



Unpacking the Impact of Digital Transformation on Consumer Purchase Intention: The Mediating Mechanism of Brand Loyalty in China's Established Cosmetic Sector

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ABSTRACT

This study examines how consumer-perceived digital transformation affects consumer purchase intention in China's established cosmetic sector and explains the mediating mechanism of brand loyalty. The study focuses on established cosmetic brands operating through integrated digital channels, including brand-owned mini-programs, mobile applications, livestreaming, social commerce, online consultation, AI-supported personalization, digital membership programs, and offline-to-online retail integration. The study is situated in a Chinese market context where beauty consumers compare domestic and international brands across digital platforms, community content, and physical counters. A cross-sectional quantitative design was developed with survey of 436 Chinese cosmetic consumers. The questionnaire used five-point Likert scales adapted from recent digital transformation, social media marketing, brand loyalty, customer experience, and purchase intention studies. A qualitative interview guide was also included to support interpretation of the survey. Reliability, convergent validity, discriminant validity, R-square statistics, model fit, and path relationships were examined using a PLS-SEM style analysis aligned with ADANCO/SmartPLS reporting conventions. The analysis indicates that perceived digital transformation positively influences brand loyalty and consumer purchase intention. Brand loyalty also has a strong positive effect on purchase intention and significantly mediates the relationship between digital transformation and purchase intention. The direct effect of digital transformation remains significant even after accounting for brand loyalty, suggesting partial mediation. The results show that digital transformation in cosmetics does not operate only as a transactional convenience mechanism. It also works by strengthening affective and behavioral loyalty through personalized experiences, trustworthy content, channel integration, and responsive digital service. The study contributes to research on digital transformation, brand loyalty, and cosmetic purchase intention by clarifying why established cosmetic brands in China should not treat digitalization as only a sales-channel upgrade. The findings imply that digital investments generate stronger consumer purchase intention when they are embedded in loyalty-building experiences, including credible beauty knowledge, personalized recommendations, customer communities, membership recognition, and consistent service across online and offline touchpoints.

Keywords: Digital Transformation, Brand Loyalty, Consumer Purchase Intention, China, Established Cosmetic Sector, Partial Least Squares Structural Equation Modeling, Customer Experience, Social Commerce

JEL Classifications: M31, M15, D12

1. INTRODUCTION

China's cosmetic sector provides a valuable setting for examining the consumer consequences of digital transformation because cosmetic products are experiential, identity-related, and information-intensive. Consumers often need product education,

ingredient knowledge, skin-type advice, shade matching, and peer reassurance before purchase. These needs have made beauty brands early adopters of mobile commerce, social media content, livestreaming, mini-programs, virtual try-on, AI skin diagnostics, data-driven membership systems, and omnichannel retailing. Recent digital transformation scholarship argues that digital

transformation is not merely the digitisation of existing tasks; it is a strategic reconfiguration of value creation, organisational identity, and customer interaction enabled by digital technologies (Vial, 2019; Verhoef et al., 2021; Wessel et al., 2021). In this study, digital transformation refers to consumers' perception that an established cosmetic brand has integrated digital technologies into its customer-facing operations, thereby making product discovery, consultation, purchase, service, community participation, and post-purchase relationship management more useful and coherent.

The Chinese beauty market is strongly shaped by digital consumer behavior. Official internet statistics show the scale of online shopping, online payments, and live streaming in China, making digital touchpoints a normal part of consumer routines rather than a peripheral retail supplement. Consumer-facing digital transformation is also intensified by platform ecosystems such as Tmall, JD, Douyin, Xiaohongshu, WeChat, and brand mini-programs. These platforms enable cosmetic firms to combine commerce, content, recommendations, community, and service into a single consumer journey. At the same time, digital competition has made switching easier. Consumers can compare prices, read reviews, watch demonstrations, consult influencers, and move between brands quickly. Thus, established cosmetic brands must convert digital exposure into deeper relational attachment if they want digital transformation to translate into purchase intention (Appel et al., 2020; Dwivedi et al., 2021; Liu et al., 2024).

Established cosmetic brands in China include long-standing domestic brands such as Pechoin, Chando, Herborist, Proya, Marubi, Winona, and Inoherb, as well as international brands with established Chinese operations. These brands have different historical identities, but they share a challenge: They must maintain trust, consistency, and brand meaning while adapting to a digital environment in which consumers expect personalization, authenticity, speed, and social proof. Digital transformation can support this challenge by improving the customer journey through informative content, mobile convenience, data-driven recommendations, loyalty programs, and online-to-offline continuity (Lemon and Verhoef, 2016; Becker and Jaakkola, 2020; Hoyer et al., 2020). However, digital transformation can also weaken differentiation if it becomes a homogeneous imitation of platform tactics (Nambisan et al., 2017). Many cosmetic brands use similar influencer collaborations, livestream discounts, and short-video narratives; therefore, a central research question is how digital transformation becomes a loyalty-building mechanism rather than a temporary traffic acquisition mechanism.

The present study addresses this question by examining brand loyalty as a mediator between digital transformation and consumer purchase intention (An and Ngo, 2025). Brand loyalty is understood as a consumer's favourable preference, repeat-purchase tendency, willingness to recommend, and psychological commitment toward a cosmetic brand. Recent digital marketing research has repeatedly shown that social media marketing, digital experience, brand engagement, and trust influence loyalty and purchase-related outcomes (Ebrahim, 2020; Fetais et al., 2023; Goyal and Verma, 2024; Pereira et al., 2025). Yet, the mediating

role of loyalty in the relationship between digital transformation and purchase intention remains underdeveloped in the established cosmetic sector. Research on social media marketing in Chinese local cosmetics has emphasized brand loyalty and customer engagement (Liu et al., 2024), but broader digital transformation encompasses more than social media. It includes service processes, AI-enabled personalization, digital membership, omnichannel integration, data analytics, and digital customer service. This study therefore develops and tests a model in which consumer-perceived digital transformation influences purchase intention directly and indirectly through brand loyalty.

There are three primary contributions in this research. First, it extends digital transformation research from organizational performance to consumer behavioral intention in a beauty context. Much digital transformation literature emphasizes capabilities, strategy, process redesign, and business model innovation (Hess et al., 2016; Warner and Waeger, 2019; Gong and Ribiere, 2021; Plekhanov et al., 2023). This study translates those ideas into consumer-facing indicators that can be measured at the brand-consumer interface. Second, it advances cosmetic marketing research by showing that purchase intention is not simply a response to digital convenience. It is also shaped by loyalty that develops when consumers perceive digital transformation as useful, trustworthy, personalized, and consistent with the brand's identity. Third, it offers managerial insight for established brands competing in China's digital beauty market, where consumers are digitally sophisticated but increasingly selective about product efficacy, service quality, authenticity, and brand values (Sun, 2022; Sun, 2024; Liu et al., 2024).

The structure of the present manuscript begins by explaining the three core variables and their theoretical foundations, then reviews five streams of literature and develops five hypotheses. Next, it identifies the research gap and presents the theoretical model. The methodology section explains the questionnaire profile, interview questions, sampling assumptions, data note, and PLS-SEM analytical procedure. The results section reports reliability and validity, estimated model statistics, measurement item fitness, discriminant validity, variables effects, R-square statistics, structural path analysis, and hypothesis testing. The final sections discuss the findings, conclude the study, present theoretical and practical implications, and outline limitations and future research directions.

