By translating the scoring framework into a ranked outcome, Table 6 provides a clear visual summary of the empirical results, serving as the primary reference for interpreting functional disparities and drawing subsequent conclusions about the authenticity capabilities of current AI logo-generators.

Table 6 Consolidated platform score

Platform	Algorithmic sophistication	Templates diversity	Customisation options	Collaboration and feedback	Licensing and ownership	Total score
Platform 1	5	2	3	2	0	12
Platform 2	4	4	5	4	0	17
Platform 3	4	3	8	4	3	22
Platform 4	7	2	3	2	0	14
Platform 5	7	2	6	2	0	17
Platform 6	5	3	4	4	0	16
Platform 7	7	2	3	0	0	12
Platform 8	4	7	3	0	0	14
Platform 9	4	6	4	2	0	16
Platform 10	4	2	3	2	3	14
Platform 11	5	1	3	2	3	14
Platform 12	5	5	4	4	0	18
Platform 13	3	7	7	2	3	22
Platform 14	6	6	6	4	3	25
Platform 15	3	7	7	0	0	17
Platform 16	3	5	4	0	0	12
Platform 17	5	4	9	0	3	21
Platform 18	5	3	3	2	0	13
Platform 19	5	3	3	0	0	11
Platform 20	4	3	4	2	0	13

FINDINGS

Comparative Analysis of Platform Performance

The comparative synthesis across Tables 5 and 6 reveals clear disparities in the depth and maturity of authenticity-related features among AI logo-generators. The descriptive patterns in Table 5 illustrate that while most platforms offer baseline automation for logo creation, their architecture and user input flexibility differ substantially. When quantified through the scoring

matrix in Table 2, these variations translate into measurable performance gradients that expose an uneven integration of creative autonomy and ethical transparency, indicating that deeper user control and multi-step prompt design foster greater potential for authentic outcomes. Conversely, tools emphasising speed and automation tend to underperform, suggesting that efficiency alone does not equate to authentic or brand-safe design capability.

In Table 6, the aggregated results provide a more holistic picture of how these design mechanisms interact across the ecosystem. The total scores emphasise that no single platform excels across all five evaluation dimensions, underscoring the fragmented evolution of AI design systems. High-scoring platforms combine algorithmic adaptability with moderate-to-advanced template variation and richer customisation interfaces, reflecting a more balanced synthesis of machine precision and human intent. Yet, the consistently low or absent scores in licensing and ownership rights expose a persistent structural gap in intellectual property governance: a limitation that constrains trust and long-term adoption. Overall, these results reinforce the need for an integrated methodological safeguard that the next section addresses through the combined use of EZM and PM to ensure verifiable authenticity and ethical compliance in AI-generated logo design.

Algorithmic Sophistication

Algorithmic sophistication influences how effectively AI logo-generators balance automation with human input. Platforms requiring more detailed prompts and multiple input steps enable greater user engagement, resulting in designs that better reflect brand identity. Conversely, systems with limited input options often yield generic or repetitive outcomes. Although advanced AI models can analyse vast datasets and apply design principles, high computational complexity alone does not ensure creativity or contextual understanding. Sophisticated algorithms may enhance precision but often lack sensitivity to brand narrative and intent. Authentic logo generation, therefore, depends less on technological advancement and more on the synergy between algorithmic intelligence and meaningful human participation.

Template Diversity

Template diversity reflects how well AI logo-generators accommodate different industries, aesthetics, and creative needs. Platforms offering a broad range of categorised templates, some exceeding 100 industry themes, enable users to explore varied design directions and achieve more authentic outcomes. Others provide fewer than 10 categories or rely solely on keyword-based suggestions, limiting creative exploration. Similarly, the sophistication of design elements ranges from simple to advanced, influencing the richness of visual variation. Platforms with greater template and element diversity provide users with multiple reference points for customisation, enhancing creative flexibility and reducing repetitive outcomes. Ultimately, higher template diversity supports user empowerment and fosters authenticity by enabling designs that are both distinctive and contextually aligned with brand identity.

Customisation Options

Customisation options determine the extent of user control in refining AI-generated logos. Platforms vary considerably in this regard: some offer up to ten customisation channels, while others provide only basic adjustments for colour, font, or size. A few platforms support keyboard or selection controls for precision editing, though many lack these features entirely. Only a small number allow image precedents, enabling users to upload or adapt existing visuals. Greater customisation flexibility enables users to align AI outputs with brand identity and creative

intent. Therefore, platforms combining multi-channel editing, image integration, and manual control mechanisms contribute most effectively to achieving authenticity and user ownership in logo creation.

