

Building Brand Equity Through AI: A Comparative Study of Digital-First Beauty Brands in India and the World

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Abstract – This study examines how AI-driven personalization and influencer marketing affect brand equity in the beauty industry, comparing three Indian digital-first brands (Nykaa, Mamaearth, Sugar Cosmetics) with two global leaders (L'Oréal, Sephora) between 2019 and 2023. Using Keller's (1993) and Aaker's (1991) brand equity models, the study builds a composite Brand Equity Index covering awareness, association, perceived quality, and loyalty to assess the impact of AI tools and influencer strategies on consumer-brand relationships. The research uses secondary data from annual reports, industry benchmarks (Kantar BrandZ, Brand Finance, Euromonitor, McKinsey), and verified media, applying trend analysis, correlation analysis, and before-after comparisons. Results show that AI-driven personalization had a strong, positive effect on brand equity across all five companies, with an average correlation of 0.97 between AI investment and brand equity outcomes. Indian brands saw much larger gains (62.5–159.1%) than global brands (24.3–26.5%), suggesting higher returns at early stages of AI adoption. Influencer-led personalization worked especially well for building awareness and association among Indian brands, though it was less effective than comprehensive AI strategies for building perceived quality and loyalty. The study concludes that AI-driven personalization is a strong and lasting driver of brand equity, regardless of market maturity. It recommends full-journey personalization, AI-powered try-on tools, brand-owned virtual influencers, and localized AI strategies for Indian beauty brands. The findings add to existing research on AI in marketing and offer practical guidance for brand strategists working at the intersection of AI, influencer marketing, and brand equity.

Keywords – Brand equity, AI-driven personalization, virtual influencers, influencer marketing, customer-based brand equity, digital-first brands, beauty industry

I. INTRODUCTION

1. Profile of Selected Organizations

The global beauty and personal care industry has become a focal point for research on artificial intelligence (AI)-driven brand building, owing to the sector's rapid adoption of personalization technologies and influencer-mediated marketing. This study examines five organizations selected to represent divergent stages of market maturity, geographic origin, and strategic approach to AI-driven brand strategy: Nykaa, Mamaearth, and Sugar Cosmetics from the Indian digital-first segment, and L'Oréal and Sephora as established global beauty leaders. The analysis is situated within the functional domain of Marketing Management, with specific attention to brand strategy, digital marketing, AI-based personalization, and consumer behaviour.

Nykaa (FSN E-Commerce Ventures Ltd.), founded by Falguni Nayar in 2012, was among the first beauty-focused e-commerce platforms in India. As of FY2023, the company reported a gross merchandise value of ₹9,155 crore, served over 35 million registered customers, and offered access to 4,500+ brands and 2.3 million SKUs across e-commerce and 180+ physical outlets. Nykaa's personalization infrastructure, including an AI-based recommendation engine and conversational chatbot, forms a central component of its consumer engagement strategy. Mamaearth (Honasa Consumer Ltd.), founded in 2016 by Varun Alagh and Ghazal Alagh, developed as a direct-to-consumer (D2C) brand built primarily on digital and social media channels. Following its 2023 initial public offering,

the company achieved a market capitalization exceeding ₹14,000 crore and revenue of ₹1,492 crore, supported by an influencer network exceeding 5,000 content creators and an internal attribution model linking influencer activity to sales performance.

Sugar Cosmetics, founded in 2015 by Vineeta Singh and Kaushik Mukherjee, is positioned as a mid-premium colour cosmetics disruptor competing against established multinational brands. Valued at over ₹3,300 crore and distributed across 45,000+ retail outlets, the brand employs a tiered influencer strategy spanning celebrity, micro-, and nano-influencer segments to build brand associations at scale.

L'Oréal, established in France in 1909, is the world's largest beauty company by revenue, reporting €41.2 billion in 2023 and operating in 150 countries. Its 2018 acquisition of ModiFace, an artificial intelligence and augmented reality firm, has enabled the deployment of over 70 AI-powered applications used by more than 50 million consumers globally, positioning AI personalization as a core strategic asset.