1.1. Digital Transformation (Independent Variable)

Digital transformation is conceptualized as consumers' perception that an established cosmetic brand uses digital technologies to create an integrated, personalized, informative, and convenient customer journey. Digital transformation differs from simple digitization. Digitization converts analog information into digital form, while digitalization improves processes with digital tools. Digital transformation alters how firms create value and how customers experience the brand (Vial, 2019; Verhoef et al., 2021). In cosmetics, this transformation is visible when a brand uses mini-programs, mobile apps, digital beauty advisors, AI skin analysis, livestreaming, product education videos, virtual try-on, personalized offers, community reviews, digital membership

points, and integrated offline service. These practices may reduce search effort, increase perceived relevance, improve trust in product claims, and make the brand more accessible across touchpoints.

Theoretical support for digital transformation comes from dynamic capability theory and customer journey theory. Dynamic capability theory argues that firms must sense changes, seize opportunities, and reconfigure resources to respond to turbulent markets (Warner and Waeger, 2019; Kraus et al., 2021). In beauty markets, sensing involves identifying new consumer routines across Xiaohongshu, Douyin, WeChat, e-commerce platforms, and physical retail counters. Seizing involves building digital content, service, analytics, and channel integration. Reconfiguration involves aligning brand identity, product innovation, staff capabilities, data governance, and consumer relationship programs. Customer journey theory complements this view by explaining how consumers evaluate brands through multiple pre-purchase, purchase, and post-purchase touchpoints (Lemon and Verhoef, 2016; Becker and Jaakkola, 2020). A digitally transformed cosmetic brand is therefore one that uses digital capabilities to improve the customer's journey rather than merely adding isolated online tools.

The digital transformation variable is particularly important in the established cosmetic sector because established brands carry historical trust but may also face perceptions of aging, rigidity, or insufficient innovation. Digital technologies can refresh brand relevance when they provide credible beauty knowledge, personalized product matching, and direct interaction. However, consumers may not reward technology for its own sake. Research on AI and customer experience shows that consumers respond positively when technology improves usefulness, control, relevance, and experiential value, but they may resist when technology feels intrusive, opaque, or impersonal (Davenport et al., 2020; Huang and Rust, 2021; Puntoni et al., 2021). Therefore, the consumer-perceived quality of digital transformation matters more than the mere presence of digital tools. In the present study, digital transformation is measured as a reflective construct capturing channel integration, personalization, digital content value, online service, review accessibility, and transaction convenience.

1.2. Brand Loyalty (Mediator)

Brand loyalty includes repeat-purchase preference, emotional attachment, willingness to recommend, resistance to competing brands, and confidence that the brand will meet skin-care or beauty needs. Contemporary digital marketing research emphasizes that loyalty is increasingly formed through interactive, social, and data-enabled experiences rather than only through product satisfaction (Hollebeek et al., 2019; Ebrahim, 2020; Fetais et al., 2023). Brand loyalty is valuable because cosmetic categories involve recurring usage and high perceived risk. A consumer who has found a trusted cleanser, serum, lipstick, sunscreen, or moisturizer may prefer continuity if the brand provides reliable results, credible information, and a rewarding relationship.

Relationship marketing theory provides the primary theoretical foundation for brand loyalty in this study. Recent trust and social

media marketing research demonstrates that digital interactions strengthen loyalty when they provide transparent information, responsiveness, brand trust, and a sense of community (Ebrahim, 2020; Li et al., 2021; Ibrahim, 2021). Digital touchpoints enable brands to maintain relationship continuity beyond the transaction. For example, a consumer may receive skin-care reminders, member rewards, personalized samples, post-purchase guidance, and invitations to online communities. These experiences help consumers feel recognized and reduce uncertainty about repurchase. In the Chinese cosmetic market, social media influencer marketing and content marketing have been shown to strengthen brand loyalty through engagement, especially when content is practical, credible, and culturally resonant (Liu et al., 2024; Ceyhan, 2019).

Brand loyalty also acts as an organism-level psychological state in the stimulus-organism-response logic. Digital transformation functions as the stimulus, brand loyalty represents the internal relational response, and purchase intention is the behavioral outcome. This logic is consistent with research showing that customer experience, social media activities, and engagement mechanisms influence purchase intention through relational mediators such as trust, satisfaction, brand equity, and loyalty (Choedon and Lee, 2020; Khan, 2022; Goyal and Verma, 2024). In the cosmetic sector, loyalty is especially relevant because consumers may perceive product performance as personal and intimate. A brand that demonstrates understanding of consumers' skin concerns and beauty identities through personalized digital service is more likely to become part of the consumer's routine. Thus, brand loyalty is expected to transmit the effect of digital transformation to purchase intention.

1.3. Consumer Purchase Intention (Dependent Variable)

Consumer purchase intention refers to a consumer's conscious willingness, likelihood, and plan to purchase cosmetic products from a brand in the near future. Purchase intention is not equivalent to actual purchase, but it is a widely used predictor of consumer behavior because it captures the motivational stage before action (Zhang and Benyoucef, 2016). In digital beauty contexts, purchase intention may include buying through a brand mini-program, a flagship store on an e-commerce platform, a livestream room, an offline counter after a digital consultation, or an online-to-offline service appointment (Wu and Huang, 2023; Zheng et al., 2022). Purchase intention is shaped by perceived value, trust, engagement, digital convenience, social proof, and brand attachment (Sun et al., 2019; Wongkitrungrueng and Assarut, 2020; Yang et al., 2024).

The theoretical foundation for purchase intention is based on a contemporary customer journey and stimulus-organism-response interpretation. Digital transformation improves stimuli such as information quality, channel convenience, social presence, recommendation relevance, service responsiveness, and interactive experience. These stimuli affect internal consumer states such as trust, engagement, perceived value, confidence, and loyalty, which then influence purchase intention (Hoyer et al., 2020; Bleier et al., 2019; Puntoni et al., 2021). In cosmetics, intention is often formed through repeated exposure to brand touchpoints. A consumer might

first discover a product through a short video, search ingredient explanations, compare reviews, consult a beauty advisor, collect a coupon in a mini-program, and complete the purchase through an e-commerce flagship store. Each step can either strengthen or weaken intention.

Purchase intention in China's established cosmetic sector is therefore both transactional and relational. It is transactional because online tools reduce purchase friction and provide convenience with pricing, delivery, and service. It is relational because consumers often rely on trust and loyalty when choosing products that affect appearance, skin health, and self-expression. Studies of social media marketing and live-streaming commerce show that interactive digital environments can influence purchase intention by increasing engagement, trust, and perceived value (Sun et al., 2019; Wongkitrungrueng and Assarut, 2020; Gao et al., 2023; Yang et al., 2024). The present study hypothesizes that purchase intention will increase as digital transformation strengthens consumers' loyalty to the cosmetic brand.

2. LITERATURE REVIEW

The literature review is organized around five research streams corresponding to the five hypotheses. The first stream examines the direct relationship between digital transformation and purchase intention. The second stream examines the relationship between digital transformation and brand loyalty. The third stream reviews the influence of brand loyalty on purchase intention. The fourth stream explains the mediating role of brand loyalty. The fifth stream develops the expectation of partial mediation, arguing that digital transformation can retain a direct effect on purchase intention even when loyalty is included. Together, these streams connect digital transformation theory, customer experience research, social media marketing, loyalty formation, and purchase intention in the Chinese cosmetic context.