Collaboration and Feedback Features

Collaboration and feedback mechanisms assess how users engage with AI logo platforms and the extent of human–machine interaction. Most platforms provide live chat functions for inquiries, though responses are typically asynchronous rather than real-time design support. A few platforms enhance this feature by allowing file or voice uploads during chats. Only a small subset offers the option to hire a designer, introducing a semi-collaborative process where user preferences are refined through additional input. While these systems seldom deliver true co-design experiences, their inclusion improves user confidence and satisfaction. Platforms that facilitate communication, feedback exchange, and optional designer involvement tend to support more informed decision-making, resulting in higher authenticity and creative assurance in AI-generated logos.

Licensing and Ownership Rights

The assessment of licensing and ownership across AI logo-generators reveals persistent uncertainty regarding creative rights and authorship. While most platforms allow users to design and purchase logos, although users may own the final composition, the shared use of icons and fonts limits true authorship rights. Consequently, identical assets can be reused by multiple users, resulting in visually similar outputs and weakening claims of originality. This shared-resource structure raises ethical and legal concerns, particularly in defining creative ownership within AI-generated designs. Platforms that explicitly outline licensing conditions and clarify the distinction between ownership and authorship can enhance user confidence and strengthen the authenticity and legitimacy of generated logos.

The ambiguity surrounding licensing and authorship also raises broader ethical questions about creative ownership in AI-generated designs. Without clear attribution or exclusive rights, originality becomes increasingly difficult to verify, blurring the distinction between inspiration and replication. This uncertainty challenges conventional definitions of authorship and accountability, reinforcing the need for transparent documentation systems such as PM to validate creative integrity and uphold ethical standards in digital design environments.

Findings From the Pilot Case Study

Following the analysis of platform features and data collection procedures, this section presents the consolidated findings that connect the technical evaluation with creative and ethical considerations. The results integrate quantitative comparisons from Tables 5 and 6 with the qualitative frameworks of EZM and PM. Together, these analyses reveal how authenticity in AI logo generation is shaped by the interplay between algorithmic sophistication, human agency, and transparent authorship. The comparative evaluation of 20 AI logo generator platforms reveals clear variations in their capacity to support authenticity-driven design outcomes. As presented in Tables 5 and 6, the five primary dimensions—algorithmic sophistication, template diversity, customisation options, collaboration and feedback, and licensing and ownership—display different levels of maturity across platforms. Systems that combine adaptive algorithms with user-led controls and transparent authorship protocols tend to achieve higher authenticity scores. In contrast, platforms built around fixed templates or limited user input often prioritise speed and convenience over creativity, leading to repetitive and less distinctive results. These

contrasts highlight that authenticity is not a by-product of automation, but rather the result of a human–machine synergy where user intent actively shapes the generative process.

The highest-scoring platforms demonstrate that algorithmic sophistication alone does not ensure originality; instead, creativity depends on how deeply users can intervene through layered prompts, fine-tuning, and contextual adjustments. Broad template libraries further expand aesthetic possibilities by enabling cross-industry adaptability, while multi-channel customisation allows designers to refine typography, colour, and form with precision. These features collectively enhance the designer's capacity to align AI output with brand identity and contextual meaning. Conversely, platforms with restricted input steps, limited customisation flexibility, and limited template diversity produce formulaic designs, reinforcing visual uniformity and weakening authenticity. The findings also reveal that collaboration and feedback tools remain underdeveloped across most platforms. While several systems feature live chat or limited consultation options, few provide genuine co-design opportunities that integrate human expertise into the creative process. Moreover, full licensing and ownership remain critical concerns. Although users generally retain ownership of purchased logos, this does not grant licensing or authorship rights, as design elements such as icons and fonts remain within shared databases. This shared-resource structure undermines exclusivity and raises ethical and legal uncertainties regarding creative ownership. These gaps confirm the need for frameworks that ensure transparency, accountability, and verification beyond mere technical capability.

To address these limitations, the study implemented EZM and PM as complementary mechanisms for evaluating and reinforcing authenticity. The EZM analysis, derived from 50 housing developer logos, identified visual Red Zones of overused motifs—such as rooflines and skylines—and Green Zones of innovation through abstract modularity, contextual colour palettes, and humanist typography. Applying these boundaries in the AI-assisted design guided the generation of original, contextually relevant outputs that avoided visual repetition. The PM framework complemented this by documenting each design decision, from data collection to visual refinement, ensuring transparency and verifiable authorship. Together, EZM and PM demonstrate how creative boundaries and ethical documentation can coexist within a single, replicable methodology. The integration of quantitative and qualitative evidence confirms that authenticity in AI-generated logo design depends on the convergence of three core factors: user agency, contextual awareness, and traceable authorship. Platforms that successfully balance automation with meaningful human input deliver results that are both visually distinctive and ethically defensible. The EZM–PM model transforms authenticity from a subjective aesthetic judgement into a measurable, evidence-based process, providing a structured approach to responsible AI-driven design. These findings collectively indicate that achieving authenticity in AI-generated logos requires more than algorithmic precision—it demands a transparent, ethically grounded workflow where creativity and accountability are equally prioritised. The following discussion further interprets and contextualises these findings in relation to design authenticity, ethical authorship, and the evolving relationship between human creativity and AI.