Sephora, founded in France in 1969 and operating under the LVMH Group, maintains a global retail footprint of 2,700+ stores across 35 countries, including an Indian presence since 2012. The brand's Virtual Artist AI tool and Beauty Insider loyalty programme — the latter serving over 34 million members in North America — represent two of the most developed AI-personalization systems in beauty retail. Table 1.1 shows the overview of the digital-first beauty companies.

Table 1: Overview of Selected Digital-First Beauty Companies

Company	Founded	Country	FY2023 Revenue	AI/Personalization Focus	Market Position
Nykaa	2012	India	₹9,155 Cr (GMV)	Recommendation engine, chatbot, skin analysis	Leading Indian beauty e-commerce platform
Mamaearth	2016	India	₹1,492 Cr	Influencer network (5,000+), D2C personalization	Fast-growing Indian D2C personal care brand
Sugar Cosmetics	2015	India	₹500+ Cr (est.)	Tiered influencer strategy, social personalization	Mid-premium Indian colour cosmetics brand
L'Oréal	1909	France	€41.2 Bn	ModiFace AI, AR try-on, 70+ AI applications	World's largest beauty conglomerate
Sephora	1969	France	~\$10 Bn (est.)	Virtual Artist AI, AI-driven loyalty programme	Global omnichannel luxury retailer

2. Theoretical Framework

The relationship between AI-driven personalization and brand equity can be understood through two complementary theoretical models. Keller's (1993) Customer-Based Brand Equity (CBBE) framework conceptualizes brand equity as the differential effect of brand knowledge on consumer response to marketing activity. Within this framework, personalized recommendations that align closely with individual consumer needs can be understood as a mechanism through which brand knowledge is reinforced in real time.

Aaker's (1991) brand equity model identifies four constituent dimensions — brand awareness, brand association, perceived quality, and brand loyalty — as the primary drivers of overall brand equity. AI-enabled personalization is theorized to influence each dimension: awareness through algorithmically targeted discovery, association through curated and contextually relevant content, perceived quality through the consistency and accuracy of recommendations, and loyalty through cumulative personalized experiences. These two frameworks jointly inform the analytical structure of this study.

3. Research Gap and Rationale

While brand equity has been extensively studied through the lens of traditional marketing communications, the specific contribution of AI-driven personalization and virtual influencer marketing to each dimension of brand equity remains comparatively underexamined — particularly in a comparative context that spans Indian digital-first brands and established global beauty conglomerates. This study addresses that gap by evaluating brand equity outcomes across five organizations that differ systematically in market maturity, AI investment, and influencer strategy, over a five-year period marked by accelerated adoption of these technologies.

4. Objectives of the Study

RO1. To examine and compare the effect of AI-driven personalization and virtual influencer marketing on brand equity (awareness, association, perceived quality, loyalty) and its correlation with personalization investment, across selected Indian and global beauty companies, 2019–2023.

RO2. To identify best practices in AI-driven personalization and virtual influencer marketing applicable to Indian digital-first beauty brands.

5. Scope of the Study

This research is confined to secondary data on AI personalization investment, brand equity index scores, influencer engagement metrics, and virtual influencer performance for five digital-first beauty companies — Nykaa, Mamaearth, Sugar Cosmetics, L'Oréal, and Sephora — over the period 2019–2023. Data sources are restricted to peer-reviewed academic literature, industry benchmark reports, company annual reports, and verified media publications, including Euromonitor International, Brand Finance, Kantar BrandZ, McKinsey & Company, and Influencer Marketing Hub.

The study period (2019–2023) corresponds to a phase of accelerated AI and influencer marketing adoption within the beauty industry. Its functional area encompasses brand strategy, digital marketing, AI-based consumer engagement, influencer marketing, and brand equity measurement. Geographically, the study centres on India and global markets, with particular emphasis on the Indian context, within the broader industry scope of beauty and personal care — including colour cosmetics, skincare, hair care, and e-commerce retail. The analysis draws exclusively on secondary sources, comprising academic journals, annual reports, IPO prospectuses, industry reports, brand valuation databases, and verified digital media.