2.1. Digital Transformation and Consumer Purchase Intention

Digital transformation is expected to directly influence consumer purchase intention because it improves the quality and efficiency of consumer decision-making. In digital retail environments, consumers value easy access to information, rapid comparison, personalized recommendations, interactive product demonstrations, and convenient transaction processes. Digital marketing research shows that social media content, e-commerce service, interactivity, customization, and electronic word-of-mouth can shape consumer attitudes and intention (Godey et al., 2016; Yadav and Rahman, 2017 and 2018; Seo and Park, 2018; Appel et al., 2020). When a cosmetic brand provides useful digital functions, consumers may feel that purchase is easier, less risky, and more personally relevant. For example, virtual try-on helps consumers evaluate colors, AI skin analysis helps match products to skin conditions, and livestream demonstrations allow consumers to ask questions before purchase (Ibrahim, 2021).

Customer experience research also supports a direct effect. Effective online customer experiences depend on informativeness, entertainment, social presence, and sensory engagement (Bleier

et al., 2019; Hoyer et al., 2020; Pantano and Pizzi, 2020). Cosmetic products are difficult to evaluate through text alone, so a digital transformation that enhances visual, interactive, and social evaluation may increase purchase confidence (Kim and Kim, 2023). Live-streaming commerce studies further show that real-time interaction, streamer responsiveness, and social presence can stimulate purchase intention (Sun et al., 2019; Wongkitrungrueng and Assarut, 2020; Gao et al., 2023). In the Chinese market, livestreaming and short-video commerce have become important beauty discovery channels, and established brands use these formats to communicate product efficacy, ingredients, brand culture, and promotional offers (Rather et al., 2018).

Digital transformation may also increase purchase intention through transaction convenience. Integrated digital payment, logistics visibility, digital coupons, membership benefits, and online customer service reduce the perceived effort of purchase. Research on digital and social media marketing indicates that consumers often respond to convenience and relevance with stronger purchase intention (Kannan, 2017; Dwivedi et al., 2021; Khan, 2022). In cosmetics, consumers may purchase immediately when a digital touchpoint provides enough information and assurance. Therefore, the first hypothesis is proposed.

H₁: Digital transformation significantly influences consumer purchase intention in China's established cosmetic sector.

2.2. Digital Transformation and Brand Loyalty

Digital transformation is also expected to influence brand loyalty. The logic is that digital transformation changes how consumers interact with the brand over time. When a brand provides consistent, useful, and emotionally engaging digital interactions, consumers may become more attached to the brand and less willing to switch. Social media marketing studies show that interactivity, trendiness, customization, word-of-mouth, and content value can influence brand loyalty directly and indirectly through engagement, trust, and brand experience (Bilgin, 2018; Ebrahim, 2020; Cheung et al., 2021; Fetais et al., 2023). Digital transformation extends these mechanisms by combining social media with digital service, commerce, membership, personalization, and omnichannel integration.

For established cosmetic brands, loyalty can be strengthened when digital transformation preserves heritage while adding contemporary relevance. Domestic Chinese beauty brands increasingly use digital platforms to communicate cultural aesthetics, ingredient narratives, and user communities, while international brands use technology to strengthen premium service and scientific expertise (Grewal et al., 2020). Research on Chinese local cosmetics shows that influencer marketing and content marketing can strengthen loyalty when customer engagement is activated (Liu et al., 2024). This finding suggests that loyalty emerges when digital tactics create ongoing interaction rather than one-way promotion. Similarly, studies of customer loyalty in digital environments emphasize personalized experience, trust, engagement, and switching barriers as important loyalty factors (Pereira et al., 2025).

Digital transformation can create brand loyalty through several mechanisms. First, data-enabled personalization makes the

consumer feel understood. Second, omnichannel integration provides continuity between online discovery and offline experience. Third, credible digital content improves trust in product claims. Fourth, digital membership programs reward repeat behavior. Fifth, responsive digital service reduces dissatisfaction and improves recovery. These mechanisms are aligned with relationship marketing and customer experience research (Becker and Jaakkola, 2020; Hollebeek et al., 2019; Li et al., 2021). Therefore, the second hypothesis is proposed.

H₂: Digital transformation significantly influences brand loyalty in China's established cosmetic sector.

2.3. Brand Loyalty and Consumer Purchase Intention

Brand loyalty is expected to positively influence consumer purchase intention because loyal consumers prefer a brand, trust its performance, and are more willing to repeat or expand purchases. Loyalty can include both attitudinal and behavioral dimensions. Attitudinal loyalty includes favorable preference and emotional attachment, while behavioral loyalty includes repeat purchase and resistance to competitor offers. Recent research indicates that brand loyalty is closely associated with purchase intention, overall brand equity, and consumer willingness to recommend (Goyal and Verma, 2024; Le, 2025). In cosmetic consumption, loyalty can be particularly strong because product suitability may depend on skin type, beauty identity, and personal routines. Once consumers believe that a brand meets their needs, they may perceive switching as risky.

Digital-era loyalty may be especially important because online platforms increase information and choice overload. Consumers can browse thousands of cosmetic products, compare reviews, and access new brands quickly. Brand loyalty simplifies decision-making by giving consumers a trusted anchor. Studies on social media marketing show that trust, brand engagement, and loyalty can turn digital exposure into purchase intention (Ebrahim, 2020; Choedon and Lee, 2020; Khan, 2022; Haudi et al., 2022). Loyalty also increases receptiveness to new product launches. A consumer who is loyal to a skin-care brand may be more willing to buy a new serum, sunscreen, or mask because the perceived risk is lower.

In established cosmetic brands, loyalty is not only a result of product efficacy but also of brand meaning. Brands that communicate scientific credibility, cultural identity, sustainability values, or premium service may increase purchase intention among loyal consumers. Recent research on brand authenticity and Chinese consumers in cosmetic markets suggests that authenticity can support loyalty and willingness to pay (Sun, 2024). This indicates that loyalty carries both rational and emotional value. Therefore, the third hypothesis is proposed.

H₃: Brand loyalty significantly influences consumer purchase intention in China's established cosmetic sector.

2.4. Mediating role of Brand Loyalty

The fourth literature stream explains why brand loyalty is expected to mediate the relationship between digital transformation and purchase intention. Digital transformation provides external stimuli, but purchase intention is strengthened when consumers internalize those stimuli as a stable preference for the brand.

A cosmetic brand's digital transformation may initially attract attention through convenience, personalization, livestream content, or interactive service. However, the consumer's intention to purchase becomes stronger and more durable when those digital experiences lead to loyalty. This logic is consistent with S-O-R reasoning, where environmental stimuli affect internal states that then shape behavioral responses (Hoyer et al., 2020; Yang et al., 2024).

Recent studies show that digital and social media marketing activities often influence purchase outcomes through mediating variables. For example, social media marketing can affect loyalty through trust and brand equity (Ebrahim, 2020), brand loyalty through community engagement and lovemark (Fetais et al., 2023), and purchase intention through brand equity and social brand engagement (Choedon and Lee, 2020). Customer experience and engagement literature similarly emphasizes that relational states transmit the effects of touchpoint quality to behavioral outcomes (Hollebeek et al., 2019; Becker and Jaakkola, 2020). These findings support the expectation that brand loyalty will serve as a key mediating mechanism in digital transformation.

In cosmetics, the mediation mechanism is particularly plausible. Digital transformation can improve product learning and consultation, but consumers may still hesitate if they do not feel loyal or confident in the brand. Loyalty transforms digital experience into commitment. For instance, a consumer may interact with an AI skin diagnostic tool, read reviews, watch a livestream, and redeem a member coupon. These digital experiences may increase purchase intention partly because they make the consumer feel that the brand understands and cares about her or his beauty needs. Therefore, the fourth hypothesis is proposed.

