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Beyond Net Effects: Examining Configurational Pathways Associated with Cosmetic Repurchase Intention Through Online Platforms Using the Fuzzy Delphi Method, SEM, and fsQCA

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Abstract

Online cosmetic purchasing has expanded rapidly, yet understanding what sustains consumers' intention to repurchase through online platforms remains challenging because continued purchasing reflects multiple product-related, marketing-related, experiential, and communication-related conditions. To examine these relationships, this research integrates the Fuzzy Delphi Method (FDM), Structural Equation Modeling (SEM), and fuzzy-set Qualitative Comparative Analysis (fsQCA). An exploratory sequential mixed-methods design incorporated expert evaluation and a quantitative survey. In the expert-evaluation phase, 21 experts assessed the appropriateness and applicability of 38 measurement items using FDM, and all items satisfied the predetermined consensus criteria. The quantitative phase analyzed 736 valid responses from Thai consumers with prior experience purchasing cosmetics through online platforms. SEM results showed positive associations of Loyalty, Consumer Satisfaction, and electronic word-of-mouth with Repurchase Intention through Online Platforms (RI), with Loyalty exhibiting the largest standardized coefficient among the direct relationships. The fsQCA identified four sufficient configurations associated with high RI, with a solution consistency of 0.951 and solution coverage of 0.688, while no individual condition met the conventional necessity threshold. The configurational results demonstrate equifinality, indicating that high RI can be associated with different combinations of product-related, marketing-related, experiential, communication-related, and relational conditions. These findings extend prior research that has predominantly emphasized isolated net-effect relationships by showing how multiple conditions may operate jointly in explaining cosmetics repurchase intention through online platforms.

Keywords: cosmetic repurchase intention; online platforms; Thai consumers; Fuzzy Delphi Method (FDM); Structural Equation Modeling (SEM); fuzzy-set Qualitative Comparative Analysis (fsQCA)

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1. Introduction

The rapid expansion of online platforms has substantially changed how consumers search for information, evaluate alternatives, interact with sellers, and purchase products [1,2]. This transformation is particularly evident in the cosmetics market, where purchasing decisions increasingly occur within digital environments that combine product information, marketing communication, consumer reviews, and electronic word-of-mouth [1,2]. Online platforms therefore represent more than transactional channels; they

constitute purchasing environments in which consumers form evaluations from both product-related experiences and digital interactions [1,2]. Understanding consumers' willingness to purchase cosmetics again through these platforms has consequently become important for businesses seeking to maintain continued customer engagement in highly competitive online markets [3].

Within this context, Repurchase Intention through Online Platforms (RI) refers to consumers' intention to purchase cosmetic products again through online platforms following prior online purchasing experience. This conceptualization focuses on the continuation of cosmetic purchasing within the online-platform context rather than exclusively on the repeated purchase of the same product or the same brand. Such intention may reflect consumers' evaluations of previous product and purchasing experiences, including perceived Product Quality, Consumer Satisfaction, marketing encounters, platform-related perceptions, and information exchanged among consumers [3–5]. Because these evaluations occur across different aspects of the purchasing journey, RI through online platforms is unlikely to be adequately explained by a single antecedent in isolation [3,4].

Consumers' continued purchasing intentions on online platforms may emerge from the interplay of product-related, marketing-related, experiential, and communication-related conditions [4,6,7]. Product Quality provides an evaluation of the functional performance and reliability of cosmetics, whereas Social Media Marketing exposes consumers to marketing information and interactive content [6,7]. Image and Awareness reflect consumers' perceptions and recognition within the online purchasing environment, while Consumer Satisfaction captures evaluations of prior purchasing experiences [4,6]. Loyalty represents a continuing preference for purchasing cosmetics through online platforms, and electronic word-of-mouth reflects consumer-to-consumer information exchange in digital environments [4,7]. These conditions may be associated with RI and may also operate in combination rather than independently [4,6,7].

Although research on online consumer behavior has expanded considerably, opportunities remain to deepen the understanding of repurchase intention in digital-commerce settings. Much of the existing literature has examined the relationships between repurchase intention and individual antecedents through net-effect approaches, while the joint operation of multiple conditions has received comparatively less attention [8,9]. In addition, repurchase intention in digital environments can be examined at different levels, including the product, brand, store, and purchasing channel, making it important to clearly specify the focal object of evaluation [9,10]. This distinction is particularly relevant in the cosmetics context, where consumers may evaluate the product itself, their purchasing experience, marketing communication, and the online environment through which the transaction occurs. Clarifying the focal context therefore provides a more precise basis for interpreting the relationships among the constructs examined in this research.

To examine cosmetic repurchase intention from both measurement and analytical perspectives, this study applies several complementary procedures. The Fuzzy Delphi Method (FDM) is used to evaluate expert consensus regarding the appropriateness and applicability of the proposed measurement items, thereby supporting the refinement of the measurement framework before quantitative testing [11]. The resulting framework is subsequently evaluated using Confirmatory Factor Analysis (CFA), while Structural Equation Modeling (SEM) is employed to examine the associations among the proposed constructs at the net-effect level. Fuzzy-set Qualitative Comparative Analysis (fsQCA) is further applied to identify alternative combinations of conditions associated with high Repurchase Intention through Online Platforms [12]. Previous studies in digital commerce and digitally enabled business contexts have also demonstrated the usefulness of combining net-effect and configurational approaches and, in some cases, fuzzy expert-based assessment [13,14].

In the present study, these procedures are applied specifically to cosmetics repurchase behavior among Thai consumers purchasing through online platforms.

The research contributes to the literature on online consumer behavior in three ways. First, it clarifies the focal context of Repurchase Intention through Online Platforms by distinguishing continued cosmetic purchasing through online platforms from repeated purchasing of the same product or brand. Second, it develops an integrated explanation that considers Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction within a single framework rather than examining these factors in isolation. Third, by combining net-effect analysis with configurational analysis, it provides evidence not only on the individual associations among constructs but also on alternative combinations of conditions associated with high repurchase intention. These contributions extend current understanding of cosmetic repurchase behavior in online environments and provide a basis for developing more context-sensitive strategies for firms operating in digital cosmetics markets.

2. Literature Review and Hypotheses Development

Consumer repurchase intention in online environments reflects a decision process shaped by evaluations formed across multiple stages of the purchasing experience [3,8,15,16]. In the cosmetics context, these evaluations may involve perceptions of Product Quality, exposure to Social Media Marketing, Image, Awareness, electronic word-of-mouth, Consumer Satisfaction, and Loyalty. Rather than operating independently, these constructs represent different aspects of how consumers evaluate products, interpret marketing information, respond to prior purchasing experiences, and maintain preferences within online purchasing environments [3,8,15,16]. Accordingly, the proposed framework examines the relationships among these constructs in explaining Repurchase Intention through Online Platforms among Thai consumers. The following subsections define each construct, clarify its role within the online cosmetics context, and develop the hypothesized relationships included in the conceptual model.

2.1. Product Quality (PQ)

Product Quality refers to consumers' evaluation of the performance and characteristics of cosmetic products based on their purchasing and usage experiences. In the cosmetics context, such evaluations may involve perceived effectiveness, reliability, consistency, safety, and the extent to which the product performs as expected [17]. Product Quality is therefore treated as a product-level evaluation rather than an assessment of the online platform through which the product is purchased.

When cosmetic products purchased through online platforms perform consistently with consumers' expectations, favorable product evaluations can reinforce satisfaction with the overall purchasing experience. Consumers who perceive that the products they obtain are reliable and meet their expected standards are more likely to evaluate their prior purchase experiences positively. Product Quality may therefore be positively associated with Consumer Satisfaction [17,18].

Favorable Product Quality may also contribute to the development of Loyalty within the online purchasing context. Repeated experiences of receiving cosmetics that meet expected quality standards can reduce uncertainty and strengthen consumers' confidence in continuing to purchase cosmetics through online platforms. In this sense, the proposed relationship does not imply loyalty to a particular cosmetic brand solely because of product performance; rather, it reflects how positive product experiences may support a continuing preference for purchasing cosmetics through online platforms [18]. Accordingly, the following hypotheses are proposed:

H1. *Product quality positively influences loyalty.*

H2. *Product quality positively influences consumer satisfaction.*

2.2. Social Media Marketing (SMM)

Social Media Marketing refers to marketing activities delivered through social media channels to communicate information, present content, stimulate interaction, and maintain engagement with consumers [2,19]. In the cosmetics market, these activities may include promotional content, product demonstrations, influencer-related communication, interactive posts, and other forms of digital engagement that expose consumers to information about cosmetic products and purchasing opportunities [2,6]. Social Media Marketing is therefore treated as a marketing-communication construct rather than as a substitute for the broader online-platform environment in which purchases occur.

Repeated exposure to relevant and recognizable social media content can increase consumers' familiarity with information associated with cosmetics available in online purchasing environments. When marketing messages are sufficiently visible, consistent, and engaging, consumers may become more capable of recognizing and recalling the associated offering or purchasing source. Social Media Marketing may therefore be positively associated with Awareness by strengthening consumers' familiarity and recognition within the online purchasing context [19,20].