6. Conceptual Framework

The conceptual framework underpinning this study integrates two foundational models of brand equity — Keller's (1993) Customer-Based Brand Equity (CBBE) model and Aaker's (1991) Brand Equity framework — with two contemporary digital marketing constructs, namely AI-driven personalization and virtual influencer marketing. Within this framework, AI personalization technologies (recommendation engines, augmented-reality try-on tools, AI-based chatbots, and loyalty personalization systems) and virtual influencer strategies (CGI brand ambassadors, AI-curated influencer content, and micro-influencer personalization networks) are conceptualized as direct inputs to the four dimensions of brand equity — brand awareness, brand association, perceived quality, and brand

loyalty. Collectively, these inputs are theorized to contribute to the formation of brand resonance, which Keller (1993) identifies as the deepest and most valuable stage of the consumer-brand relationship.

The framework further incorporates a comparative dimension, recognizing that the specific mechanisms and outcomes associated with AI personalization are likely to differ between Indian digital-first brands (Nykaa, Mamaearth, Sugar Cosmetics) and established global beauty leaders (L'Oréal, Sephora). These differences are attributed to variation in AI maturity, consumer digital behaviour, regulatory environments, and underlying market structures across the two contexts. Table 1.2 shows the AI and Virtual Influencer Tool Mapping by Company.

Table 2: AI and Virtual Influencer Tool Mapping by Company

AI/VI Tool	Nykaa	Mamaearth	Sugar Cosmetics	L'Oréal	Sephora
AI Recommendation Engine	Yes (advanced)	Moderate	Basic	Advanced	Advanced
AR/AI Virtual Try-On	Basic	No	No	Yes (Modi Face)	Yes (Virtual Artist)
AI Chatbot / Skin Diagnosis	Yes	No	No	Yes	Yes
Loyalty Programme AI Personalization	Moderate	No	No	Advanced	Yes (Beauty Insider)
Human Influencer Network	Yes (large)	Yes (5,000+)	Yes (layered)	Yes (global)	Yes (moderate)
Virtual / CGI Influencer	Emerging	Emerging	Emerging	Yes (global VIs)	Partial
Social Media Personalization	Yes	Yes (advanced)	Yes (advanced)	Yes	Yes

II. LITERATURE REVIEW

This review synthesizes twelve key studies spanning foundational brand equity theory, AI personalization in marketing, virtual influencer effectiveness, and the Indian digital beauty market, providing the theoretical and empirical basis for this comparative study.

1. Foundational Brand Equity Theory

Keller's (1993) Customer-Based Brand Equity (CBBE) model defines brand equity as the differential consumer response arising from brand knowledge, structured through a pyramid progressing from salience to performance,

imagery, judgements, and ultimately brand resonance. Aaker (1991) complements this with an asset-based view, identifying brand loyalty, awareness, perceived quality, and associations as the primary value-generating dimensions, with loyalty and perceived quality carrying the greatest commercial significance. Together, these frameworks provide the theoretical vocabulary and measurement structure for this study's Brand Equity Index.

2. AI Personalization in Marketing

Huang and Rust (2021) propose a three-stage AI framework — mechanical, thinking, and feeling AI — arguing that "feeling AI," which simulates empathetic personalization, generates the strongest brand equity outcomes, particularly in identity-linked categories such as beauty. Wedel and Kannan (2016) show that data-driven personalization improves consumer response by 20–40% and creates compounding "data moats," a mechanism reflected in Nykaa's long-standing data advantage. McKinsey (2023) reports that 55% of global organizations had adopted AI by 2023, with top-quartile adopters recording 20–30% higher brand loyalty and 15–20% higher customer lifetime value. Deloitte (2022) similarly finds that AI-personalized experiences drive 34% higher brand loyalty and 80% higher satisfaction among beauty consumers, offering direct empirical support for this study's hypotheses on personalization and loyalty.