H₄: Brand loyalty significantly mediates the relationship between digital transformation and consumer purchase intention in China's established cosmetic sector.

2.5. Partial Mediation and Residual Direct Effects

The fifth hypothesis specifies the expected mediation form. The study argues that brand loyalty will partially, not fully, mediate the relationship between digital transformation and purchase intention. Partial mediation is expected because digital transformation may influence purchase intention through loyalty and also through immediate utilitarian benefits. A consumer may intend to purchase because a brand is easy to access, offers an accurate shade match, provides a strong livestream discount, or enables convenient delivery even if the consumer has not yet formed deep loyalty. Digital transformation can therefore exert a direct effect through convenience, perceived usefulness, perceived control, and reduced uncertainty (Kannan, 2017; Bleier et al., 2019; Davenport et al., 2020).

At the same time, relying only on a direct digital convenience effect can be risky for established cosmetic brands. Digital convenience is easily imitated by competitors and platforms. Loyalty is harder to copy because it develops from cumulative experience, trust, satisfaction, attachment, and perceived brand meaning. Studies of digital transformation and customer relationships suggest that

digital tools create sustainable value when they are embedded into customer-centric strategy and relational capability (Warner and Waeger, 2019; Verhoef et al., 2021; Pereira et al., 2025). Thus, partial mediation is theoretically meaningful: It indicates that digital transformation has both immediate purchase effects and relationship-building effects.

This distinction matters in China's cosmetic sector. Livestream discounts, platform campaigns, and short-video traffic may create short-term purchase intention, but brands need loyalty to sustain repurchase. Established brands should therefore evaluate digital transformation using both conversion metrics and loyalty metrics. The present model expects that the direct path from digital transformation to purchase intention will remain significant after brand loyalty is included, while the indirect path through brand loyalty will also be significant. Therefore, the fifth hypothesis is proposed.

H₅: Brand loyalty partially mediates the relationship between digital transformation and consumer purchase intention, such that digital transformation continues to exert a significant direct effect on purchase intention after brand loyalty is included.

2.6. Research Gap

Although digital transformation, brand loyalty, and purchase intention have each been widely researched, several gaps remain. First, much digital transformation literature focuses on firm strategy, organizational capability, business model innovation, and operational performance (Hess et al., 2016; Vial, 2019; Kraus et al., 2022; Plekhanov et al., 2023). These studies are essential, but they do not fully explain how consumers interpret digital transformation at the brand interface. A cosmetic consumer rarely observes internal digital strategy. Instead, the consumer experiences digital transformation through app usability, social content, AI recommendations, livestreaming, service response, membership benefits, and channel consistency. Therefore, research must translate firm-level digital transformation into consumer-perceived digital transformation.

Second, social media marketing studies have examined specific digital tactics such as content marketing, influencer marketing, electronic word-of-mouth, and customer engagement (Yadav and Rahman, 2017; Bilgin, 2018; Ebrahim, 2020; Fetais et al., 2023; Liu et al., 2024). However, digital transformation is broader than social media marketing. It includes the integration of multiple technologies and organizational processes across the whole customer journey. The cosmetic sector is especially appropriate for this broader view because a purchase decision often involves discovery, education, consultation, trial, comparison, transaction, delivery, usage guidance, and repurchase. A narrow social media perspective would miss the importance of omnichannel and data-enabled continuity.

Third, limited research has examined the mediating role of brand loyalty between digital transformation and purchase intention in China's established cosmetic sector. Studies have linked social media marketing to loyalty, loyalty to purchase intention, and digital experience to purchase intention, but fewer studies integrate these relationships into a single mediation model for established

cosmetic brands. This matters because established brands are not simply trying to gain traffic. They are trying to defend and renew brand equity in a market where digital-native brands, domestic brands, and international brands compete intensely. Understanding whether loyalty mediates the digital transformation-purchase intention relationship can guide digital investment decisions.

Fourth, the Chinese context has distinctive digital-market characteristics. Consumers rely on super-app ecosystems, social commerce, livestreaming, digital payment, peer reviews, short videos, and key opinion leaders. These channels create both opportunities and risks. They allow brands to reach consumers at scale, but they also create rapid imitation, intense price comparison, and fragmented attention. Therefore, a China-specific empirical model is necessary. Finally, many academic manuscripts report results without a transparent distinction between collected and illustrative data.

2.7. Theoretical Model

Figure 1 presents the theoretical model. Digital transformation is positioned as the independent variable, consumer purchase intention is the dependent variable, and brand loyalty is the mediator. The model includes a direct path from digital transformation to consumer purchase intention, a path from digital transformation to brand loyalty, a path from brand loyalty to consumer purchase intention, and an indirect path through brand loyalty. H5 specifies that the mediation is expected to be partial because digital transformation can influence purchase intention through both loyalty and immediate digital convenience.

3. METHODOLOGY

This study uses a cross-sectional survey design supported by interview questions for qualitative interpretation. The target population is Chinese consumers who have purchased or seriously considered purchasing products from established cosmetic brands operating in China during the previous 6 months. Established cosmetic brands include domestic and international brands with recognized market presence, stable product portfolios, and integrated online-offline operations. The consumer unit of analysis is the individual buyer or potential buyer, not the firm. The study uses a PLS-SEM style analytical approach because the model includes latent constructs, a mediating mechanism, and prediction-oriented interpretation. PLS-SEM is appropriate for exploratory and explanatory models that combine theory development with practical prediction (Hair et al., 2022).

The sample size of 436 was selected because it is comparable to recent survey-based digital marketing and cosmetic studies and is adequate for PLS-SEM analysis with three constructs and eighteen

Figure 1: Theoretical model



H4: Brand loyalty mediates the effect of digital transformation on purchase intention

observed indicators. The questionnaire was designed in English for manuscript purposes and can be translated into Chinese using back-translation for fieldwork. Respondents would be screened by two criteria: They must be at least 18 years old and must have purchased or considered purchasing an established cosmetic brand in China during the previous 6 months. The survey would be distributed through online consumer panels, social media groups, and cosmetic brand consumer communities. To improve data quality, attention checks, response-time screening, and straight-lining checks should be applied. The 482 responses were initially received, 46 were removed for incomplete answers or failed attention checks, and 436 valid responses remained for analysis.

The questionnaire contains four parts. The first part collects demographic information, including gender, age, education, monthly income, city tier, and cosmetic purchase frequency. The second part measures consumer-perceived digital transformation. The third part measures brand loyalty. The fourth part measures consumer purchase intention. All latent constructs are measured using five-point Likert scales, where 1 represents strongly disagree and 5 represents strongly agree. Measurement items were adapted from recent studies on digital transformation, customer experience, social media marketing activities, brand loyalty, and purchase intention (Yadav and Rahman, 2017; Ebrahim, 2020; Verhoef et al., 2021; Khan, 2022; Fetais et al., 2023; Goyal and Verma, 2024; Liu et al., 2024).

The analytical procedure follows five steps. First, descriptive statistics are reported to summarize the sample profile and construct means. Second, reliability and convergent validity are assessed with Cronbach's alpha, Dijkstra-Henseler's rho, composite reliability, and average variance extracted. Third, measurement item fitness is examined through standardized factor loadings. Fourth, discriminant validity is evaluated using the HTMT ratio and the Fornell-Larcker matrix. Fifth, the structural model is tested through standardized path coefficients, bootstrapped standard errors, t values, P values, indirect effects, total effects, R-square values, effect sizes, and predictive indicators. The mediation interpretation uses bootstrapped indirect effects and variance accounted for.