Social Media Marketing may also be associated with electronic word-of-mouth because interactive marketing content provides opportunities for consumers to react to, discuss, share, and reinterpret information with others. Content that consumers perceive as relevant or engaging can stimulate conversation and facilitate the circulation of experiences and opinions across digital networks [2,6]. In this respect, SMM can serve as a communication stimulus that supports consumer-to-consumer information exchange rather than representing eWOM itself. Accordingly, the following hypotheses are proposed:

H3. *Social Media Marketing positively influences Awareness.*

H4. *Social Media Marketing positively influences eWOM.*

2.3. Image (IMG)

Image refers to consumers' overall perception of the identity, distinctiveness, recognition, and reputation of online stores through which cosmetic products are purchased. In this context, Image is not treated as the image of a specific cosmetic brand; rather, it reflects how consumers perceive the online purchasing source itself. Such perceptions may be formed through recognizable visual elements, a distinctive identity, perceived reputation, and the extent to which an online store is differentiated from competing purchasing sources [21,22].

A favorable Image can shape how consumers interpret their previous purchasing experiences. When an online cosmetic store is perceived as recognizable, reputable, and distinctive, consumers may approach transactions with greater confidence and more positive expectations. These perceptions can reinforce favorable evaluations of the purchasing experience, particularly when the actual transaction is consistent with the store image that consumers have formed. Image may therefore be positively associated with Consumer Satisfaction because a credible and positively perceived purchasing source can strengthen consumers' evaluations of their prior online purchasing experience [21,22]. Accordingly, the following hypothesis is proposed:

H5. *Image positively influences consumer satisfaction.*

2.4. Awareness (AW)

Awareness refers to consumers' ability to recognize, recall, and distinguish the online stores through which they purchase cosmetic products. In this context, Awareness is conceptualized at the online-store level rather than as awareness of a specific cosmetic brand. It reflects the extent to which consumers can remember the store, recognize its visual identity, distinguish it from competing stores, and maintain familiarity with it within the broader online purchasing environment [23].

Greater Awareness can strengthen consumers' familiarity with an online purchasing source and reduce the cognitive effort required to identify or reconsider that source during future purchase decisions. When consumers can readily recall and distinguish a familiar online cosmetic store, the store is more likely to remain salient among available alternatives. This familiarity may support a continuing preference for purchasing through the same or similarly recognized online source, particularly when previous experiences have been satisfactory. Awareness may therefore be positively associated with Loyalty within the online purchasing context [23,24]. Accordingly, the following hypothesis is proposed:

H6. *Awareness positively influences loyalty.*

2.5. Loyalty (LOY)

Loyalty refers to consumers' enduring preference and attachment toward purchasing cosmetic products through online platforms. In this context, Loyalty is conceptualized as a channel-related orientation rather than loyalty to a particular cosmetic brand. It reflects consumers' tendency to favor online purchasing, consider online platforms as a preferred purchasing option, and maintain this preference despite the availability of competing offline alternatives or occasional unfavorable experiences [3,25].

Loyalty represents more than a single future purchase decision because it reflects an established preference that develops from accumulated purchasing experiences. Consumers who consistently regard online platforms as their preferred channel may require less reconsideration of alternative purchasing modes and may be more willing to maintain their established purchasing pattern. This continuing preference can provide a behavioral basis for subsequent purchase intentions, particularly when consumers perceive online purchasing as familiar and compatible with their shopping routines [3,15,16].

Although Loyalty and Repurchase Intention through Online Platforms are related, they represent conceptually distinct constructs. Loyalty captures an enduring preference and attachment toward the online purchasing channel, whereas Repurchase Intention reflects the consumer's prospective intention to purchase cosmetic products through online platforms again. A stronger channel preference may therefore be positively associated with a greater intention to continue purchasing cosmetics through online platforms [15,16]. Accordingly, the following hypothesis is proposed:

H7. *Loyalty positively influences repurchase intention.*

2.6. Consumer Satisfaction (CS)

Consumer satisfaction refers to consumers' overall evaluation of their purchasing experience when buying cosmetic products through online platforms. In this context, satisfaction is primarily associated with the online purchasing process rather than with satisfaction toward a particular cosmetic brand or product alone. It reflects consumers' evaluations of how easily they can locate desired products, the convenience and speed of the purchasing process, the availability of payment options, delivery performance, and after-sales service [18,25].

Favorable purchasing experiences can strengthen consumers' confidence in continuing to use online platforms for cosmetic purchases. When consumers perceive that the purchasing process is efficient, convenient, and supportive throughout the transaction, these positive evaluations may reinforce their preference for online purchasing and support the development of Loyalty. Consumer Satisfaction may therefore be positively associated with Loyalty within the online purchasing context [18,25].

Consumer Satisfaction may also be associated with electronic word-of-mouth. Positive purchasing experiences can provide consumers with favorable experiences to share with others through digital channels, including comments, recommendations, reviews, and other forms of consumer-to-consumer communication. In this sense, satisfaction with the online purchasing experience may encourage consumers to communicate their evaluations and experiences to others [26].

In addition, consumers who are satisfied with previous online cosmetic purchasing experiences may be more willing to purchase cosmetic products through online platforms again. Satisfaction provides a positive evaluation of prior transactions, which may reduce hesitation and support the continuation of online purchasing behavior [25,26]. Accordingly, the following hypotheses are proposed:

H8. *Consumer Satisfaction positively influences loyalty.*

H9. *Consumer Satisfaction positively influences eWOM.*

H10. *Consumer Satisfaction positively influences repurchase intention.*

2.7. Electronic Word-of-Mouth (eWOM)

Electronic word-of-mouth refers to consumers' voluntary communication of opinions, experiences, recommendations, and product-related information through digital channels [7,27]. In the cosmetics context, eWOM may include recommending cosmetic products to others, sharing positive usage experiences, expressing favorable opinions online, and redistributing product-related content through online platforms [7]. Accordingly, eWOM is conceptualized here primarily as an active communication behavior rather than merely as consumers' passive exposure to reviews or comments from others.

Positive eWOM can reinforce consumers' own evaluations of prior purchasing and usage experiences because communicating favorable experiences often reflects confidence in those experiences. Consumers who are willing to recommend, share, or publicly express positive opinions about cosmetics purchased through online platforms may also demonstrate stronger commitment to continuing similar purchasing behavior [27]. In addition, repeated engagement in positive electronic communication can maintain the salience of online cosmetic purchasing within consumers' digital interactions and support confidence in future purchasing decisions [7,27].

For these reasons, stronger engagement in positive eWOM may be positively associated with consumers' intention to purchase cosmetic products through online platforms again [26,27]. The proposed relationship does not assume that eWOM alone causes subsequent purchasing; rather, it reflects the expectation that consumers who actively communicate favorable online experiences are also more likely to report stronger Repurchase Intention through Online Platforms. Accordingly, the following hypothesis is proposed:

H11. *eWOM positively influences repurchase intention.*

2.8. Repurchase Intention Through Online Platforms (RI)

Repurchase Intention through Online Platforms refers to consumers' intention to purchase cosmetic products again through online platforms following prior online purchasing experience [3,15,16,25]. In this context, the construct captures consumers' willingness to continue purchasing cosmetics through online platforms on a recurring and consistent basis [3,16]. It does not necessarily imply the repeated purchase of the same cosmetic product or the same brand; rather, it reflects the continuation of cosmetic purchasing behavior within the online platform environment.

Repurchase Intention represents a prospective behavioral intention that emerges after consumers have accumulated experiences with online cosmetic purchasing [15,16,25]. Such intention may be associated with consumers' evaluations of the products they have purchased, their experiences with online purchasing processes, their preferences for online purchasing, and the information they communicate and encounter within digital environments [3,16,25,26]. Consumers who develop favorable evaluations across these aspects may express a stronger intention to continue purchasing cosmetics through online platforms [3,16,25].

Within the proposed framework, Repurchase Intention through Online Platforms is treated as the principal outcome construct. It represents the consumer's future-oriented intention to maintain cosmetic purchasing through online platforms and is examined in relation to Loyalty, Consumer Satisfaction, and electronic word-of-mouth [3,25–27]. This conceptualization maintains a clear distinction between continued purchasing through an online channel and repeated purchasing of a specific product or brand.

Based on the conceptual arguments developed above, the proposed framework examines the relationships among PQ, SMM, IMG, AW, LOY, CS, eWOM, and RI. These constructs represent different aspects of consumers' online cosmetic purchasing experience, including product evaluation, marketing communication, perceptions of online stores, purchasing-channel preference, transaction-related satisfaction, and consumer-generated online communication. Rather than assuming that RI is associated with a single antecedent, the framework considers a set of interconnected relationships through which these conditions may jointly contribute to consumers' continued intention to purchase cosmetic products through online platforms [8,12], as illustrated in Figure 1.

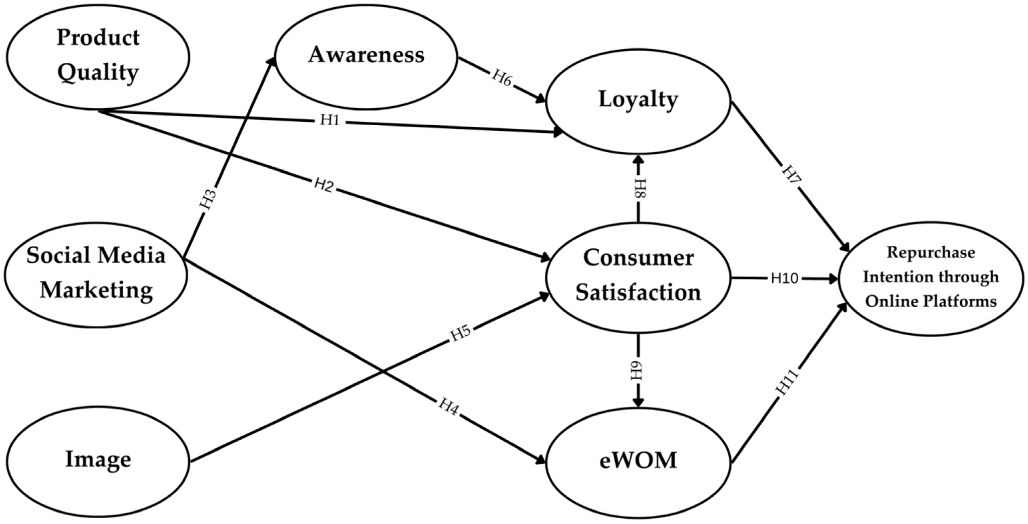


Figure 1. Proposed conceptual framework (Source: Author).