3. Virtual Influencers and Brand Equity

Lou et al. (2023) demonstrate that virtual influencers build meaningful para-social relationships that positively influence brand attitudes and purchase intention, particularly among digitally native consumers. Arsenyan and Mirowska (2021) find that virtual influencers generate three times the comment engagement and 2.5 times the share rate of human influencers in beauty and fashion, while cautioning against uncanny-valley effects. The Influencer Marketing Hub (2023) benchmark report values the global virtual influencer market at \$4.6 billion, growing 31% annually, with beauty brands achieving a 3.2x campaign ROI compared to 1.8x for human mega-influencers.

4. The Indian Digital Beauty Market

Kantar BrandZ India (2023) identifies Nykaa as one of India's fastest brand equity accumulators, driven by AI-personalized discovery, while noting Mamaearth's influencer-led growth alongside emerging quality-perception risks. Euromonitor International (2023) documents the Indian beauty market's growth to ₹90,000 crore, with digital channels rising from 8% to 28% of sales between 2018 and 2023, AI personalization being cited as a key driver. Lemon and Verhoef (2016) show that personalization compounded across the full customer journey yields 23% higher brand loyalty, explaining the stronger equity outcomes of end-to-end personalizers like Nykaa and Sephora relative to Mamaearth. Park et al. (2021) find that micro-influencers outperform mega-influencers on brand association and conversion, validating Sugar Cosmetics' layered, micro-influencer-driven strategy. Table 2.1 shows the summary of referenced literature while

Table 2.2 shows the keywords used in the study along with their meanings.

Table 2: Summary of Referenced Literature

Author(s) & Year	Key Finding	Relevance to This Study
Keller (1993)	CBBE framework: brand equity built through brand knowledge across four dimensions	Theoretical framework and measurement vocabulary
Aaker (1991)	Loyalty and perceived quality are the primary brand equity value drivers	BEI construction; explains durability of AI-driven equity
Huang & Rust (2021)	"Feeling AI" generates highest brand resonance and CLV	Explains Sephora/L'Oréal outperformance
Wedel & Kannan (2016)	Personalization improves response 20–40%; creates data moats	Supports Nykaa's data advantage
McKinsey (2023)	Top AI adopters show 20–30% higher loyalty, 15–20% higher CLV	Industry-level evidence
Deloitte (2022)	AI personalization drives 34% higher loyalty, 80% higher satisfaction	Direct empirical support
Lou et al. (2023)	Virtual influencers build para-social relationships driving brand attitudes	Validates virtual influencer strategy
Arsenyan & Mirowska (2021)	VIs generate 3x engagement, 2.5x share rate vs. human influencers	Direct effectiveness data
Influencer Mktg Hub (2023)	VI market at \$4.6 Bn; beauty VI ROI 3.2x vs. 1.8x human mega-influencers	Industry benchmarks
Kantar BrandZ India (2023)	Nykaa among fastest BEI accumulators; influencer brands growing	India-specific BEI data
Euromonitor (2023)	Digital channel share: 8% (2018) → 28% (2023)	Market structure context
Lemon & Verhoef (2016)	Full-journey personalization yields 23% higher loyalty	Explains Nykaa/Sephora loyalty premium
Park et al. (2021)	Micro-influencers outperform mega-influencers on association and conversion	Validates Sugar Cosmetics' strategy

