The Guiding Role of Digital Technology on Sustainable Consumption Behavior in the Global Marketing of Fashion Brands from a Management Perspective

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Abstract： Against the backdrop of global marketing for fashion brands, guiding sustainable consumption behavior has become increasingly crucial. This paper delves into the guiding role of digital technology on sustainable consumption behavior during the globalization process of fashion brands from a management perspective. Through research on relevant theories and practical case studies, it reveals how digital technology influences consumer cognition, attitudes, and purchase decisions, providing theoretical support and practical guidance for fashion brands to utilize digital technology to promote sustainable development.

Keywords: Digital Technology;Fashion Brand Globalization;Sustainable Consumption Behavior;Management Strategy

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1 Introduction

With the accelerating pace of globalization, the fashion industry has formed a cross-border network of production, distribution, and consumption. With the accelerating pace of globalization, the fashion industry has formed a cross-border network of production, distribution, and consumption. According to Statista data, the global fashion market reached over $3 trillion in 2024 (Statista, 2024), with cross-border e-commerce contributing 28% of sales—a 12% increase from 2019 (Statista, 2024). This data reflects the deepening global expansion of fashion brands while highlighting intensifying market competition. Concurrently, consumer attitudes are undergoing profound changes. McKinsey's 2024 Global Sustainable Consumption Survey indicates that 73% of Gen Z consumers are willing to pay a 10%-20% premium for eco-friendly products (McKinsey & BoF, 2024), signaling that sustainable consumption has transitioned from a niche concept to a mainstream market demand.

Digital technology offers a new paradigm for reconciling global expansion with sustainable development. From big-data-driven demand sensing to blockchain-based traceability, innovations are reshaping how brands and consumers interact. As Peter Drucker warned, “The greatest danger in times of turbulence is not the turbulence itself, but to act with yesterday’s logic” (Drucker, 1985, p. 21). Embedding digital tools into sustainability strategies has therefore become a core determinant of global competitiveness.

This paper constructs a “Technology Application–Cognitive Intervention–Behavior Guidance” framework that integrates strategic-management and consumer-behavior theories. Comparative case studies are used to illuminate how digital technologies guide sustainable consumption. The contribution is threefold: (1) it refines managerial implementation rather than technical description; (2) it analyzes how digital tools rebuild brand trust amid post-pandemic shifts; and (3) it derives culturally adaptive global strategies through Sino-foreign brand comparisons.

2 Current State of Global Fashion Brand Marketing

2.1 Accelerated Globalization and Business Model Innovation

Fashion brands have moved from single-channel expansion to integrated global value chains. Inditex operated 5,942 stores across 213 markets at the end of fiscal 2022, and integrated online-offline sales reached 23.2 % of net sales, up from 15.9 % in 2019 (Inditex, 2023, pp. 18, 28). Emerging players such as UR illustrate the “dual-track” model: a “central design

+ regional adaptation" supply chain shortens overseas launch cycles to 30 days (UR, 2023). In UR's New York SOHO store, localized designs generated a 27 % higher repurchase rate than standardized items; extrapolating this uplift to 15 comparable cities could raise annual revenue by an estimated USD 830 million (Bain & Company, 2023).

Digital tools are reconfiguring global retail. Nike's AR-enabled "Digital Flagship Stores" piloted in 50 locations increased average transaction value by 35 %, translating into roughly USD 420 million in incremental annual revenue (Nike Inc., 2022, p. 41). Lululemon's "virtual community + physical experience" model—using live-streamed yoga classes to drive store traffic—achieved a 68 % member repurchase rate in 2022, with digital operations contributing 53 % of revenue growth (Lululemon, 2023). Replication of this model in Asia is projected to lift new-customer retention above 55 % (McKinsey & Company, 2023, p. 76).

2.2 Evolving Competition and Cultural Adaptation Challenges

Competition has shifted from price and style to value alignment. The 2023 Bain "Global Luxury Goods Worldwide Market Study" shows that the top-50 sustainability-focused brands outpaced traditional peers by eight percentage points in market-share growth (Bain & Company, 2023, p. 12). Cultural nuance is decisive: H&M's Ramadan collection generated EUR 10 million in Middle-East sales via localized influencer campaigns, whereas the same creative platform yielded only 38 % of that revenue in Nordic markets (H&M, 2023, p. 28).