Figure 3 illustrates the refined outcomes of AI-generated housing developer logos following the application of the EZM framework, as analysed in Tables 3 and 4. Each logo shown here exemplifies how the EZM process guided the transition from overused, high-risk "Red Zone" motifs—such as peaked roofs and repetitive skylines—toward innovative, contextually grounded "Green Zone" territories. The designs (N1–N6) demonstrate increased originality through the abstraction of architectural and communal forms, material-inspired palettes, and balanced typographic compositions. For example, N1 (Hex Aperture) and N2 (Keyhole Shield) reinterpret spatial symbolism using geometric metaphors, while N3 (Arch Trio) and N4 (Minimal House Monoline) express modernity through structural simplicity. N5 (Linked Hearts/Frames) and N6 (Vertical Skyline) further reflect community and urban dynamism through modular and scalable forms. Collectively, these examples validate the EZM matrix as an effective creative boundary

N1: Hex aperture (bold contrast; doorway negative space)

N2: Keyhole shield (quartered panel access metaphor)

N3: Arch trio (modular arches + tree sprout)

N4: Minimal house monoline (angled slab; flat shadows removed in final)

N5: Linked hearts/frames (community + home motif)

N6: Vertical skyline (abstract towers; teal/white planes)

Figure 3 AI-generated logos after applying Exclusion Zone Mapping

system that not only prevents design redundancy but also enhances authenticity. When coupled with the PM documentation outlined in Table 4, these visual results demonstrate how structured ethical verification can coexist with AI-driven creativity, thereby reinforcing both design integrity and intellectual property accountability within the broader research framework.

Figure 4 demonstrates how the integration of EZM and PM systematically balances creative freedom with ethical accountability. The process begins with input data drawn from existing trademarks and AI-generated prompts, which are analysed through EZM to identify originality boundaries. Potential similarities are then flagged, prompting refinement and regeneration of ideas until the output falls within a safe creative zone. PM subsequently records the design's developmental trail, ensuring transparent authorship and ethical verification. This cyclical framework not only safeguards intellectual property but also supports a disciplined yet innovative creative process and reinforces authenticity through traceable and responsible design practices.

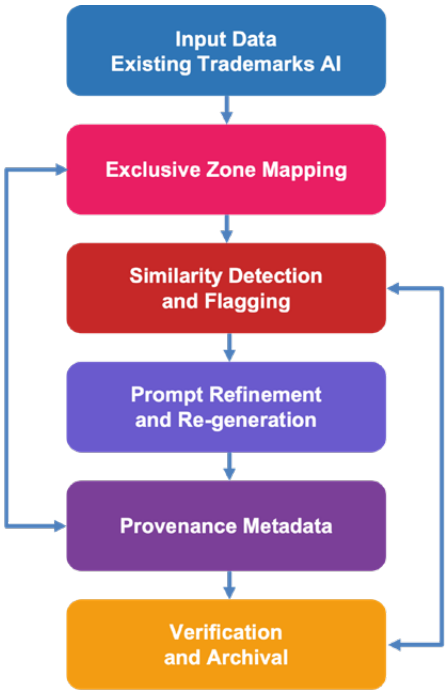

Figure 4 EZM–PM integrated process

DISCUSSION

The findings indicate that AI logo-generators are evolving toward a hybrid space where machine precision and human creativity coexist, yet not always harmoniously. While algorithmic sophistication accelerates visual production, it cannot independently guarantee authenticity or originality. The study's comparative analysis demonstrates that authentic outcomes depend

on the designer's ability to guide, interpret, and refine AI outputs within contextual and ethical boundaries. Platforms offering richer customisation channels, detailed prompts, and broader template diversity enable higher user engagement, which in turn leads to more personalised and authentic results. Conversely, systems designed primarily for efficiency often produce visually appealing yet repetitive outputs, illustrating that automation without human mediation risks aesthetic uniformity and conceptual dilution. The weakest dimensions of collaboration, licensing, and ownership expose persistent gaps in how AI platforms manage ethical authorship and user accountability. Although users may own the generated logo composition, this does not grant licensing or authorship rights, as the constituent elements remain available for reuse by others. This ambiguity erodes trust in AI-generated works and underscores the absence of clear intellectual property structures. The lack of exclusive full licensing, combined with the repetitive reuse of shared graphic assets, raises ethical questions about originality, authorship, and the moral rights of creators in algorithmically mediated design. Thus, the issue of authenticity in AI design cannot be confined to technical performance: it must also encompass legal and ethical dimensions.