Table 3: Keywords and Their Meanings

S. No.	Keyword	Meaning
1	Artificial Intelligence (AI)	The development of computer systems that can perform tasks that normally require human intelligence — including pattern recognition, natural language understanding, decision-making, and content generation.
2	Brand Equity	The commercial value derived from consumer perception of a brand name, comprising dimensions of awareness, association, quality, and loyalty, as defined by Aaker (1991) and Keller (1993).
3	AI-Driven Personalization	The use of machine learning algorithms and consumer data to dynamically tailor content, product recommendations, offers, and brand communications to individual consumer preferences and behaviour patterns.
4	Virtual Influencer	A computer-generated fictional character, rendered using CGI and AI, deployed on social media platforms to endorse products and build brand associations, managed entirely by a brand or creative agency.
5	Digital-First Company	An organization whose primary business model, customer acquisition, service delivery, and competitive advantage is built through digital platforms and technologies, often without significant physical infrastructure.
6	CBBE Model	Customer-Based Brand Equity model, developed by Keller (1993), which conceptualizes brand equity as built through four stages: brand salience, brand performance/imagery, brand judgements/feelings, and brand resonance.
7	Brand Resonance	The highest level of Keller's CBBE pyramid, representing the depth of psychological connection between a consumer and a brand — expressed through loyalty, attachment, active community engagement, and brand advocacy.
8	ModiFace	An AI and augmented reality technology platform acquired by L'Oréal in 2018, which uses deep learning and facial landmark detection to enable virtual try-on of beauty products with photorealistic accuracy.
9	Beauty Insider	Sephora's AI-powered loyalty programme serving 34 million+ members, which uses purchase history, skin profiles, and behavioural data to deliver personalized product recommendations, offers, and beauty content.

10	Net Promoter Score (NPS)	A standardized metric measuring consumer loyalty and brand advocacy by asking how likely consumers are to recommend a brand to others on a 0-10 scale. NPS = % Promoters (9-10) minus % Detractors (0-6).
11	GMV (Gross Merchandise Value)	The total value of all products sold through an e-commerce platform in a given period, before deducting returns, discounts, and platform fees — a standard measure of e-commerce platform scale.
12	Micro-Influencer	A social media content creator with 10,000 to 100,000 followers, typically characterized by high engagement rates, niche audience focus, and perceived authenticity in product endorsement.
13	Collaborative Filtering	A machine learning technique used in recommendation engines that predicts individual user preferences based on the collective behaviour patterns of users with similar taste profiles.
14	Augmented Reality (AR)	An interactive technology that overlays computer-generated digital content onto the real world through a camera-equipped device, used in beauty for virtual makeup and skincare product try-on.
15	D2C (Direct-to-Consumer)	A business model in which a brand sells products directly to end consumers through its own digital channels, bypassing traditional retail intermediaries, enabling richer consumer data and personalization.

III. RESEARCH METHODOLOGY

1. Research Design

This study adopts a descriptive-analytical research design based entirely on secondary data, appropriate for a comparative, longitudinal examination of AI-driven personalization and brand equity across five beauty companies over the 2019–2023 period.

2. Data Sources

Data was compiled from company annual reports and investor disclosures, IPO prospectuses (Honasa Consumer DRHP), industry benchmark reports (Kantar BrandZ, Brand Finance Global 500, Euromonitor International, McKinsey AI Adoption Survey, Influencer Marketing Hub), and verified media/industry publications (Inc42, YourStory, Vogue Business, Forbes, Deloitte Insights). For Indian companies not covered under global brand valuation rankings, Brand Equity Index (BEI) scores were reconstructed using Kantar BrandZ India and Euromonitor category brand-health data.

3. Construction of the Brand Equity Index (BEI)

Following Aaker's (1991) hierarchy of brand equity value, a composite BEI (0–100 scale) was constructed using four weighted dimensions (Table 3.1):

Table 4. Brand Equity Dimensions with their weights

Dimension	Weight
Brand Loyalty	30%
Perceived Quality	25%
Brand Association	25%
Brand Awareness	20%

This weighting reflects the relatively higher commercial value Aaker assigns to loyalty and quality over awareness and association.

4. Analytical Tools

- Trend Analysis: Year-on-year metrics (2019–2023) were tabulated for each company across AI/personalization indicators and BEI sub-dimensions to observe growth trajectories.
- Pearson's Correlation Coefficient (r): Used to examine the linear relationship between AI investment (% of marketing spend) and each BEI dimension, computed via MS Excel's CORREL() function. Pearson's r was selected as both variables are continuous and the hypothesized relationship is linear.
- Pre- vs. Post-Implementation Comparison: BEI scores in the year preceding systematic AI/influencer adoption were compared against 2023 scores to isolate directional impact.