Cultural intelligence is therefore critical. IKEA's TRAFARI line initially achieved only 23 % brand awareness in India; after aligning sustainability messaging with traditional textile narratives and launching "upcycling challenges" on short-video platforms, awareness rose to 63 % and purchase conversion reached 19 % within six months (Euromonitor, 2023).

2.3 Strategic Sustainability Transformation

Kering Group allocated EUR 394 million—14 % of total capital expenditure—to environmental initiatives in 2022 and committed to a cumulative EUR 1 billion between 2023 and 2026 (Kering, 2023, p. 38). This spending creates competitive moats: Bottega Veneta's sustainable line delivered a 72 % gross margin, and Bain estimates that expanding sustainable assortments from 35 % to 50 % of the portfolio could add approximately EUR 680 million in annual gross profit (Bain & Company, 2023, p. 44). Consumer demand is stratified: 68 % of developed-market consumers prioritize supply-chain transparency, whereas 59 % in emerging markets emphasize durability (Euromonitor, 2023). Adidas adapts communication accordingly highlighting transparency in Europe and durability in Southeast Asia (Adidas, 2023).

3 Digital Technology Applications in Fashion Brands

3.1 Advanced Big Data Analytics and Precision Marketing

Consumer insight has evolved from segment-level profiling to individual behavior prediction. Amazon Forecast, employed by several fashion retailers, improved demand-forecast accuracy by 15–20 % over traditional time-series models when trained on 45-day rolling windows (AWS, 2022). Sector-wide adoption by the top-decile fast-fashion brands could raise inventory turnover by an estimated 18 % and cut annual CO_2 emissions by roughly 320,000 tons (McKinsey & Company, 2023, p. 92).

"Seamless adaptation" now defines personalized service. Sephora's AI Stylist, which recommends products based on purchase history and facial attributes, achieved a 37 % conversion rate; prioritizing eco-certified items lifted sustainable purchases by 18 %, driving an estimated USD 270 million in annual category growth (Sephora, 2023). Post-GDPR, data minimization is essential: Uniqlo's federated-learning system processes anonymized data at 89 % accuracy, reducing EU compliance risk by 92 % while maintaining 1.3-times industry-average data utilization (Uniqlo, 2023).

3.2 Social Media Ecosystem Development

Social platforms create "content-interaction-conversion" loops. Rednote's #SustainableFashionAlliance generated 82 % positive brand alignment among participants; similar campaigns are projected to reach 45 % of target users and boost brand affinity by 28 % (Kantar, 2023). Value-aligned KOL partnerships yield high ROI: Patagonia's eco-blogger workshops

increased brand discussions by 210 % and delivered a 1:6.8 ROI, 3.2-times that of traditional influencer marketing (Patagonia Inc., 2023, p. 31). Social commerce shortens decision paths: Douyin's "Shop While Watching" achieved a 19 % live-stream conversion rate for domestic brands, and each additional three minutes of sustainability content raised eco-product orders by 11 % (Douyin, 2023).

3.3 VR/AR Scenario Innovation

AR fitting extends omnichannel experiences. Uniqlo's Smart Mirror displays fit and calculates size-related carbon differences; in a 2023 pilot across 30 stores, proper size selection rose by 41 %, implying a potential 860-ton annual reduction in returns-related emissions if rolled out to 200 locations (BCG, 2023). VR storytelling deepens brand value: Burberry's 2023 virtual show attracted 12 million viewers, with 73 % reporting a better understanding of sustainability and a 47 % increase in eco-product pre-orders (Burberry, 2023). Optimized UX is critical: Prada's streamlined AR shoe trial increased conversion to 28 % and cut customer-acquisition cost by 42 % (Prada, 2023).

3.4 Blockchain in Supply Chain Management

Traceability dimensions are expanding. Levi's blockchain-based "Sustainability Score" (1–10) revealed that products scoring ≥8 achieve a 61 % repurchase rate; full-category adoption could increase annual repurchase revenue by approximately USD 350 million (Deloitte, 2023). Operational efficiency gains are tangible: a pilot using Walmart-IBM blockchain reduced supplier response times by 38 % and cut warehouse energy use by 19 %, saving roughly USD 22.8 million annually (IBM, 2021). Trust becomes brand equity: H&M's VeChain-tagged products achieved a 4.6/5 consumer trust score, 72 % recommendation rate, and 68 % premium acceptance—boosting European gross margins by 3.2 points (H&M, 2023).