EZM establishes a visual logic for originality by identifying overused motifs and mapping safe zones for innovation, helping designers and AI systems avoid imitation and visual saturation. Applied to the housing developer dataset, the framework successfully guided the generative process toward abstract, conceptually grounded, and contextually distinctive outcomes. The complementary use of PM transformed the design process into a transparent record of creative authorship, tracing decisions, rationale, and iterative refinements. Together, EZM and PM transform authenticity from a stylistic quality into a verifiable research and design framework that merges creativity with accountability. This integrated approach also reinforces the understanding that authenticity in AI design is not static but procedural. It evolves through iterative cycles of mapping, reflection, and documentation, where every creative decision is both aesthetic and ethical. The combined EZM–PM framework redefines authorship as a shared space between designer intent, algorithmic computation, and institutional responsibility, making authenticity a measurable and defensible attribute rather than a subjective perception. Importantly, this model also aligns with sustainable design practices by reducing duplication, encouraging creative reinterpretation, and promoting ethical reuse of visual materials. In broader terms, the study illustrates how AI-assisted design can move from efficiency-driven production to evidence-based creative authorship. The integration of algorithmic intelligence, human judgement, and transparent provenance forms a foundation for responsible innovation—one that future design systems, academic programmes, and policy frameworks can build upon. By combining analytical rigour with ethical sensitivity, the research establishes a replicable framework that ensures AI-generated creativity remains authentic, accountable, and aligned with the evolving standards of professional design practice.

Limitations and Future Suggestions

This study is limited by its focus on 20 AI logo-generators within a single creative domain, which may not capture the full diversity of global AI design practices. The analysis also emphasises qualitative mapping over empirical testing or user-based evaluation. Future research should extend the EZM–PM framework to other design contexts, such as packaging, digital media, or architecture, to assess its adaptability and impact. Incorporating larger datasets, experimental validation, and cross-disciplinary collaboration would help refine the framework's methodological robustness. Longitudinal studies involving designers and educators could also examine how provenance documentation and creative boundary mapping influence perceptions of authenticity, trust, and ethical accountability in AI-driven design.

CONCLUSION

This study reveals that authenticity in AI-assisted logo generation is a multifaceted construct shaped by the interaction between human agency, algorithmic intelligence, and ethical accountability. The comparative analysis of 20 AI logo-generators shows that platforms with higher customisation, adaptive prompts, and diverse templates foster deeper creative engagement and more authentic visual outcomes. In contrast, systems that prioritise automation over user control tend to produce repetitive, context-poor results. The absence of clear authorship and licensing terms across platforms further exposes ongoing ethical and legal uncertainties that challenge the credibility of AI-generated design. The adoption of the EZM and PM frameworks addresses these gaps by introducing a methodological balance between creativity and responsibility. EZM identifies zones of innovation and saturation, guiding designers and AI systems toward unique, contextually relevant solutions. PM complements this by recording each design iteration and decision, ensuring transparent authorship and traceable accountability. Together, these frameworks operationalise authenticity—transforming it from an aesthetic aspiration into a verifiable design principle that aligns with both creative and ethical standards.

Ultimately, by integrating these frameworks, the research establishes a replicable model for responsible AI-driven creativity. It emphasises that genuine innovation in digital design depends not only on algorithmic sophistication but also on the preservation of human intent, contextual awareness, and ethical transparency. Beyond logo design, the EZM–PM framework holds potential for broader application across creative disciplines where originality, authorship, and intellectual integrity must coexist with technological advancement. In conclusion, authentic design in the age of AI is achieved when creativity is guided by ethical clarity and supported by transparent documentation. The EZM–PM integration offers a pathway toward sustainable, accountable, and contextually meaningful design—where innovation is not only intelligent but also ethically sound and human-centred. The EZM–PM framework provides a structured approach for integrating authenticity and ethical awareness into AI-assisted design across academic, professional, and policy contexts. It functions as both a pedagogical and evaluative tool—training future designers in responsible AI use while ensuring creative distinctiveness, authorship transparency, and sustainable innovation in practice.

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