3. Methodology

The methodological design was developed to examine cosmetic repurchase intention among Thai consumers with prior experience purchasing cosmetics through online platforms. The methodological procedure combined an expert-based instrument-refinement process with subsequent quantitative validation and configurational analysis. Rather than relying on a single analytical technique, the research process was organized to address measurement refinement, assessment of hypothesized relationships, and examination of alternative combinations of conditions associated with high Repurchase Intention through Online Platforms. Similar multi-method designs combining structural and configurational analyses and, in some cases, fuzzy expert assessment have been applied in prior digital-business research [13,14]. The procedure used in the present study consisted of four stages, as described below.

In the first stage, an electronic Delphi (e-Delphi) process was conducted with 21 experts over three rounds to review and refine the conceptual framework and measurement items. The iterative procedure enabled experts to provide initial recommendations, reconsider the refined items, and evaluate their appropriateness and applicability [28].

In the second stage, the Fuzzy Delphi Method (FDM) was applied to the expert ratings to quantify consensus and support measurement-item screening [11]. The 7-point expert evaluations were transformed into triangular fuzzy numbers, and item retention was assessed using threshold distance, expert-consensus percentage, and defuzzified fuzzy scores. Items satisfying the predetermined criteria in both appropriateness and applicability were retained for the quantitative questionnaire.

In the third stage, survey data were collected from 736 Thai consumers with prior experience purchasing cosmetic products through online platforms. Confirmatory Factor Analysis (CFA) was used to assess the measurement model, followed by Structural Equation Modeling (SEM) to examine the hypothesized associations among the latent constructs. Fuzzy-set Qualitative Comparative Analysis (fsQCA) was subsequently employed to identify alternative configurations of conditions associated with high RI, complementing the net-effect relationships examined through SEM [12].

In the fourth stage, the findings from FDM, CFA, SEM, and fsQCA were integrated and interpreted to develop the theoretical and practical implications, limitations, and conclusions. The overall research procedure is presented in Figure 2.

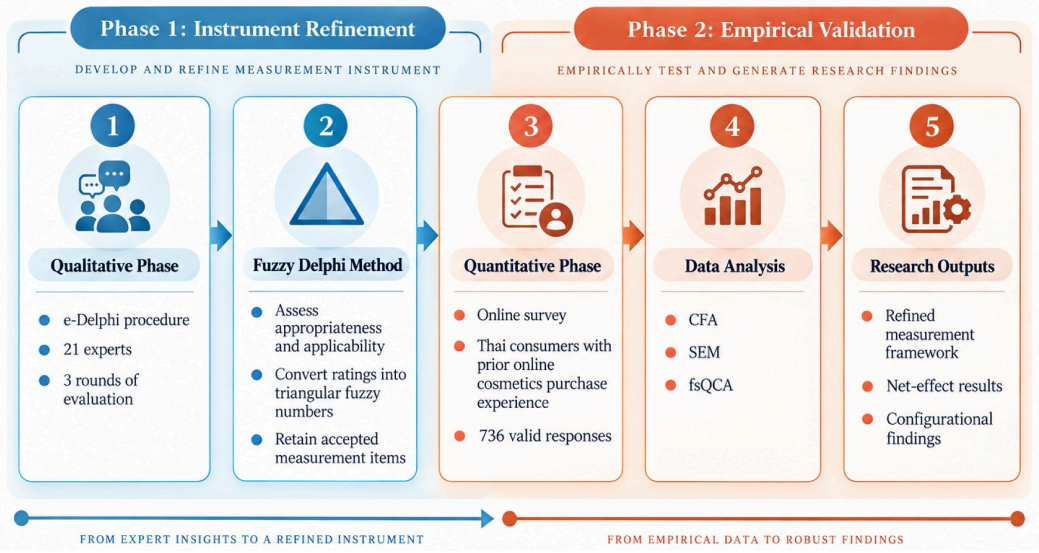


Figure 2. Overall research process (Source: Author).

3.1. Expert-Evaluation Phase: Instrument Refinement Using e-Delphi and FDM

The expert-evaluation phase was conducted to review and refine the conceptual framework and measurement instrument before the quantitative survey. This phase integrated the electronic Delphi (e-Delphi) technique with the Fuzzy Delphi Method (FDM) to combine iterative expert judgment with a structured assessment of consensus [11,28]. The process involved identifying the research problem and relevant constructs, selecting a multidisciplinary expert panel, collecting expert judgments through three e-Delphi rounds, and applying FDM to evaluate the appropriateness and applicability of the measurement items. The retained items were subsequently used to construct the quantitative questionnaire.

To improve transparency and reproducibility, the expert-evaluation process is described in four subsections covering the development of the preliminary framework, expert selection, the three-round e-Delphi procedure, and FDM-based consensus assessment and item retention.

3.1.1. Development of the Preliminary Framework and Measurement Items

The preliminary framework and measurement items were developed through a structured review of prior research on cosmetic purchasing behavior, online consumer behavior, digital marketing, consumer experience, and post-purchase responses [2,3,7,8,25]. The review was used to identify constructs that were conceptually relevant to continued cosmetic purchasing through online platforms and to establish the initial relationships examined in the proposed model. Particular attention was given to maintaining consistency between each construct and its intended object of evaluation, including product-level evaluation, online-store perceptions, purchasing-channel preference, transaction-related satisfaction, and consumer-generated online communication [3,7,25].

Based on this review, an initial pool of measurement items was prepared for Product Quality (PQ), Social Media Marketing (SMM), Image (IMG), Awareness (AW), Loyalty (LOY), Consumer Satisfaction (CS), electronic word-of-mouth (eWOM), and Repurchase Intention through Online Platforms (RI). The item pool was then submitted to the expert panel for evaluation and refinement through the e-Delphi process [26]. At this stage, the objective was not to establish construct validity solely through expert judgment, but to assess the content relevance, conceptual clarity, appropriateness, and applicability of the proposed items before subsequent quantitative evaluation of the measurement model [28].

3.1.2. Expert Selection

Experts were selected using purposive sampling to ensure that panel members possessed relevant knowledge and practical experience related to cosmetics, consumer behavior, digital marketing, social media, and online purchasing environments [29]. The panel comprised 21 experts divided into three groups of seven. All panel members had at least three years of relevant professional or academic experience.

The first group consisted of university lecturers with expertise in business administration, social media, digital technology, or the cosmetics industry. The second group comprised professionals from public- and private-sector organizations whose work or experience was related to the cosmetics industry. The third group consisted of cosmetic business owners. This composition was intended to incorporate academic, professional, and business perspectives into the evaluation of the preliminary framework and measurement items before the quantitative phase.

The same expert panel was invited to participate throughout the three-round e-Delphi process to support continuity of judgment and allow changes in expert evaluations to be examined across rounds [28].

3.1.3. Three-Round e-Delphi Procedure

Expert judgments were collected through a three-round electronic Delphi (e-Delphi) process conducted from September to November 2025. The procedure was designed to obtain independent expert input, progressively refine the proposed constructs and measurement items, and develop consensus through repeated evaluation and controlled feedback [28].

In Round 1, an open-ended questionnaire was used to obtain experts' comments and recommendations concerning the proposed constructs, conceptual relationships, and preliminary measurement items. The feedback resulted in minor wording revisions to a limited number of items to improve clarity, conceptual alignment, and practical applicability, while most items were retained without substantive modification [28].

In Round 2, the revised measurement items were evaluated using a structured questionnaire with a 7-point Likert-type scale. Summarized feedback from the preceding round was incorporated into the iterative process, enabling experts to reconsider the refined items while maintaining the independence of individual judgments [28].

In Round 3, the refined items were reassessed using the same 7-point response format in terms of Appropriateness and Applicability. The final-round evaluations were analyzed using the Fuzzy Delphi Method (FDM) [11], and the pattern of responses across Rounds 2 and 3 was compared to assess the convergence and stability of expert judgments. Detailed consensus results are reported in Section 4.

3.1.4. FDM-Based Consensus Assessment and Item Retention

Following completion of the three-round e-Delphi process, the final expert ratings were analyzed using the Fuzzy Delphi Method (FDM) to assess consensus and determine the retention of measurement items. Each item was evaluated independently in terms of Appropriateness and Applicability using a 7-point Likert-type scale. The expert ratings were converted into triangular fuzzy numbers (TFNs), expressed as (l, m, u), where l, m, and u represent the lower, modal, and upper fuzzy values, respectively [11]. The fuzzy-number assignments used in the analysis are presented in Table 1.

Table 1. Triangular Fuzzy Number Assignments for the Seven-Point Likert Scale (Source: Author).