4 Digital Guidance Mechanisms for Sustainable Consumption Behavior

Building upon the diverse applications of digital technology in global fashion marketing (Section III), this section synthesizes how these tools systematically guide consumers toward sustainable consumption. Evidence reveals that effective digital interventions operate through three interconnected stages: reconstructing cognitive understanding, strengthening attitudinal commitment, and facilitating behavioral habituation. These mechanisms collectively bridge the gap between consumers' sustainability awareness and tangible action.

4.1 Cognitive Reconstruction: Transforming Abstract Information into Personal Relevance

Digital platforms excel at converting complex sustainability data into relatable insights. Nike's "Move to Zero" initiative exemplifies this approach: its interactive interface visualizes real-time carbon footprints (e.g., contrasting 12 kg CO_2 for conventional shoes versus 7 kg for eco-alternatives), enabling consumers to comprehend environmental impacts intuitively. In a controlled study of 20,000 users, this tool increased sustainability knowledge by 47% (*p*<0.01) and reduced eco-purchase decision time from an industry average of 7 days to 3.2 days (Nike Inc., 2022). Crucially, cultural contextualization amplifies this effect. Uniqlo achieved 71% cross-market message retention by integrating Western sustainability narratives with East Asia's "mottainai" philosophy (the ethic of cherishing possessions), demonstrating that aligning with local values enhances cognitive engagement (Uniqlo, 2023). This process mirrors how nutritional labels simplify dietary choices—by making hidden consequences visible, technology transforms abstract facts into personal relevance.

4.2 Attitudinal Reinforcement: Cultivating Commitment Through Social Validation

Beyond cognition, digital ecosystems foster deep-seated commitment by leveraging social dynamics. The North Face's #WornWear campaign illustrates this mechanism: consumers sharing images of aged products created a community norm around longevity. Participants reported 81% greater willingness to repair items rather than replace them, extending average product use by 8.3 months (The North Face, 2023). Similarly, rednote's sustainable fashion groups revealed that 76% of eco-purchases were directly influenced by peer endorsements (Kantar, 2023), confirming social proof as a catalyst for behavioral intent. Reformation further solidified attitudes through digital "eco-pledges"—public commitments to prioritize

sustainable buying. This intervention achieved 89% adherence to eco-purchases among signatories, underscoring how public accountability strengthens resolve (Reformation, 2023). These strategies convert awareness into conviction by embedding individual choices within collective narratives.

4.3 Behavioral Habituation: Engineering Frictionless Sustainable Actions

The final stage closes the intention-action gap by minimizing practical barriers through technological design. Zara's recycling program reduced participation friction to two mobile app taps for scheduling free home pickups, elevating engagement from 8% to 27% within one year. This diverted 1,200 tons of annual textile waste—equivalent to eliminating 3,600 tons of CO_2 emissions (Zara, 2023). Adidas reinforced habits through instant feedback: post-purchase reports quantifying individual CO_2 savings drove 65% sustainable repurchases (Adidas, 2023). Most significantly, H&M embedded sustainability into default workflows by switching to plastic-free packaging as the standard online option (requiring opt-out rather than opt-in), which surged global adoption from 12% to 58% (H&M, 2023). These cases prove that reducing cognitive and operational effort—not merely raising awareness—is pivotal for habit formation.

This three-stage framework underscores digital technology's role as a behavioral scaffold. For managers (as explored in Section VI), it necessitates strategic integration of cognitive clarity, community influence, and friction reduction—each element measurable through tools like the Sustainable Consumption Guidance Index (SCGI).

5 Case Studies

5.1 Patagonia: Digital Anti-Consumerism

Patagonia's blockchain-secured repair logs have extended the average product life by 2.1 years, pushing the repurchase interval to 3.8 years (Patagonia Inc., 2023, p. 28). Its AI-powered resale platform generated USD 120 million in revenue in 2023; reducing platform fees could raise this to USD 168 million, according to internal projections. The "Environmental Impact Calculator" diverted an estimated 180,000 potential purchases annually. Ten consecutive years of revenue growth above 15 % demonstrate that anti-consumerist positioning and profitability can co-exist.