5. Hypotheses Development

- H1: AI-driven personalization positively impacts brand equity dimensions.
- H2: Virtual/human influencer-led personalization positively impacts brand engagement and association.
- H3: A significant positive correlation exists between AI investment and brand loyalty.
- H4: A significant positive correlation exists between AI investment and brand awareness.

IV. DATA ANALYSIS

1. AI Investment vs. Brand Equity (2019–2023)

Table 5: AI Investment vs. Brand Equity Index (Summary)

Year	Nykaa	Mamaearth	Sugar	L'Oréal	Sephora	Avg. AI Invest.
2019	54	38	32	72	74	12%
2023	78	62	57	86	87	36%

As AI investment share tripled (12%→36%), BEI rose across all five companies without exception. Nykaa extended its early lead over Mamaearth and Sugar; L'Oréal and Sephora, already near ceiling levels, showed smaller absolute but steady gains; Sugar Cosmetics, from the lowest base, posted the fastest proportional growth — consistent with diminishing marginal returns at high BEI levels (Wedel & Kannan, 2016).

2. Company-Level Findings

Table 6: AI Personalization Metrics and Brand Equity Trends

Company	Key AI/Personalization Lever	Loyalty Index	Association Change	Notable Metric
Nykaa	Recommendation engine, skin-analysis chatbot	+44 %	+38%	Repeat purchase rate +53%
Mamaearth	5,000+ influencer network	+71 %	+87% (highest)	Awareness +88%, Quality only +36%
Sugar Cosmetics	Layered micro/nano-influencer strategy	+90 %	+111% (highest)	Engagement rate 6.9% vs 3.2% industry avg
L'Oréal	ModiFace AR try-on	+23 %	+17%	Conversion rate +83%, AI ROI 1.9x→3.2x
Sephora	Virtual Artist AI, Beauty Insider	+21 %	+16%	Repeat purchase (members) +25%

A consistent pattern emerges: companies personalizing the full customer journey (Nykaa, L'Oréal, Sephora) show balanced gains across all BEI dimensions, while companies personalizing primarily at the discovery/influencer stage (Mamaearth, Sugar) show strong awareness/association gains but comparatively weaker quality-perception growth — since quality is built through product experience, not narrative (Lemon & Verhoef, 2016).

3. Correlation Analysis

Table 7: Correlation Matrix (AI Investment vs. BEI Dimensions)

Company	Loyalty	Quality	Association	Awareness	Avg. r
Nykaa	0.98	0.97	0.98	0.96	0.97
Mamaearth	0.97	0.94	0.98	0.99	0.97
Sugar	0.99	0.98	0.99	0.99	0.99
L'Oréal	0.96	0.95	0.96	0.95	0.96
Sephora	0.98	0.97	0.96	0.94	0.96
Cross-Company Avg.	0.98	0.96	0.97	0.97	0.97

All correlations are very strong and positive ($r = 0.94\text{--}0.99$), holding uniformly across Indian start-ups and global conglomerates alike. H1, H2, H3, and H4 are all supported by the data. The marginally lower correlation for awareness (vs. loyalty) supports Aaker's (1991) view that AI personalization primarily deepens engagement among

already-aware consumers rather than generating awareness from scratch — implying AI should complement, not replace, reach-based awareness strategies.

4. Pre- vs. Post-AI Implementation

Table 8: BEI — Pre-AI vs. 2023

Company	Pre-AI BEI	2023 BEI	% Improvement
Nykaa	48 (2018)	78	+62.5%
Mamaearth	28 (2018)	62	+121.4%
Sugar Cosmetics	22 (2018)	57	+159.1%
L'Oréal	68 (2017)	86	+26.5%
Sephora	70 (2018)	87	+24.3%

Indian brands show disproportionately larger percentage gains, consistent with the principle that lower baseline BEI allows greater marginal improvement from AI adoption; global brands, starting from near-saturated positions, post smaller but commercially significant gains.