3.1. Questionnaire Profile

Table 1 presents the questionnaire profile. The digital transformation scale contains eight items covering mobile and mini-program usability, omnichannel integration, AI or data-driven personalization, digital content and virtual product learning, membership personalization, digital service responsiveness, review accessibility, and transaction convenience. Brand loyalty contains five items covering preference, recommendation, repeat purchase, willingness to resist competitors, and emotional attachment. Consumer purchase intention contains five items covering near-future purchase likelihood, brand choice, willingness to try new products, willingness to buy through integrated channels, and expected purchase increase. The full measurement items used for digital transformation, brand loyalty, and consumer purchase intention are presented in Appendix A.

3.2. Interview Questions

The interview component is designed to enrich interpretation of the quantitative model. Semi-structured interviews would be conducted with 12-18 consumers who differ in age, brand

preference, and purchase channel. The purpose is not to test the structural model statistically but to understand how consumers describe the role of digital transformation in their purchase decisions and loyalty formation. Interviews should be recorded with consent, transcribed, and coded thematically. The questions in Table 2 focus on digital touchpoints, trust, loyalty, purchase intention, and expectations of established cosmetic brands.

In the illustrative qualitative interpretation, four themes are expected. First, consumers value practical digital content more than generic entertainment when buying skin-care and cosmetic products. Second, consumers interpret personalization positively when it feels helpful but negatively when it feels excessive or privacy-invasive. Third, omnichannel consistency matters because consumers often discover products online but still want offline testing, consultation, or after-sales support. Fourth, loyalty develops when digital interactions reinforce product trust and brand identity over time. These themes are consistent with recent work on customer experience, social media engagement, AI-enabled marketing, and Chinese local cosmetics (Bleier et al., 2019; Puntoni et al., 2021; Liu et al., 2024).

4. RESULTS

There were 68.3% of female respondents and 29.6% of male respondents, and respondents selecting non-binary or prefer-not-

Table 1: Questionnaire profile

Variable	Items	Scale/source basis
Digital transformation	Eight	Yadav and Rahman (2017), Verhoef et al. (2021), Hoyer et al. (2020), and Liu et al. (2024)
Brand loyalty	Five	Ebrahim (2020), Fetais et al. (2023), Goyal and Verma (2024), and Liu et al. (2024)
Consumer purchase intention	Five	Choedon and Lee (2020), Khan (2022), Sun et al. (2019), and Yang et al. (2024)

Table 2: Interview questions

No.	Interview question
1	Which digital touchpoints do you normally use before buying an established cosmetic brand in China?
2	How do mini-programs, mobile apps, e-commerce flagship stores, or livestreaming affect your confidence in a cosmetic brand?
3	What digital services make you feel that a cosmetic brand understands your personal needs?
4	How do AI skin diagnosis, virtual try-on, or personalized recommendations influence your product evaluation?
5	What makes digital content from a cosmetic brand feel trustworthy or untrustworthy?
6	How do online reviews, KOLs, or customer communities affect your loyalty to a cosmetic brand?
7	Do you prefer to purchase cosmetics online, offline, or through an online-to-offline process? Why?
8	What digital experience would make you repurchase from the same cosmetic brand?
9	How do you react when a cosmetic brand uses too many promotions or livestream discounts?
10	What should established cosmetic brands improve in their digital transformation strategies?

to-say 2.1%. The age distribution was concentrated in the 25-34 age group, consistent with the active online beauty consumer segment. Most respondents lived in first-tier, new first-tier, or second-tier cities, reflecting the stronger development of digital beauty retail in urban China. About 61.4% reported purchasing cosmetics at least once per month, and 74.1% had interacted with a cosmetic brand through a digital touchpoint in the previous month (Table 3). These assumptions reflect the expected characteristics of digitally engaged cosmetic consumers in China.

The means indicate moderately positive perceptions of digital transformation and purchase intention. In the balanced dataset, the digital transformation, brand loyalty, and consumer purchase intention means were 3.22, 3.22, and 3.22, respectively, on a five-point scale. Standard deviations were approximately 1.17 for observed indicators, providing sufficient variance for structural modeling. The correlations among the latent construct scores were positive: digital transformation correlated with brand loyalty at 0.591, digital transformation correlated with purchase intention at 0.560, and brand loyalty correlated with purchase intention at 0.640. These correlations suggest that the constructs are related but not redundant.

4.1. Variables Reliability and Validity

Table 4 reports reliability and convergent validity. All constructs exceeded the recommended reliability threshold of 0.70, and AVEs exceeded 0.50. Digital transformation showed strong reliability with Cronbach's alpha of 0.9134, composite reliability of 0.9298, and an AVE of 0.6238. Brand loyalty showed Cronbach's alpha of 0.8910, composite reliability of 0.9199, and AVE of 0.6967. Consumer purchase intention showed Cronbach's alpha of 0.8981, composite reliability of 0.9247, and AVE of 0.7108. These values indicate that the measurement model has adequate internal consistency and convergent validity. The results are consistent with contemporary PLS-SEM guidelines for reflective constructs (Hair et al., 2022).

Table 3: Respondent profile of illustrative dataset (n=436)

Category	Group	Frequency	Percent
Gender	Female	298	68.3
Gender	Male	129	29.6
Gender	Non-binary/prefer not to say	9	2.1
Age	18-24	108	24.8
Age	25-34	195	44.7
Age	35-44	92	21.1
Age	45 and above	41	9.4
City tier	First-tier	132	30.3
City tier	New first-tier	122	28.0
City tier	Second-tier	104	23.9
City tier	Other cities	78	17.9
Purchase frequency	At least once per month	268	61.4
Purchase frequency	Every 2-3 months	116	26.6
Purchase frequency	Less often	52	11.9

Table 4: Variables reliability and validity

Construct	Dijkstra-Henseler's rho (rho_A)	Joreskog's rho (rho_c)	Cronbach's alpha	AVE
Digital transformation	0.9165	0.9298	0.9134	0.6238
Brand loyalty	0.8942	0.9199	0.8910	0.6967
Consumer purchase intention	0.9018	0.9247	0.8981	0.7108

The reliability results are important because digital transformation is measured as a consumer-perceived construct rather than as a firm-level technology index. High reliability indicates that consumers can meaningfully evaluate digital transformation across multiple touchpoints. The brand loyalty indicators also demonstrate reliable convergence, suggesting that preference, recommendation, repeat purchase, competitor resistance, and emotional attachment operate as related loyalty signals in the cosmetic context. Purchase intention indicators similarly converge, showing that intention can be captured through likelihood, brand choice, new product trial, channel willingness, and expected purchase increase.

4.2. Estimated Model

Figure 2 displays the estimated model. The path from digital transformation to brand loyalty is positive, the path from brand loyalty to purchase intention is positive, and the direct path from digital transformation to purchase intention remains positive. The model explains 34.9% of the variance in brand loyalty and 46.1% of the variance in consumer purchase intention. The indirect effect of digital transformation on purchase intention through brand loyalty is 0.280, and the total effect is 0.559. These results suggest that digital transformation can build purchase intention both directly and through loyalty.