Likert Scale	Triangular Fuzzy Number (*l*,*m*,*u*)
1	(0.0, 0.0, 0.1)
2	(0.0, 0.1, 0.3)
3	(0.1, 0.3, 0.5)
4	(0.3, 0.5, 0.7)
5	(0.5, 0.7, 0.9)
6	(0.7, 0.9, 1.0)
7	(0.9, 1.0, 1.0)

Note: l, m, and u represent the lower, modal, and upper values of the triangular fuzzy number, respectively. The seven-point Likert ratings were converted into triangular fuzzy numbers for the Fuzzy Delphi Method analysis.

Expert consensus was assessed using three predetermined criteria [11]. First, the threshold distance d was required to be no greater than 0.20. Second, at least 75% of the experts were required to satisfy the consensus criterion. Third, the aggregated triangular fuzzy value was defuzzified using

$$A = \frac{l + m + u}{3}$$

where A represents the defuzzified fuzzy score. An item was retained when $d \leq 0.20$, expert consensus was at least 75%, and $A \geq 0.50$ These criteria were applied independently to both Appropriateness and Applicability. Only items satisfying all three criteria in both dimensions were retained for inclusion in the quantitative questionnaire. Detailed FDM results are reported in Section 4.

3.2. Quantitative Phase: Survey Design and Data Collection

The quantitative phase was conducted to examine the measurement properties of the proposed constructs and the hypothesized associations specified in the conceptual framework. Data were collected through an online questionnaire completed by Thai consumers with prior experience purchasing cosmetic products through online platforms. To ensure that responses were obtained only from eligible participants, the questionnaire included screening questions confirming that respondents had previously purchased cosmetic products online and were residing in Thailand. Respondents who did not meet these eligibility criteria were excluded from the quantitative analysis. The survey instrument comprised the measurement items retained following the expert-evaluation and FDM procedures described in the preceding section.

The quantitative analysis was conducted in sequential stages. The measurement model was first assessed using Confirmatory Factor Analysis (CFA) to examine construct reliability and validity [30,31]. Structural Equation Modeling (SEM) was subsequently employed to evaluate the hypothesized associations among the latent constructs [31]. Fuzzy-set Qualitative Comparative Analysis (fsQCA) was then applied to examine alternative configurations of conditions associated with high Repurchase Intention through Online Platforms (RI), thereby complementing the net-effect relationships examined through SEM [8,12]. Details of the sampling procedure, measurement instrument, and analytical procedures are provided in the following subsections.

3.2.1. Population, Sampling, and Data Collection

The target population comprised consumers residing in Thailand who had prior experience purchasing cosmetic products through online platforms. Participants were recruited using convenience sampling. The online questionnaire was distributed through the researcher's personal Facebook account and LINE groups, with the survey link circulated to potential respondents across different regions of Thailand. Data collection was conducted over a three-month period from January to March 2026.

Eligibility was assessed through screening questions presented at the beginning of the questionnaire. Respondents were required to confirm that they had previously purchased cosmetic products online, were residing in Thailand, and were at least 18 years old. A total of 808 responses were initially received. Of these, 72 responses were excluded because the respondents did not satisfy the screening criteria, resulting in a final analytical sample of 736 valid responses.

Because convenience sampling was employed and no regional or occupational quotas were imposed, the resulting sample distribution was not intended to proportionally represent the Thai population across geographic regions or occupational groups. The demographic composition of the final sample is therefore reported transparently in the Results section, and the implications of concentration within particular respondent groups are considered when interpreting the generalizability of the findings.

3.2.2. Measurement Instrument

The quantitative research instrument was an online questionnaire consisting of three sections. Section 1 contained screening questions used to determine participant eligibility. Section 2 collected respondents' general demographic information. Section 3 comprised

38 measurement items representing eight latent constructs: Product Quality (PQ), Social Media Marketing (SMM), Image (IMG), Awareness (AW), Loyalty (LOY), Consumer Satisfaction (CS), electronic word-of-mouth (eWOM), and Repurchase Intention through Online Platforms (RI). The measurement items were adapted from relevant prior studies and further developed to fit the context of cosmetic purchasing through online platforms in Thailand. The resulting items subsequently underwent expert evaluation through the e-Delphi and FDM procedures described in the preceding section to assess their content relevance, Appropriateness, and Applicability [11,28].

However, among the SMM measurement items, SMM1 is broader in wording than the other items because it refers to whether the products offered by online cosmetic stores meet consumers' needs, whereas the remaining SMM items more directly address characteristics of online marketing content. The original wording of SMM1 was retained because it was the item actually administered to respondents and had also been evaluated by all 21 experts.

Because the target respondents were Thai consumers, the questionnaire was developed and administered in Thai. The English version presented in the manuscript was translated from the finalized Thai questionnaire for international reporting purposes. All construct items were measured using a 7-point Likert-type scale ranging from 1 = strongly disagree to 7 = strongly agree. The same questionnaire structure and item sequence were presented to all respondents.

Prior to the main data collection, the questionnaire was pilot-tested with 30 eligible consumers to assess the preliminary internal consistency of the measurement items. Cronbach's alpha coefficients were calculated for each construct, and all values satisfied the predetermined reliability criterion. As no substantive modification was required following the pilot assessment, the questionnaire was subsequently used for the main data collection. The complete set of measurement items used in the quantitative survey is provided in Appendix A.

3.2.3. Data Analysis

The quantitative data were analyzed using IBM SPSS Statistics 21 and IBM SPSS Amos 21. Prior to the main analyses, the dataset was examined for completeness, distributional characteristics, and potential multivariate outliers. No missing values were present because the online questionnaire required responses to all mandatory items before submission. Univariate normality was assessed using skewness and kurtosis, while multivariate normality was evaluated in Amos. Potential multivariate outliers were screened using Mahalanobis distance at $p < 0.001$ cases exceeding this criterion were treated as potential outliers and were not automatically excluded solely on the basis of statistical extremity.

The measurement model was evaluated using Confirmatory Factor Analysis (CFA) [30,31]. Construct reliability and convergent validity were assessed using standardized factor loadings, composite reliability (CR), and average variance extracted (AVE). Discriminant validity was further examined using the heterotrait–monotrait ratio of correlations (HTMT), together with 95% bootstrap confidence intervals based on 5000 resamples [32]. Discriminant validity was considered supported when the corresponding confidence interval did not include 1 [32]. Overall model adequacy was assessed using multiple fit indices, including χ^2/df, GFI, AGFI, CFI, IFI, TLI, NFI, RMSEA, and RMR.

Following validation of the measurement model, Structural Equation Modeling (SEM) with Maximum Likelihood estimation was used to examine the hypothesized associations among the latent constructs [30,31]. Because multivariate normality was not supported, bootstrap resampling with 5000 samples was employed to provide more robust statistical inference. Standardized path coefficients were used to evaluate the magnitude and direction of the structural relationships. Indirect associations with Repurchase Intention

through Online Platforms (RI) were formally examined using standardized indirect effects and 95% bias-corrected bootstrap confidence intervals [33]. An indirect effect was considered statistically significant when the corresponding confidence interval did not include zero [33].

Potential common-method variance was assessed using complementary diagnostic procedures, including Harman's single-factor test, a single-factor CFA, and a common latent factor model [34]. These procedures were considered collectively when interpreting the measurement and structural results rather than relying on any single diagnostic test. After completion of the SEM analysis, fsQCA was applied as a complementary configurational approach [12]; its calibration, truth-table construction, sufficiency analysis, and sensitivity procedures are described separately in Section 3.2.4.

3.2.4. fsQCA Procedure

Fuzzy-set Qualitative Comparative Analysis (fsQCA) was employed to examine alternative configurations of Product Quality (PQ), Social Media Marketing (SMM), Image (IMG), Awareness (AW), electronic word-of-mouth (eWOM), Loyalty (LOY), and Consumer Satisfaction (CS) associated with high Repurchase Intention through Online Platforms (RI) [12,35]. Construct scores were calculated from the retained measurement items and calibrated into fuzzy-set membership scores using direct calibration with the 5th, 50th, and 95th percentiles as the thresholds for full non-membership, the crossover point, and full membership, respectively [12,35]. Exact crossover values were adjusted slightly to avoid ambiguous membership at 0.50. The calibrated dataset contained 736 valid cases.

Necessary-condition analysis was first conducted for both the presence and absence of each condition, using a consistency value of 0.90 as the criterion for identifying a necessary condition [12,35]. A truth table was then constructed using the seven causal conditions. Configurations were considered for sufficiency analysis when they contained at least seven cases, achieved raw consistency of at least 0.964, and satisfied a Proportional Reduction in Inconsistency (PRI) consistency threshold of 0.70. Directional expectations specified the presence of all seven conditions as favoring high RI. Complex, parsimonious, and intermediate solutions were examined to identify sufficient configurations associated with high RI [12,35]. Because multiple equally parsimonious solutions were possible, the parsimonious solution was used cautiously when distinguishing core and peripheral conditions. The intermediate solution was therefore emphasized in the substantive interpretation. Robustness was evaluated through sensitivity analyses in which frequency, raw-consistency, and PRI thresholds were varied, together with alternative calibration specifications. Sufficiency analysis was also conducted separately for the negated outcome (~RI) to examine configurational asymmetry [12,35].

3.3. Ethical Considerations

The study was conducted in accordance with ethical principles for research involving human participants. Prior to participation, respondents were informed of the study objectives, the voluntary nature of participation, data confidentiality, and their right to decline or discontinue participation at any time. The collected data were used solely for academic purposes and reported only in aggregate form without disclosing personally identifiable information. Ethical approval was obtained from the Ethics Review Board of Rangsit University prior to data collection (COA No. RSUERB2025-176).