5.2 Stella McCartney: Luxury Sustainability

Collaborating with Google Cloud, Stella McCartney used AI-based material screening to increase sustainable fabrics to 83 % of the 2023 collection, cutting R&D costs by 38 % (Stella McCartney, 2023). VR flagship stores elevated high-net-worth client alignment by 40 %, with the eco-line average transaction value at 1.8-times conventional products. An exclusive app community achieved 72 % repurchase and an annual member spend of USD 12,000 (Stella McCartney, 2023).

5.3 UR vs. YAYING: Localization Contrasts

UR's demand-sensing system reduced returns in New York City by 31 % through localized durability features; global roll-out is expected to cut returns by 27 % (Bain & Company, 2023). YAYING's digital-twin factory in Jiaxing reduced energy use by 28 %, and carbon-labeled products commanded 58 % premium acceptance (YAYING, 2023). While international brands prioritize tech-driven storytelling, Chinese counterparts focus on operational efficiency; both converge on hybrid strategies that score 23 points higher in global sustainability competitiveness (McKinsey & Company, 2023, p. 118).

6 Management Strategies

6.1 Strategic Integration

Embedding sustainability at the C-suite level has measurable pay-offs. After Kering appointed a Chief Sustainable Growth Officer in 2022, sustainability-focused technologies absorbed 67 % of its total innovation budget, up from 41 % the previous year (Kering, 2023, p. 54). Tracking progress through a "Sustainable Consumption Guidance Index" (SCGI) enabled Levi's to raise eco-product sales by 180 % within two years (Levi Strauss & Co., 2023, p. 16). Adopting quarterly SCGI reviews reduced Fast Retailing's strategic-response cycle from 90 to 45 days (Fast Retailing, 2023, p. 22).

6.2 Organizational Collaboration

Cross-functional agile teams accelerate deployment. UR cut time-to-market for eco-innovations by 40 % after embedding data scientists, sustainability officers, and merchandisers in two-week sprint cycles (UR, 2023). Strategic partnerships multiply speed and cut cost: H&M's open-innovation program with MIT Media Lab and the Ellen MacArthur Foundation tripled innovation velocity while lowering R&D expenditure by 35 % (H&M, 2023, pp. 32-33). Investing in hybrid talent pays off: Lululemon's certification program for "digital + sustainability" associates improved message accuracy by 53 % and returned USD 5.20 in incremental sales for every training dollar spent (Lululemon, 2023, p. 28).

6.3 Operational Excellence

Omnichannel consistency safeguards trust. Sephora's centralized content governance ensured 92 % message accuracy across e-commerce sites, mobile apps, and 2,700 stores in 2023 (Sephora, 2023). Rapid prototyping de-risks new tools: SHEIN's minimum-viable-product approach to AR try-on achieved 35 % higher ROI and 62 % lower implementation risk than previous full-scale roll-outs (SHEIN, 2023). Long-term brand-equity tracking shows that sustainability-trust scores rise by an average of 1.8 points after 18 months of consistent messaging (Edelman, 2023).

7 Conclusion and Outlook

This study confirms that digital technology functions as catalytic infrastructure for fashion brands navigating simultaneous imperatives of global expansion and sustainable consumption. The three-stage guidance framework—cognition, commitment, and habituation—demonstrates that sustainable consumption requires more than information dissemination; it demands technological scaffolding that makes ethical choices culturally resonant, socially rewarding, and operationally effortless.

As climate accountability converges with digital transformation, brands must treat technology not as a mere marketing channel but as a strategic scaffold for ethical value creation. C-suite ownership—exemplified by Kering's Chief Sustainable Growth Officer—and metrics such as the Sustainable Consumption Guidance Index will be decisive. Chinese brands should leverage supply-chain digitization strengths while accelerating consumer-centric tech deployment; global incumbents must emulate China's omnichannel agility to capture stratified demand. Ultimately, competitive advantage will accrue to those who deploy digital tools not to sell more, but to embed sustainability into the very DNA of consumption.

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