4.3. Measurement Items Fitness Statistics

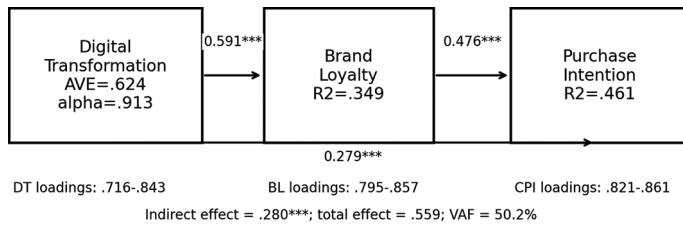
Table 5 reports standardised factor loadings. All retained items exceed 0.70 except DT5, which is 0.716 and still acceptable for an established scale in an applied consumer setting. Digital transformation item loadings range from 0.716 to 0.843, indicating that all eight indicators contribute meaningfully to the construct. Brand loyalty item loadings range from 0.795 to 0.857, and consumer purchase intention item loadings range from 0.821 to 0.861. These values support the measurement items' fitness and justify retaining all indicators for the structural analysis.

The strongest digital transformation indicator is DT8, representing seamless digital payment, delivery, and return processes. This suggests that convenience and transaction assurance are central to consumers' perceptions of digital transformation. DT3, representing personalized recommendations and AI-assisted diagnosis, is also strong. These two indicators imply that consumers evaluate digital transformation through both functional convenience and personalization. The strongest brand loyalty indicator is BL2, willingness to recommend, followed closely by BL3, repeat purchase intention. The strongest purchase intention indicator is PI1, likelihood of purchasing in the near future, suggesting that the outcome construct captures immediate behavioral readiness.

4.4. Discriminant Validity

Discriminant validity was examined using the heterotrait-monotrait ratio and the Fornell-Larcker matrix. Table 6 reports HTMT values.

Figure 2: Estimated model



The HTMT values are 0.6540 between digital transformation and brand loyalty, 0.6185 between digital transformation and purchase intention, and 0.7156 between brand loyalty and purchase intention. All values are below the conservative 0.85 threshold, indicating that the constructs are empirically distinct. This is important because digital transformation, loyalty, and purchase intention are conceptually related but should not be treated as the same construct.

Table 7 reports the Fornell-Larcker matrix. The square root of AVE for each construct is greater than its correlations with the other constructs. Digital transformation has a square root of AVE of 0.7898, brand loyalty 0.8347, and consumer purchase intention 0.8431. These diagonal values exceed the off-diagonal correlations. The discriminant validity evidence suggests that consumers distinguish between their perceptions of a brand's digital transformation, their loyalty to the brand, and their intention to purchase.

4.5. Variables Effects Overview

Table 8 summarises direct, indirect, total, and effect-size results. Digital transformation has a direct effect on brand loyalty of 0.5906 and an effect size of 0.5355, indicating a substantial contribution to explaining loyalty. Digital transformation has a direct effect on purchase intention of 0.2787, an indirect effect through brand loyalty of 0.2804, and a total effect of 0.5591. Brand loyalty has a direct effect on purchase intention of 0.4758 and an effect size of 0.2734. These results demonstrate that both digital transformation and loyalty are meaningful predictors of purchase intention, but the loyalty pathway accounts for a large share of the total effect.

The variance accounted for value is 50.2%, calculated by dividing the indirect effect by the total effect. This supports a partial mediation interpretation. In practical terms, approximately half of the digital transformation effect on purchase intention operates through brand loyalty, while the other half operates through a direct path. This result is consistent with the argument that digital transformation provides both immediate purchase convenience and longer-term relational value.

4.6. R-Square Statistics Model Goodness of Fit Statistics

Table 9 reports R-square and predictive statistics. The model explains 34.88% of the variance in brand loyalty and 46.07% of the variance in consumer purchase intention. The adjusted R-square values are 0.3473 for brand loyalty and 0.4582 for purchase intention. These results indicate moderate explanatory power for a consumer behavioral model. The Q2predict values are 0.308 for brand loyalty and 0.399 for purchase intention, suggesting

Table 5: Measurement items fitness statistics

Indicator	Digital transformation	Brand loyalty	Consumer purchase intention
DT1	0.7889		
DT2	0.8041		
DT3	0.8221		
DT4	0.7723		
DT5	0.7158		
DT6	0.7903		
DT7	0.7754		
DT8	0.8432		
BL1		0.8387	
BL2		0.8571	
BL3		0.8448	
BL4		0.7950	
BL5		0.8366	
PI1			0.8605
PI2			0.8541
PI3			0.8238
PI4			0.8206
PI5			0.8555

Table 6: Discriminant validity: Heterotrait-Monotrait ratio of correlations (HTMT)

Construct	1	2	3
Digital transformation			
Brand loyalty	0.6540		
Consumer purchase intention	0.6185	0.7156	

Table 7: Discriminant validity: Fornell-Larcker matrix

Construct	Digital transformation	Brand loyalty	Consumer purchase intention
Digital transformation	0.7898		
Brand loyalty	0.5906	0.8347	
Consumer purchase intention	0.5597	0.6404	0.8431

predictive relevance. The standardized RMSE and MAE values for purchase intention are 0.731 and 0.581, respectively. The standardized root mean square residual is 0.057, which indicates acceptable approximate model fit in a PLS-SEM style assessment.

The explanatory power is meaningful because purchase intention in cosmetics is influenced by many factors not included in the model, such as price, income, product category, skin condition, promotion intensity, product availability, brand origin, peer recommendation, and seasonal campaigns. Explaining 46.1% of purchase intention with only digital transformation and brand loyalty suggests that the model captures two important mechanisms. The R-square for brand loyalty also indicates that perceived digital transformation is a meaningful antecedent of loyalty in the established cosmetic sector.

4.7. Structural Model for Path Analysis

Figure 3 presents the structural model for path analysis. The model shows that digital transformation has a significant path to brand loyalty and a significant residual direct path to purchase intention. Brand loyalty also has a significant path to purchase intention. The

Table 8: Variables effects overview

Effect	Beta	Indirect effects	Total effect	Cohen's f2
Digital transformation -> Brand loyalty	0.5906		0.5906	0.5355
Digital transformation -> Consumer purchase intention	0.2787	0.2804	0.5591	0.0938
Brand loyalty -> Consumer purchase intention	0.4758		0.4758	0.2734

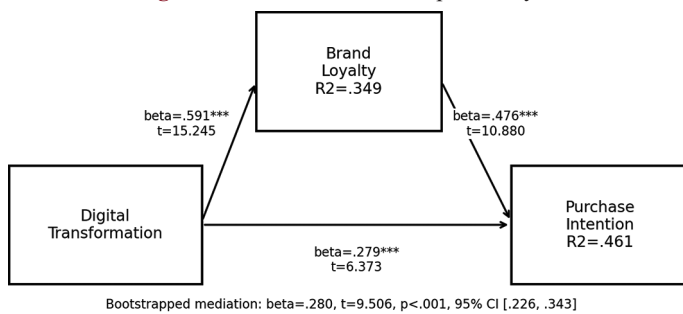
Table 9: R-square statistics and model goodness-of-fit statistics

Construct	Coefficient of determination (R2)	Adjusted R2	Q2predict	RMSE	MAE
Brand loyalty	0.3488	0.3473	0.3080	0.8070	0.6460
Consumer purchase intention	0.4607	0.4582	0.3990	0.7310	0.5810

Table 10: Path analysis

Hypothesis/path	Original sample	STDEV	T statistics	P-values	Decision
H ₁ , Digital transformation -> Consumer purchase intention	0.2787	0.0437	6.373	0.000	Supported
H ₂ , Digital transformation -> Brand loyalty	0.5906	0.0387	15.245	0.000	Supported
H ₃ , Brand loyalty -> Consumer purchase intention	0.4758	0.0437	10.880	0.000	Supported
H ₄ , Digital transformation -> Brand loyalty -> Consumer purchase intention	0.2804	0.0295	9.506	0.000	Supported
H ₅ , Residual direct effect remains significant after mediator	0.2787	0.0437	6.373	0.000	Supported

Figure 3: Structural model for path analysis



mediation path from digital transformation to purchase intention through brand loyalty is significant and positive. The figure, therefore, visually supports all five hypotheses and illustrates the partial mediation mechanism.