4. Results

This section presents the empirical findings of the study. It first reports the results of the expert evaluation and Fuzzy Delphi Method (FDM), followed by the quantitative findings from the measurement model assessment, Structural Equation Modeling (SEM), indirect-effect analysis, and fuzzy-set Qualitative Comparative Analysis (fsQCA).

4.1. Fuzzy Delphi Results

The final round of expert evaluation was analyzed using the Fuzzy Delphi Method (FDM) to assess the Appropriateness and Applicability of the proposed measurement items. All 38 items satisfied the predefined acceptance criteria across both evaluation dimensions. For Appropriateness, threshold values ranged from 0.047 to 0.128, expert consensus ranged from 80.95% to 100%, and defuzzification scores ranged from 0.844 to 0.943. For Applicability, values ranged from 0.040 to 0.123, expert consensus ranged from 76.19% to 100%, and values ranged from 0.860 to 0.948. Consequently, all 38 measurement items were retained for the subsequent quantitative analysis. The detailed results are presented in Table 2.

Table 2. Fuzzy Delphi Results for Measurement-Item Screening (Source: Author).

	Appropriateness: Threshold Value (*d*)	**Appropriateness: Expert Consensus (%)**	**Appropriateness: Fuzzy Score (*A*)**	**Applicability: Threshold Value (*d*)**	**Applicability: Expert Consensus (%)**	**Applicability: Fuzzy Score (*A*)**	**Decision**
PQ1	0.068	95.24	0.925	0.068	95.24	0.925	Retained
PQ2	0.091	85.71	0.905	0.078	90.48	0.917	Retained
PQ3	0.082	95.24	0.911	0.064	95.24	0.930	Retained
PQ4	0.080	95.24	0.916	0.077	95.24	0.921	Retained
SMM1	0.103	95.24	0.868	0.103	95.24	0.868	Retained
SMM2	0.057	100.00	0.933	0.059	95.24	0.935	Retained
SMM3	0.081	90.48	0.903	0.081	90.48	0.913	Retained
SMM4	0.109	95.24	0.878	0.052	95.24	0.904	Retained
IMG1	0.082	90.48	0.908	0.111	95.24	0.860	Retained
IMG2	0.064	95.24	0.930	0.075	90.48	0.922	Retained
IMG3	0.119	100.00	0.876	0.101	85.71	0.900	Retained
IMG4	0.068	95.24	0.925	0.075	90.48	0.922	Retained
IMG5	0.112	80.95	0.892	0.123	76.19	0.884	Retained
AW1	0.068	95.24	0.925	0.071	95.24	0.921	Retained
AW2	0.081	90.48	0.903	0.057	100.00	0.933	Retained
AW3	0.087	95.24	0.884	0.073	95.24	0.911	Retained
AW4	0.082	95.24	0.911	0.072	95.24	0.916	Retained
AW5	0.100	85.71	0.886	0.073	95.24	0.911	Retained
AW6	0.113	90.48	0.881	0.078	90.48	0.917	Retained
eWOM1	0.081	100.00	0.081	0.072	95.24	0.916	Retained
eWOM2	0.068	95.24	95.24	0.090	85.71	0.895	Retained
eWOM3	0.081	95.24	95.24	0.071	95.24	0.921	Retained
eWOM4	0.082	90.48	90.48	0.072	95.24	0.925	Retained
LOY1	0.047	100.00	0.943	0.068	95.24	0.925	Retained
LOY2	0.071	95.24	0.921	0.068	95.24	0.925	Retained
LOY3	0.100	80.95	0.892	0.053	100.00	0.938	Retained
LOY4	0.109	95.24	0.878	0.116	100.00	0.871	Retained
LOY5	0.072	95.24	0.916	0.061	100.00	0.929	Retained
LOY6	0.128	95.24	0.844	0.082	90.48	0.908	Retained
CS1	0.081	90.48	0.913	0.107	100.00	0.879	Retained
CS2	0.118	95.24	0.870	0.100	80.95	0.892	Retained
CS3	0.090	85.71	0.895	0.040	100.00	0.948	Retained
CS4	0.088	100.00	0.873	0.083	100.00	0.868	Retained
CS5	0.057	100.00	0.933	0.072	95.24	0.906	Retained
RI1	0.083	95.24	0.906	0.057	100.00	0.933	Retained
RI2	0.047	100.00	0.943	0.100	80.95	0.879	Retained
RI3	0.080	95.24	0.916	0.064	95.24	0.930	Retained
RI4	0.064	100.00	0.919	0.072	95.24	0.906	Retained

Note: Items were retained when $d \leq 0.20$, expert consensus was $\geq$75%, and the defuzzification score $A \geq 0.50$.

4.2. Respondent Characteristics and Preliminary Data Screening

A total of 808 questionnaire responses were initially obtained. After applying the predefined eligibility criteria, 72 responses were excluded because the respondents did not satisfy the screening requirements, resulting in a final analytical sample of 736 valid responses. No missing values were observed in the final dataset because completion of the required questionnaire items was mandatory prior to submission.

The distributional properties of the observed variables were examined before conducting CFA and SEM. Skewness values ranged from −0.671 to 0.013, while kurtosis values ranged from −0.371 to 0.601, indicating no substantial departure from univariate normality. Multivariate normality, however, was not supported, with a multivariate kurtosis value of 343.796 and a critical ratio of 84.581. Accordingly, bootstrap resampling with 5000 samples was employed in subsequent analyses to provide more robust statistical inference. Potential multivariate outliers were also screened using Mahalanobis distance at $p < 0.001$. Cases identified as statistically extreme were not removed solely on the basis of Mahalanobis distance.

The demographic characteristics of the 736 respondents are summarized in Table 3.

Table 3. Respondent Characteristics (Source: Author).

Demographic Characteristic	Category	Frequency (*n*)	Percentage (%)
Region in Thailand	Central	461	62.6
	Northeastern	90	12.2
	Northern	64	8.7
	Southern	57	7.7
	Eastern	58	7.9
	Western	6	0.8
Gender	Male	130	17.7
	Female	587	79.8
	Unspecified	19	2.6
Age group	18–25 years	187	25.4
	26–35 years	160	21.7
	36–45 years	132	17.9
	46–55 years	118	16.0
	56 years and above	139	18.9
Marital status	Single	394	53.5
	Married	284	38.6
	Widowed/Divorced	58	7.9
Education level	Below bachelor's degree	259	35.2
	Bachelor's degree	377	51.2
	Master's degree	90	12.2
	Doctoral degree	10	1.4
Occupation	Student	154	20.9
	Government officer/ State enterprise employee	339	46.1
	Private company employee	73	9.9
	Business owner	45	6.1
	Freelancer/Self-employed	61	8.3
	Other	64	8.7
Monthly income	Less than 18,000 THB	188	25.5
	18,000–30,000 THB	185	25.1
	30,000–50,000 THB	199	27.0
	More than 50,000 THB	164	22.3

Note: $n = 736$. Percentages were calculated based on the final analytical sample.

As shown in Table 3, the sample was concentrated in the Central region at 62.6%, and government officers or state-enterprise employees accounted for 46.1% of respondents. Given the use of convenience sampling without regional or occupational quotas, these distributions should be considered when interpreting the representativeness and generalizability of the findings.

4.3. Measurement Model Assessment

The measurement model was evaluated using Confirmatory Factor Analysis (CFA) prior to the assessment of the structural relationships [30,31]. The overall measurement model demonstrated an acceptable fit to the observed data, as indicated by the combination of absolute, incremental, and residual-based fit indices. The χ^2/df ratio was below the recommended upper threshold, while CFI, IFI, TLI, and NFI exceeded the commonly accepted reference value. RMSEA and RMR were also within acceptable ranges. Taken together, these indices supported the adequacy of the overall measurement model. The corresponding goodness-of-fit statistics are presented in Table 4.

Table 4. Goodness-of-Fit Indices of the Overall Measurement Model (Source: Author).

Fit Index	Recommended Criterion	Obtained Value	Interpretation
χ^2/df	<5.00	2.761	Acceptable
GFI	≥0.90	0.879	Slightly below conventional criterion
AGFI	≥0.90	0.854	Slightly below conventional criterion
NFI	≥0.90	0.940	Acceptable
IFI	≥0.90	0.961	Acceptable
TLI	≥0.90	0.955	Acceptable
CFI	≥0.90	0.961	Acceptable
RMSEA	≤0.06	0.049	Acceptable
RMR	Lower values indicate better fit	0.064	Acceptable residual level

Note: Model fit was evaluated from the overall pattern of fit indices rather than from any single criterion.

The measurement properties of each construct were subsequently examined through construct-specific CFA [30,31]. The individual measurement models for Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, Loyalty, Consumer Satisfaction, and Repurchase Intention through Online Platforms demonstrated satisfactory fit across the reported indices. The construct-level results provide additional evidence that the observed indicators adequately represented their respective latent constructs. Detailed CFA fit indices for the individual constructs are reported in Table 5.

Table 5. CFA Model Fit Indices for Individual Constructs (Source: Author).

Fit Index	Recommended Criterion	PQ	SMM	IMG	AW	eWOM	LOY	CS	RI
χ^2/df	≤5.00	3.858	0.076	0.913	2.131	0.811	1.766	1.232	2.231
GFI	≥0.90	0.997	0.999	0.999	0.992	0.999	0.996	0.999	0.998
AGFI	≥0.90	0.974	0.999	0.993	0.980	0.994	0.983	0.990	0.985
CFI	≥0.90	0.999	1.000	1.000	0.997	1.000	0.996	1.000	0.998
IFI	≥0.90	0.999	1.001	1.000	0.997	1.000	0.999	1.000	1.000
TLI	≥0.90	0.991	1.004	1.000	0.995	1.000	0.997	0.999	0.998
NFI	≥0.90	0.998	1.000	0.999	0.995	1.000	0.998	0.999	0.999
RMSEA	≤0.08	0.062	0.000	0.000	0.039	0.000	0.032	0.018	0.041
Result		Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable

Note: Construct-level model fit was evaluated based on the collective pattern of fit indices.