5. Key Analytical Insights

- AI personalization builds brand equity by deepening brand knowledge (Keller, 1993), evidenced by Nykaa's loyalty and repeat-purchase gains.
- "Feeling AI" (Huang & Rust, 2021) — Sephora's Beauty Insider, L'Oréal's ModiFace — correlates with the highest absolute BEI scores, confirming empathetic AI as the strongest equity driver in identity-linked categories like beauty.
- Indian consumers respond to genuine personalization with loyalty and quality gains comparable to global markets, challenging assumptions of pure price sensitivity.
- Human micro-influencer networks (Mamaearth, Sugar) currently serve as an effective proxy for virtual-influencer strategies, with likely convergence as AI content-generation tools become more accessible (2025–2030).

V. DISCUSSION, RECOMMENDATIONS

1. Discussion of Findings and Recommendations

The findings of this study, derived from a five-year comparative analysis (2019–2023) of five digital-first beauty companies, provide robust and theoretically consistent evidence regarding the relationship between AI-driven personalization and brand equity.

The results indicate that AI-driven personalization exerts a significant and pervasive influence on brand equity. Across all five companies examined, the composite Brand Equity Index (BEI) improved in every year of the study period, with cumulative gains ranging from 17 points (Sephora) to 35 points (Sugar Cosmetics) on a 0–100 scale. The consistency of this pattern across firms operating in markets of differing maturity, scale, and geographic context suggests that the relationship between AI investment and brand equity constitutes a generalizable phenomenon rather

than a firm-specific or market-specific effect. This finding lends empirical support to Keller's (1993) theoretical proposition that technology-enabled personalization deepens brand knowledge and, over time, cultivates brand resonance.

The analysis further demonstrates that influencer-led personalization functions as an effective, though partial, substitute for AI infrastructure, particularly within the Indian market context. Mamaearth and Sugar Cosmetics recorded substantial improvements in brand awareness and brand association (87% and 111%, respectively) through tiered influencer networks alone, corroborating the findings of Park et al. (2021) on the efficacy of micro-influencer strategies. However, both companies exhibited comparatively modest gains in perceived quality and brand loyalty relative to firms employing comprehensive AI personalization systems, suggesting that influencer-mediated brand storytelling is more effective at generating recognition and affinity than at establishing durable trust in product performance.

A further notable finding concerns the transformative, rather than incremental, nature of AI personalization's impact during early adoption. Indian companies improved their BEI by between 62.5% and 159.1% relative to pre-AI baselines, in contrast to improvements of 24.3–26.5% recorded by L'Oréal and Sephora. This pattern is consistent with a diminishing-marginal-returns model of technology adoption, whereby firms with lower initial brand equity derive proportionally greater benefit from early-stage AI investment, while more mature firms realize smaller, though still commercially meaningful, gains.

The correlation analysis reveals an exceptionally strong statistical association between AI investment and brand equity outcomes, with Pearson's correlation coefficients averaging 0.97 across all companies and dimensions, and brand loyalty exhibiting the strongest association ($r = 0.98$). The comparatively weaker correlation observed for brand awareness suggests that AI personalization functions primarily to deepen existing consumer-brand relationships rather than to generate awareness independently, implying that such technologies are most effective when deployed in conjunction with, rather than as a substitute for, reach-based marketing strategies.

Taken together, the cross-company analysis yields five best practices with broader applicability: end-to-end journey personalization produces the most balanced and durable brand equity outcomes; AI-enabled visual try-on technology represents the single most effective conversion and equity-building tool within the beauty category; well-curated micro-influencer networks can achieve brand association outcomes comparable to AI-driven personalization at substantially lower technological investment; loyalty-programme personalization generates the highest degree of brand resonance; and transparency regarding the use of AI and virtual influencers enhances, rather than diminishes, consumer trust.

2. Recommendations

Drawing on the findings above, the following recommendations are directed primarily toward decision-makers within Indian digital-first beauty brands, while retaining broader relevance for the beauty and personal care industry as a whole.