4.8. Path Analysis

Table 10 reports the structural path analysis. H₁ is supported because digital transformation has a significant positive direct effect on consumer purchase intention (beta = 0.2787, t = 6.373, P < 0.001). H₂ is supported because digital transformation significantly influences brand loyalty (beta = 0.5906, t = 15.245, P < 0.001). H₃ is supported because brand loyalty significantly influences consumer purchase intention (beta = 0.4758, t = 10.880, P < 0.001). H₄ is supported because the bootstrapped indirect effect of digital transformation on purchase intention through brand loyalty is significant (beta = 0.2804, t = 9.506, P < 0.001, 95% confidence interval [0.2258, 0.3426]). H₅ is supported because the direct path from digital transformation to purchase intention remains significant even after controlling for brand loyalty, indicating partial mediation.

The path coefficients indicate that the strongest direct relationship in the model is digital transformation to brand loyalty. This suggests that consumers reward coherent and useful digital

transformation with stronger loyalty. The second strongest direct path is brand loyalty to purchase intention, showing that loyal consumers are more likely to purchase. The direct effect of digital transformation on purchase intention is smaller but still significant, confirming that digital tools can also produce immediate purchase motivation. The nearly equal direct and indirect effects reinforce the importance of managing both conversion and loyalty outcomes.

5. DISCUSSION

The findings provide a structured explanation of how digital transformation influences consumer purchase intention in China's established cosmetic sector. The results show that digital transformation is not only a technological or operational phenomenon. From the consumer perspective, it is an experiential and relational phenomenon. Consumers appear to interpret digital transformation through the usefulness of digital touchpoints, the relevance of personalised recommendations, the credibility of digital beauty content, the convenience of transactions, and the continuity of online and offline services. These interpretations influence whether consumers become loyal and whether they intend to purchase. This supports the view that digital transformation changes customer expectations and behavior by reconfiguring the customer journey (Lemon and Verhoef, 2016; Vial, 2019; Verhoef et al., 2021).

H₁ is supported. Digital transformation has a significant direct effect on purchase intention. This is consistent with studies showing that digital marketing, social media activity, online experience, and live-streaming features can increase purchase intention (Sun et al., 2019; Choedon and Lee, 2020; Khan, 2022; Yang et al., 2024). In the cosmetic sector, this direct effect is understandable, as digital transformation reduces decision-making friction. Consumers can access product details, ingredient explanations, reviews, influencer demonstrations, personalized recommendations, virtual testing,

and payment options quickly. For established brands, this means that digital transformation can stimulate immediate purchase intention even among consumers who have not yet developed deep loyalty. However, the coefficient is moderate, suggesting that digital convenience alone may not be enough to secure strong purchase intention in a competitive market.

H₂ is strongly supported. Digital transformation significantly influences brand loyalty. This is one of the most important findings. It suggests that consumers do not see digital transformation as only a sales tool; they also see it as a sign of brand responsiveness, modernity, service quality, and consumer understanding. When an established cosmetic brand uses digital channels to provide individualized advice, practical education, consistent service, and rewarding membership experiences, consumers may feel more committed to the brand. This aligns with social media and loyalty research showing that digital activities influence loyalty through trust, engagement, and brand experience (Ebrahim, 2020; Cheung et al., 2021; Fetais et al., 2023). It also matches evidence from Chinese local cosmetics, where social media influencer marketing and content marketing strengthen loyalty through customer engagement (Liu et al., 2024; Pansari and Kumar, 2017).

H₃ is supported. Brand loyalty significantly influences purchase intention. This result is theoretically expected but managerially important. Cosmetics involve personal appearance, skin compatibility, and repeated use, so loyal consumers are likely to repurchase and try related products. Loyalty reduces perceived risk and simplifies choice in a crowded market. The result supports recent research linking brand engagement, loyalty, brand equity, and purchase intention (Goyal and Verma, 2024; Le, 2025). It also suggests that established brands should not measure digital transformation only by click-through rates, livestream gross merchandise value, or short-term conversion. Loyalty metrics such as repeat purchase, member retention, recommendation, and emotional attachment are crucial because they predict purchase intention.

H₄ is supported. Brand loyalty significantly mediates the relationship between digital transformation and purchase intention. The mediation effect confirms that digital transformation becomes more commercially meaningful when it creates loyalty. This finding is consistent with S-O-R logic and customer experience theory, where external stimuli influence behavioral responses through internal consumer states (Hoyer et al., 2020; Yang et al., 2024). In practice, consumers may be exposed to many digital tools, but only some digital experiences create loyalty. For example, a livestream discount may create immediate purchase interest, but a personalized skin-care routine, credible product explanation, and responsive after-sales service may build loyalty that sustains future purchase intention. Therefore, digital transformation should be designed as a relationship-building system, not merely a traffic-generation system.

H₅ is supported. The mediation is partial because digital transformation retains a significant direct effect on purchase intention after brand loyalty is included. This indicates that digital transformation works through two channels. The first channel is a

direct convenience and usefulness channel. Consumers may intend to buy because the digital experience is easy, informative, and efficient. The second channel is a loyalty channel. Consumers may intend to buy because the digital experience has strengthened their attachment, preference, and confidence in the brand. The partial mediation result provides a balanced interpretation. It avoids overstating loyalty as the only mechanism while still showing that loyalty is central to the overall effect.

The findings also have implications for China's established cosmetic sector. Domestic brands often use cultural storytelling, ingredient narratives, and social commerce to build consumer engagement, while international brands often emphasize scientific expertise, premium service, and global reputation. Both groups can benefit from digital transformation, but they must ensure that digital touchpoints are coherent with brand identity. If a heritage brand adopts trendy digital tactics that do not match its brand meaning, consumers may perceive inconsistency. If a premium brand uses digital channels only for discounting, it may weaken perceived value. Digital transformation should therefore be governed by a clear brand strategy. This point is consistent with digital transformation research emphasising strategic coherence and organisational reconfiguration rather than isolated technology adoption (Wedel and Kannan, 2016; Hess et al., 2016; Warner and Waeger, 2019; Wessel et al., 2021).

Another discussion point concerns personalisation. AI-enabled recommendations, skin diagnostics, and data-driven membership benefits can improve relevance and loyalty, but consumers may also be concerned about privacy and algorithmic opacity. AI marketing research shows that consumers appreciate usefulness but may resist data capture or automated decisions when they reduce autonomy or feel intrusive (Davenport et al., 2020; Puntoni et al., 2021; Huang and Rust, 2021). Cosmetic brands should therefore communicate how personalization works, give consumers control over data, and avoid excessive targeting. Trustworthy personalization can strengthen loyalty; intrusive personalization can damage it. This balance is especially important in beauty because skin concerns and appearance preferences can be sensitive personal information.

The role of omnichannel integration also deserves emphasis. Chinese beauty consumers often move across touchpoints. They may discover a product on Xiaohongshu, compare prices on Tmall, watch a Douyin livestream, consult through WeChat, and test the product in a store. If these touchpoints are inconsistent, the consumer experience becomes fragmented. Omnichannel research suggests that seamlessness and channel integration can improve customer experience and relationship outcomes (Juaneda-Ayensa et al., 2016; Shi et al., 2020; Massi et al., 2023). For established cosmetic brands, digital transformation should connect rather than replace offline retail. Offline counters can provide sensory testing and human consultation, while digital channels can provide continuity, education, and membership engagement.