Reliability and convergent validity were then assessed using standardized factor loadings, composite reliability (CR), and average variance extracted (AVE). All retained indicators exhibited satisfactory standardized loadings, while the CR and AVE values for

all constructs exceeded the commonly recommended thresholds, supporting both internal consistency and convergent validity. The reliability and convergent-validity results are summarized in Table 6.

Table 6. Reliability and Convergent Validity of the Measurement Model (Source: Author).

Construct	Item	Standardized Loading	CR	AVE
Product Quality (PQ)	PQ1	0.820	0.911	0.718
	PQ2	0.874		
	PQ3	0.874		
	PQ4	0.820		
Social Media Marketing (SMM)	SMM1	0.756	0.865	0.615
	SMM2	0.796		
	SMM3	0.810		
	SMM4	0.775		
Image (IMG)	IMG1	0.813	0.905	0.656
	IMG2	0.856		
	IMG3	0.776		
	IMG4	0.789		
	IMG5	0.812		
Awareness (AW)	AW1	0.822	0.930	0.690
	AW2	0.851		
	AW3	0.855		
	AW4	0.843		
	AW5	0.809		
	AW6	0.802		
Loyalty (LOY)	LOY1	0.797	0.940	0.724
	LOY2	0.858		
	LOY3	0.884		
	LOY4	0.891		
	LOY5	0.862		
	LOY6	0.809		
Consumer Satisfaction (CS)	CS1	0.786	0.920	0.697
	CS2	0.828		
	CS3	0.792		
	CS4	0.884		
	CS5	0.879		
Electronic Word-of-Mouth (eWOM)	eWOM1	0.740	0.903	0.701
	eWOM2	0.825		
	eWOM3	0.875		
	eWOM4	0.900		
Repurchase Intention through Online Platforms (RI)	RI1	0.929	0.960	0.858
	RI2	0.922		
	RI3	0.953		
	RI4	0.900		

Note: CR = composite reliability; AVE = average variance extracted.

Discriminant validity was further examined using the heterotrait–monotrait ratio of correlations (HTMT) [32]. The observed HTMT ratios ranged from 0.625 to 0.899. Although several construct pairs exceeded the more conservative reference value of 0.85, all HTMT values remained below 0.90. In addition, the 95% bias-corrected bootstrap confidence intervals based on 5000 resamples did not include 1.00 for any construct pair [32]. Collectively, these results provided support for discriminant validity among the eight constructs. The complete HTMT results and corresponding confidence intervals are presented in Table 7.

Table 7. Discriminant Validity Based on HTMT Ratios and 95% Bootstrap Confidence Intervals (Source: Author).

Construct Pair	HTMT	95% BC CI Lower	95% BC CI Upper
PQ—SMM	0.844	0.808	0.876
PQ—IMG	0.745	0.698	0.788
PQ—AW	0.675	0.625	0.725
PQ—eWOM	0.663	0.610	0.711
PQ—LOY	0.676	0.626	0.722
PQ—CS	0.647	0.592	0.699
PQ—RI	0.625	0.569	0.677
SMM—IMG	0.899	0.867	0.926
SMM—AW	0.805	0.758	0.848
SMM—eWOM	0.713	0.660	0.762
SMM—LOY	0.706	0.659	0.751
SMM—CS	0.822	0.781	0.860
SMM—RI	0.731	0.683	0.775
IMG—AW	0.884	0.855	0.911
IMG—eWOM	0.759	0.711	0.803
IMG—LOY	0.712	0.666	0.755
IMG–CS	0.790	0.748	0.828
IMG—RI	0.702	0.655	0.746
AW—eWOM	0.821	0.711	0.864
AW—LOY	0.791	0.751	0.828
AW—CS	0.818	0.779	0.852
AW—RI	0.777	0.738	0.814
eWOM—LOY	0.850	0.804	0.891
eWOM—CS	0.735	0.678	0.785
eWOM—RI	0.767	0.712	0.816
LOY—CS	0.798	0.751	0.839
LOY—RI	0.862	0.832	0.889
CS—RI	0.857	0.824	0.885

Note: HTMT = heterotrait–monotrait ratio of correlations; BC CI = bias-corrected confidence interval based on 5000 bootstrap resamples. None of the 95% confidence intervals included 1.

Potential common-method variance was assessed using Harman's single-factor test, a single-factor CFA, and a common latent factor model [34]. Harman's single-factor test indicated that the first unrotated factor accounted for 56.895% of the total variance, exceeding the conventional 50% reference value and therefore suggesting that common-method variance could not be ruled out. The single-factor CFA demonstrated poor model fit, with χ^2 (666) = 8459.428, χ^2/df = 12.702, GFI = 0.512, AGFI =0.457, CFI = 0.715, IFI = 0.715, TLI = 0.699, NFI = 0.698, RMSEA = 0.126, and RMR =0.291. In contrast, the common latent factor model showed improved fit, with χ^2/df = 2.409, CFI = 0.968, TLI = 0.964, IFI = 0.969, NFI = 0.947, RMSEA = 0.044, GFI = 0.898, and AGFI = 0.876. Taken together, these diagnostics indicate that potential method variance may be present and should therefore be considered when interpreting the structural results.

4.4. Structural Model and Hypothesis Testing

Following validation of the measurement model, Structural Equation Modeling (SEM) was employed to examine the hypothesized relationships among the latent constructs [30,31]. The structural model demonstrated an acceptable overall fit to the observed data. The $x^2/\ df$ ratio was within the recommended threshold, while CFI, IFI, TLI, and NFI exceeded the conventional reference value of 0.90. RMSEA and SRMR were also within acceptable ranges. Although GFI and AGFI were below the conventional 0.90 reference

value, the overall pattern of fit indices supported an acceptable structural model. The complete model-fit statistics are presented in Table 8.

Table 8. Model Fit Indices for the Structural Model (Source: Author).

Fit Index	Recommended Criterion	Obtained Value	Interpretation
χ^2/df	<5.00	3.251	Acceptable
GFI	≥0.90	0.859	Slightly below conventional criterion
AGFI	≥0.90	0.834	Below conventional criterion
CFI	≥0.90	0.948	Acceptable
IFI	≥0.90	0.948	Acceptable
TLI	≥0.90	0.942	Acceptable
NFI	≥0.90	0.927	Acceptable
RMSEA	≤0.08	0.055	Acceptable
SRMR	≤0.08	0.052	Acceptable

Note: Model fit was evaluated from the overall pattern of fit indices rather than from any single criterion.

The estimated structural model is illustrated in Figure 3, which presents the standardized path coefficients among the latent constructs together with the explained variance (R^2) of the endogenous constructs. The model shows the hypothesized relationships linking Product Quality, Social Media Marketing, Image, Awareness, Consumer Satisfaction, electronic word-of-mouth, and Loyalty with Repurchase Intention through Online Platforms.

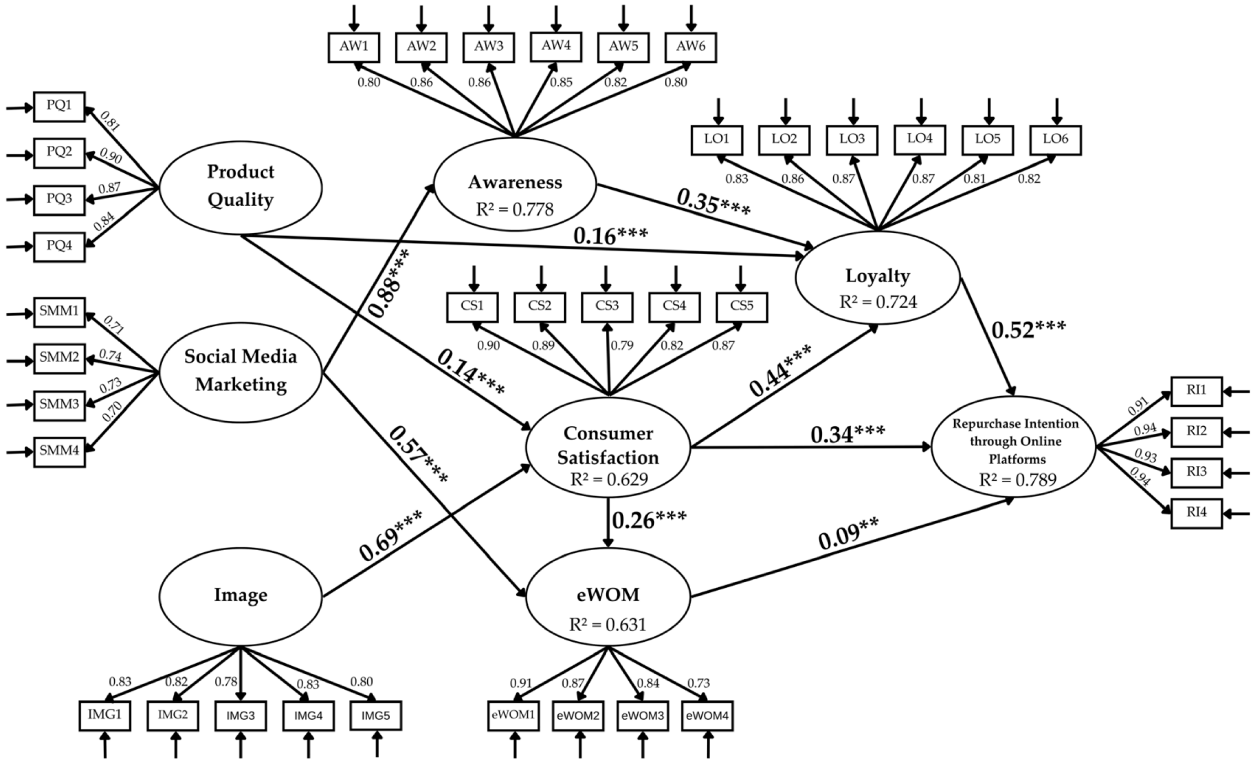


Figure 3. Structural model results (Source: Author). Note: Standardized estimates are reported. R^2 denotes the explained variance of the endogenous constructs. *** $p < 0.001$; ** $p < 0.01$.