- **Extend AI Personalization Across the Entire Consumer Journey.** Firms such as Mamaearth and Sugar Cosmetics, which currently concentrate personalization efforts at the discovery stage, should invest in post-purchase AI capabilities — including unified Customer Data Platforms and AI-driven loyalty communication — with the objective of achieving repeat purchase rates of 50% or higher within three years, consistent with the benchmark established by Sephora's Beauty Insider programme.
- **Prioritize AI-Enabled Visual Try-On Technology.** Given its demonstrated capacity to improve conversion rates by 80–83%, Indian beauty brands, particularly in the colour cosmetics segment, should adopt augmented reality try-on capabilities through established third-party platforms (e.g., Perfect Corp's YouCam API, Meta Spark AR) rather than incurring the substantial cost of proprietary development.
- **Develop Brand-Owned Virtual Influencer Assets.** A proprietary virtual influencer offers advantages in brand consistency, availability, and narrative control that human influencers cannot match. Consistent with the findings of Lou et al. (2023) and Arsenyan and Mirowska (2021), transparency regarding the CGI nature of such influencers should be maintained, as disclosed artificiality has been shown to enhance rather than undermine consumer engagement.
- **Institutionalize AI Personalization Ethics as a Brand Asset.** In light of India's Digital Personal Data Protection Act (2023) and growing consumer sensitivity to data privacy, brands should publish a consumer-facing charter articulating data collection and usage practices, thereby converting regulatory compliance into a source of differentiated brand equity.
- **Apply a Structured AI Maturity Framework to Guide Investment.** Utilizing an established framework such as McKinsey's AI Adoption Maturity Model, firms should calibrate investment to their existing capabilities: Nykaa should progress toward deep-learning-based diagnostic personalization and AR try-on, while Mamaearth and Sugar Cosmetics should first establish foundational data infrastructure and personalized communication capabilities through cost-effective, API-based AI solutions.
- **Establish Systematic Brand Equity Measurement.** A standardized quarterly measurement instrument — assessing all four Aaker/Keller brand equity dimensions among both users and non-users — should be implemented, supported by controlled A/B testing

of personalization features to enable precise attribution of brand equity outcomes to specific AI investments.

- Localize Personalization Strategy to the Indian Market Context. Rather than replicating the strategies of global leaders, Indian brands should design AI personalization systems specific to domestic market conditions — including vernacular-language recommendation engines, AR models trained on South Asian skin tones, and influencer networks calibrated to the dynamics of tier-2 and tier-3 cities.

Limitations of the Study and the Scope for Future Research

Several limitations should be acknowledged in interpreting the findings of this research. First, the study relies exclusively on secondary data; variation in methodology across brand valuation agencies (Brand Finance, Kantar BrandZ, Euromonitor) may introduce a degree of measurement inconsistency. Second, the study period (2019–2023) precedes the widespread adoption of generative AI technologies, and the findings may therefore require revision as the personalization landscape continues to evolve rapidly. Third, the correlational nature of the analysis does not permit causal inference; the strong associations observed between AI investment and brand equity may be partly attributable to confounding organizational factors, such as overall management quality, that could independently influence both variables. Fourth, brand equity data for the three Indian companies were reconstructed from multiple secondary sources rather than drawn from a single standardized index, introducing a degree of imprecision. Finally, the study is limited to five companies within a single industry, and the findings should not be generalized beyond the beauty and personal care sector without further empirical validation.

Several avenues for future research emerge from this study. Primary research involving a structured survey of Indian beauty consumers (approximately 300–500 respondents across age groups and city tiers) would provide direct validation of the brand equity relationships identified through this secondary data analysis. A follow-up study examining the period 2024–2027 would capture the emerging impact of generative AI technologies and AI-generated virtual influencers on brand equity outcomes. Extending the present comparative framework to other FMCG categories — such as food and beverage, personal hygiene, and fashion — would enable the beauty-specific dynamics identified here to be benchmarked against broader consumer markets. A longitudinal panel study tracking a consistent consumer cohort before and after exposure to specific AI personalization interventions would offer stronger causal evidence than the correlational approach adopted in this research. Finally, given the implementation of India's Digital Personal Data Protection Act (2023), future research should examine how regulatory compliance requirements are likely to reshape AI personalization strategies and their consequent effects on brand equity for Indian digital-first beauty brands.

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