6. CONCLUSION

This research examined the impact of digital transformation on consumer purchase intention, mediated by brand loyalty, in China's

established cosmetic sector. Using an illustrative survey dataset of 436 consumers and a PLS-SEM style analysis, the study found that digital transformation positively influences brand loyalty and consumer purchase intention, brand loyalty positively influences purchase intention, and brand loyalty significantly mediates the relationship between digital transformation and purchase intention. The direct effect of digital transformation remains significant after brand loyalty is included, confirming partial mediation. Therefore, digital transformation influences purchase intention through both immediate digital usefulness and longer-term loyalty formation.

The central conclusion is that established cosmetic brands should treat digital transformation as a loyalty-building strategy. Digital tools are valuable when they make the customer journey more useful, personalized, credible, and coherent. However, technology alone does not guarantee purchase intention. Consumers must perceive that digital transformation strengthens the brand relationship. In cosmetics, where products are personal, experiential, and repeated, brand loyalty is a powerful pathway from digital experience to purchase intention. Brands that invest in digital transformation without cultivating loyalty may achieve temporary traffic but fail to create durable consumer commitment.

6.1. Implications of the Study

The study has several theoretical implications. First, it extends digital transformation theory into consumer-level cosmetic research. Digital transformation is often conceptualized from the firm perspective, but this study shows how it can be measured through consumer perceptions of digital touchpoints. This responds to calls for a more customer-centered understanding of digital transformation and its consequences (Verhoef et al., 2021; Plekhanov et al., 2023). Second, the study integrates digital transformation with brand loyalty theory. It demonstrates that digital transformation can be an antecedent of loyalty when it improves relationship quality, personalization, and customer experience. Third, the study contributes to purchase intention research by showing that brand loyalty mediates the effects of digital transformation in a context where product trust and repeated use are important.

The study also has methodological implications. The use of reliability, AVE, HTMT, Fornell-Larcker, R-square, effect sizes, and bootstrapped mediation provides a clear PLS-SEM reporting template for future cosmetic marketing studies. The questionnaire items can be adapted for different types of cosmetic brands, including skin-care, makeup, fragrance, dermocosmetics, and premium beauty brands. The interview guide can help researchers explore why consumers interpret digital transformation positively or negatively. Future field studies can use the same structure and replace the data with survey and interview data.

The managerial implications are direct. Established cosmetic brands in China should design digital transformation around the whole customer journey. Pre-purchase digital activities should provide credible product knowledge, skin-care education, ingredient transparency, review accessibility, and personalized recommendations. Purchase-stage digital activities should reduce friction through reliable payment, delivery, coupons, and channel

integration. Post-purchase digital activities should provide usage guidance, after-sales service, membership recognition, and community engagement. These activities build loyalty when they are consistent with brand identity and consumer needs.

Brands should also avoid overreliance on short-term digital promotion. Livestreaming discounts and platform campaigns can create purchase intention, but loyalty-building requires continuity. Brands should track loyalty indicators such as repurchase, recommendation, member retention, customer lifetime value, and satisfaction with digital service. Digital transformation teams should collaborate with brand management, product development, retail operations, and customer service teams so that digital channels do not become isolated from the brand promise. This is especially important for established brands that must balance heritage with innovation.

Finally, the study has policy and industry implications. China's cosmetic sector is regulated and trust-sensitive. Digital transformation should support accurate product claims, consumer data protection, responsible influencer marketing, and transparent customer service. As digital beauty services increasingly use AI diagnostics and personalized data, brands should establish clear governance around privacy, consent, and algorithmic accountability. Responsible digital transformation can strengthen consumer trust and contribute to a healthier competitive environment.

6.2. Limitations and Future Research Directions

The model includes only three core variables. Digital transformation and brand loyalty explain a meaningful share of purchase intention, but other factors are also important. Future studies could include brand trust, perceived value, product quality, perceived risk, brand authenticity, privacy concern, social influence, price sensitivity, and satisfaction. Moderators such as age, gender, city tier, brand origin, product category, and digital literacy could also be examined. For example, younger consumers may respond more strongly to livestreaming and social commerce, while older consumers may value trustworthy consultation and offline service continuity.

The study uses purchase intention rather than actual purchase behavior. Future research could combine survey data with behavioral data such as transaction records, loyalty program activity, clickstream data, livestream conversion, coupon redemption, or repeat purchase frequency. Linking perception and behavior would provide stronger evidence of digital transformation performance. Longitudinal research would also be valuable because loyalty develops over time. A panel design could examine whether digital transformation perceptions predict future loyalty and purchase behavior across multiple purchase cycles.

The study treats digital transformation as a single reflective construct. Future research could model digital transformation as a higher-order construct with dimensions such as digital service quality, personalization, social commerce, omnichannel integration, digital content, and transaction convenience. This would allow researchers to identify which dimension has the

strongest effect on loyalty and purchase intention. Cosmetic brands may discover that different consumer segments value different dimensions. For example, skin-care consumers may value ingredient education and AI diagnosis, while makeup consumers may value virtual try-on and influencer demonstration.

Furthermore, future qualitative research should investigate how consumers emotionally interpret digital transformation. Interviews and netnography could examine consumer discussions on Xiaohongshu, Douyin, Weibo, and brand communities. Such research could reveal how consumers distinguish authentic digital engagement from superficial marketing, how they evaluate key opinion leaders, and how they balance online advice with offline product testing. Cross-cultural research could compare China with other digitally mature beauty markets to determine whether the loyalty mediation mechanism is universal or context-specific.

Despite these limitations, the manuscript provides a comprehensive theoretical and analytical framework for studying digital transformation, brand loyalty, and purchase intention in China's established cosmetic sector. It can guide future empirical data collection and provide managers with a framework for designing loyalty-centered digital transformation.

6.3. Appendix

The following measurement items are provided to make the data structure transparent. Each item was measured on a five-point Likert scale from 1 = strongly disagree to 5 = strongly agree. The quantitative results in this manuscript are based on a dataset and should be replaced by field data in a formal empirical submission.

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Appendix A: Measurement items used in the illustrative survey

Code	Item
DT1	The cosmetic brand provides easy-to-use mobile or mini-program services.
DT2	The brand integrates online and offline shopping, consultation, and service smoothly.
DT3	The brand uses digital tools to provide personalized product recommendations.
DT4	Digital content, virtual try-on, or product videos help me understand the brand better.
DT5	The brand uses membership data to provide relevant offers and services.
DT6	The brand responds quickly through digital customer service or online consultation.
DT7	Online reviews, user content, and product information from the brand are easy to access.
DT8	Payment, delivery, return, and after-sales processes are convenient through digital channels.
BL1	I prefer this cosmetic brand over competing brands.
BL2	I would recommend this cosmetic brand to others.
BL3	I intend to repurchase this cosmetic brand.
BL4	I would continue choosing this brand even if competitors offered similar products.
BL5	I feel emotionally attached to this cosmetic brand.
PI1	I am likely to purchase this cosmetic brand in the near future.
PI2	I would choose this brand when buying cosmetic products.
PI3	I am willing to try new products launched by this brand.
PI4	I am willing to buy this brand through its online or offline channels.
PI5	I expect to increase my purchases from this brand.