The structural-path results indicated that all 11 hypothesized relationships were statistically significant and supported the proposed hypotheses. Social Media Marketing was positively associated with both Awareness and electronic word-of-mouth, while Image was positively associated with Consumer Satisfaction. Product Quality was positively

associated with Loyalty and Consumer Satisfaction. Awareness was positively associated with Loyalty, whereas Consumer Satisfaction was positively associated with Loyalty, electronic word-of-mouth, and Repurchase Intention through Online Platforms. Loyalty and electronic word-of-mouth were also positively associated with Repurchase Intention through Online Platforms, although the association between electronic word-of-mouth and Repurchase Intention through Online Platforms was comparatively small. The complete standardized coefficients, standard errors, critical ratios, significance levels, and hypothesis-testing results are reported in Table 9.

Table 9. Structural Path Coefficients and Hypothesis Testing Results (Source: Author).

Hypothesis	Path	β	S.E.	C.R.	*p*-Value	Result
H1	PQ → LOY	0.160	0.049	4.206	<0.001	Supported
H2	PQ → CS	0.140	0.051	3.531	<0.001	Supported
H3	SMM → AW	0.880	0.053	19.502	<0.001	Supported
H4	SMM → eWOM	0.570	0.079	11.671	<0.001	Supported
H5	IMG → CS	0.690	0.057	15.404	<0.001	Supported
H6	AW → LOY	0.350	0.052	8.191	<0.001	Supported
H7	LOY → RI	0.520	0.038	13.415	<0.001	Supported
H8	CS → LOY	0.440	0.038	11.990	<0.001	Supported
H9	CS → eWOM	0.260	0.049	6.061	<0.001	Supported
H10	CS → RI	0.340	0.039	8.871	<0.001	Supported
H11	eWOM → RI	0.090	0.026	3.048	0.002	Supported

Note: β = standardized path coefficient; S.E. = standard error; C.R. = critical ratio; RI = Repurchase Intention through Online Platforms.

Given the cross-sectional nature of the data, these findings should be interpreted as statistically significant associations that are consistent with the proposed theoretical framework rather than as definitive evidence of causal effects.

4.5. Indirect Effects

The structural model also indicated indirect associations with Repurchase Intention through Online Platforms through the intervening constructs specified in the proposed framework. Positive standardized indirect effects were observed for Product Quality, Social Media Marketing, Image, Awareness, and Consumer Satisfaction. These indirect patterns were consistent with the corresponding statistically significant component paths in the structural model, suggesting that the relationships with Repurchase Intention through Online Platforms may operate through interconnected mechanisms rather than through direct associations alone.

Bootstrap estimation with 5000 resamples was undertaken to quantify uncertainty surrounding these indirect effects. The bootstrap procedure, however, produced an inadmissible solution associated with the residual covariance structure among the Consumer Satisfaction indicators. Because confidence intervals derived from an inadmissible solution cannot be treated as reliable inferential evidence, they were not used to establish statistical mediation. This conservative treatment is consistent with methodological recommendations that emphasize confidence intervals for indirect effects, particularly resampling-based intervals, when formal mediation inference is intended [36]. Accordingly, the observed indirect effects are reported as descriptive evidence of theoretically consistent indirect pathways, while formal mediation is not claimed.

4.6. fsQCA Results

Fuzzy-set Qualitative Comparative Analysis (fsQCA) was conducted to complement the net-effect findings from SEM by examining alternative combinations of antecedent

conditions associated with high Repurchase Intention through Online Platforms. Seven conditions were included in the configurational analysis: Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction. Prior to the truth-table analysis, the construct scores were calibrated into fuzzy-set membership scores ranging from 0 to 1 using the direct calibration approach.

4.6.1. Necessary-Condition Analysis

Necessary-condition analysis was conducted to examine whether any single condition, either its presence or its absence, was indispensable for achieving high Repurchase Intention through Online Platforms [12]. Although none of the conditions reached the conventional necessity consistency threshold of 0.90 [12,35], several conditions still exhibited comparatively high consistency values. Loyalty showed the highest necessity consistency at 0.841, followed by Awareness, Consumer Satisfaction, and electronic word-of-mouth. This pattern indicates that no single condition met the criterion for necessity in relation to high Repurchase Intention through Online Platforms, thereby providing a basis for examining combinations of conditions in the subsequent sufficiency analysis. The complete necessity-analysis results are presented in Table 10.

Table 10. Necessary-Condition Analysis for High Repurchase Intention through Online Platforms (Source: Author).

Condition	Consistency	Coverage
PQ	0.742	0.871
~PQ	0.563	0.587
SMM	0.809	0.840
~SMM	0.479	0.563
IMG	0.791	0.854
~IMG	0.501	0.565
AW	0.834	0.866
~AW	0.480	0.565
eWOM	0.816	0.879
~eWOM	0.508	0.574
LOY	0.841	0.907
~LOY	0.494	0.558
CS	0.824	0.893
~CS	0.480	0.540

Note: ~ denotes the absence of a condition. A condition is considered necessary when consistency $\geq$0.900.

4.6.2. Truth-Table and Configurational Analysis

A truth-table analysis was conducted to identify combinations of antecedent conditions associated with high Repurchase Intention through Online Platforms [12]. The analysis incorporated Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction as the seven conditions. Based on the 736 valid responses, a minimum frequency threshold of seven cases was applied, together with a raw consistency threshold of 0.964 and a PRI consistency threshold of 0.70. The resulting intermediate solution identified four sufficient configurations associated with high Repurchase Intention through Online Platforms. The complete configurational results are presented in Table 11.

Table 11. Sufficient Configurations Associated with High Repurchase Intention through Online Platforms (Source: Author).

Condition	Solutions			
	S1	**S2**	**S3**	**S4**
Product quality	•			•
Social media marketing	•	•		•
Image	●	●	●	•
Awareness	•	•	●	●
Electronic word-of-mouth		•	•	•
Loyalty			●	●
Consumer satisfaction	●	●	●	
Raw coverage	0.577	0.605	0.615	0.558
Unique coverage	0.027	0.009	0.033	0.023
Consistency	0.969	0.969	0.976	0.977
Solution coverage	0.688			
Solution consistency	0.951			

Notes: Large filled circles indicate core conditions, whereas small filled circles indicate peripheral conditions. Filled circles indicate the presence of a condition in the corresponding configuration. An empty cell indicates that the condition is not part of that configuration. Condition absence did not occur in any of the four retained solutions.

The four configurations yielded an overall solution consistency of 0.951 and a solution coverage of 0.688. These values indicate that the identified configurations exhibited a high degree of consistency with the outcome and, collectively, covered a substantial proportion of membership in high Repurchase Intention through Online Platforms.

Configuration S1 comprised Product Quality, Social Media Marketing, Image, Awareness, and Consumer Satisfaction, with a consistency of 0.969, raw coverage of 0.577, and unique coverage of 0.027.

Configuration S2 consisted of Social Media Marketing, Image, Awareness, electronic word-of-mouth, and Consumer Satisfaction, with a consistency of 0.969, raw coverage of 0.605, and unique coverage of 0.009.

Configuration S3 combined Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction, yielding a consistency of 0.976, the highest raw coverage among the four configurations at 0.615, and unique coverage of 0.033.

Configuration S4 comprised Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, and Loyalty and exhibited the highest consistency among the four configurations at 0.977, with raw coverage of 0.558 and unique coverage of 0.023.

Taken together, the results reported in Table 11 demonstrate equifinality, whereby different combinations of conditions can be sufficient for the same outcome [12]. Rather than identifying a single universal configuration associated with high Repurchase Intention through Online Platforms, the analysis revealed multiple alternative configurational pathways. This extends the understanding derived from the individual relationships examined through SEM by highlighting how multiple conditions may operate jointly. Because the reproducibility analysis identified alternative equally parsimonious reductions, the distinction between core and peripheral conditions should be interpreted cautiously rather than regarded as uniquely determined.

4.6.3. Sensitivity and Robustness Analysis

Sensitivity analyses were conducted to assess the stability of the configurational results under alternative analytical specifications. The frequency, raw consistency, and Proportional Reduction in Inconsistency (PRI) consistency thresholds were varied individually, and additional checks were performed using alternative calibration anchors. The

four-configuration intermediate solution remained unchanged when the frequency threshold was increased from seven to eight cases, when the raw consistency threshold was adjusted to 0.950 or 0.960, and when the PRI consistency threshold was set at 0.60 or 0.75.

Changes in the solution structure emerged under more restrictive specifications. Raising the raw consistency threshold to 0.970 or the PRI consistency threshold to 0.80 or 0.85 resulted in more restrictive configurations, whereas lowering the frequency threshold to five cases produced additional pathways. Across the threshold-based sensitivity analyses, however, the configuration combining Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction remained present, indicating that this configurational pattern was comparatively stable within the range of thresholds examined.

Calibration sensitivity analyses provided a more cautious picture. Alternative percentile anchors produced some changes in the number and composition of the identified configurations, although the overall pattern continued to indicate that high Repurchase Intention through Online Platforms could be associated with multiple combinations of conditions rather than a single universal pathway. Accordingly, the findings demonstrate partial robustness rather than complete invariance across all analytical specifications. The principal configurational pattern was relatively stable under several threshold adjustments, while individual pathways were sensitive to more stringent thresholds and alternative calibration choices.

5. Discussion

The empirical results indicate that Repurchase Intention through Online Platforms is associated with both individual construct relationships and distinct combinations of conditions. SEM identified statistically significant associations among the proposed constructs, whereas fsQCA revealed four sufficient configurations associated with high repurchase intention, with no individual condition meeting the conventional necessity threshold. Similar evidence from digital-commerce research suggests that relationship-based and configurational analyses can reveal different but related aspects of complex consumer outcomes [8,12–14]. In the present context, the combined findings show that cosmetics repurchase intention among Thai online consumers cannot be characterized solely by the strength of individual associations, because different combinations of product-related, experiential, communication-related, and relational conditions may also be associated with the same outcome.

Loyalty and Consumer Satisfaction showed the most prominent direct associations with Repurchase Intention through Online Platforms, whereas electronic word-of-mouth exhibited a statistically significant but comparatively smaller association. This pattern is broadly consistent with prior research indicating that satisfaction, perceived service or purchasing quality, and favorable prior experiences are important correlates of consumers' willingness to purchase again in online environments [16–18]. Consumer Satisfaction was also positively associated with Loyalty and electronic word-of-mouth, while Product Quality was positively associated with both Loyalty and Consumer Satisfaction. Image, defined in this study as online-store image, was positively associated with Consumer Satisfaction, and Social Media Marketing was strongly associated with Awareness and positively associated with electronic word-of-mouth. Taken together, these relationships suggest that repurchase intention is embedded within a broader network of product, experiential, communication, and relational evaluations rather than being associated with a single dominant factor.

The interpretation of these relationships should remain consistent with the study context. Repurchase Intention through Online Platforms refers to consumers' intention to continue purchasing cosmetics through online platforms and does not necessarily imply

repurchasing the same product or brand. Similarly, Loyalty primarily reflects continued preference for the online purchasing channel rather than conventional brand loyalty. This distinction clarifies the object of evaluation and positions the findings within a platform-mediated purchasing context. Because the data are cross-sectional, the SEM results should also be interpreted as statistical associations rather than definitive evidence of temporal or causal ordering.

The fsQCA findings extend the SEM results by demonstrating equifinality. No individual condition met the conventional necessity threshold, yet four sufficient configurations were associated with high Repurchase Intention through Online Platforms. These configurations combined Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction in different ways. This finding is consistent with the configurational logic of fsQCA, whereby the same outcome may be associated with multiple alternative combinations of conditions [8,12]. Thus, consumers may exhibit similarly high repurchase intention through different combinations of favorable conditions. This configurational perspective also helps explain why a construct with a relatively modest individual association in SEM may still contribute meaningfully when combined with other conditions, while a construct with a comparatively stronger SEM relationship need not be individually necessary for the outcome.

Interpreting the two analyses together provides information that would not be obtained from either result set alone. SEM indicates the average associations among the constructs specified in the structural model, whereas fsQCA shows how these conditions may be combined in different sufficient configurations [8,12–14]. In the cosmetics context examined here, this distinction is important because a construct with a comparatively modest SEM association may still appear as part of a configuration linked to high repurchase intention, while a construct with a stronger individual association is not necessarily required in every configuration. The resulting interpretation therefore emphasizes heterogeneity in the ways through which high online cosmetics repurchase intention may be associated with the proposed conditions.

The sensitivity analyses further indicate that the configurational findings demonstrate partial rather than absolute robustness. The four-pathway intermediate solution remained unchanged under several alternative threshold specifications, although stricter thresholds and alternative calibration anchors produced some variation in solution structure. Accordingly, the existence of multiple configurational pathways appears reasonably stable, while individual pathway interpretations should be treated with appropriate caution. Likewise, because alternative equally parsimonious reductions were identified, core and peripheral condition classifications should not be regarded as uniquely determined. Taken together, the SEM and fsQCA findings provide a more nuanced account of Repurchase Intention through Online Platforms while remaining consistent with the methodological limitations of the study.

6. Conclusions, Implications, Limitations, and Future Research

6.1. Conclusions

Repurchase Intention through Online Platforms in the cosmetics context was examined by considering both the associations among individual constructs and the ways in which these conditions may combine. SEM showed statistically significant associations among the proposed constructs, with Loyalty and Consumer Satisfaction exhibiting the strongest direct associations with Repurchase Intention through Online Platforms and electronic word-of-mouth showing a smaller but significant association. The fsQCA results identified four sufficient configurations associated with high repurchase intention, while no individual condition met the conventional necessity criterion. These findings indicate that

continued cosmetics purchasing through online platforms may be associated with more than one pattern of product-related, experiential, communication-related, and relational conditions. This interpretation is consistent with prior research emphasizing the value of examining digital consumer outcomes through both relationship-based and configurational perspectives [8,12–14].

6.2. Theoretical Implications

From a theoretical perspective, the results show that the roles of Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction differ depending on whether they are considered as individual associations or as components of broader configurations. The SEM findings identify the relative strength of associations within the proposed structural model, whereas the fsQCA findings show that high Repurchase Intention through Online Platforms can be associated with several distinct combinations of these conditions [8,12–14]. This distinction adds to the theoretical explanation of online cosmetics repurchasing by indicating that constructs with different levels of individual association may still contribute to the same outcome through different configurations. The findings further clarify that Repurchase Intention through Online Platforms concerns continued cosmetics purchasing through online channels rather than necessarily the repurchase of the same product or brand, while Loyalty represents continuity in channel preference rather than conventional brand loyalty.

6.3. Practical Implications

The findings offer practical implications for online cosmetics retailers seeking to strengthen consumers' intention to continue purchasing through digital platforms. Rather than relying on a single marketing tactic, retailers should consider the customer experience as an interconnected system in which Consumer Satisfaction and Loyalty operate alongside Product Quality, online-store Image, Social Media Marketing, Awareness, and electronic word-of-mouth. The SEM findings indicate that Consumer Satisfaction and Loyalty are particularly relevant to Repurchase Intention through Online Platforms, while the relationships among the remaining constructs suggest that product evaluation, online-store perceptions, marketing communication, consumer recognition, and online communication should not be managed as entirely separate activities.

The configurational findings further indicate that there is no single universal pathway associated with high Repurchase Intention through Online Platforms. The four sufficient configurations identified in the study show that high repurchase intention can be associated with different combinations of Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction. For online cosmetics retailers, this implies that retention strategies need not rely on the simultaneous maximization of every condition. Instead, firms may develop coordinated combinations of product, communication, store-image, satisfaction, and relationship initiatives that correspond to different strategic priorities and available resources.

More specifically, the configurational results suggest several viable strategic patterns. One pathway combines Product Quality, Social Media Marketing, Image, Awareness, and Consumer Satisfaction, while another combines Social Media Marketing, Image, Awareness, electronic word-of-mouth, and Consumer Satisfaction. A third pathway emphasizes Image, Awareness, electronic word-of-mouth, Loyalty, and Consumer Satisfaction, whereas another combines Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, and Loyalty. These alternative pathways illustrate that comparable levels of high Repurchase Intention through Online Platforms may be associated with different combinations of favorable conditions rather than one standardized retention formula.

Ultimately, the study provides online cosmetics retailers with a more flexible basis for customer-retention decision making. Instead of asking which single factor is most important, retailers can focus on coordinating product quality, customer experience, online-store image, Social Media Marketing, awareness-building, electronic word-of-mouth, satisfaction, and loyalty in combinations that reflect their strategic context. Such an approach may support more targeted resource allocation and a more integrated management of the online purchasing experience.

6.4. Limitations and Future Research

Several limitations should be considered when interpreting the findings. First, convenience sampling was employed, and the sample was concentrated in the Central region and among government or state-enterprise employees. Accordingly, the findings should not be interpreted as nationally representative of all Thai online cosmetics consumers. Future research may employ probability-based or quota-based sampling and include more geographically and occupationally diverse respondents to strengthen population coverage and external validity.

Second, the cross-sectional design limits conclusions regarding temporal ordering and causality. Although the structural relationships were statistically significant, they should be interpreted as associations rather than definitive causal effects. Future studies could adopt longitudinal or experimental designs to examine how these relationships evolve over time and to provide stronger evidence regarding temporal sequences.

Third, the study relied on self-reported data collected through a single survey instrument. The common-method assessments indicated that method variance could not be completely ruled out. Future research may therefore incorporate behavioral purchase records, platform-generated data, transaction histories, or multi-source measurements to reduce dependence on a single source of information.

Fourth, a measurement limitation concerns the operationalization of Social Media Marketing. SMM1 ("I believe that online stores selling cosmetic products offer products that meet my needs") is broader in scope than the other SMM indicators and may be interpreted as reflecting product assortment or need fulfillment rather than social-media marketing activity specifically. Because this wording was used in the original questionnaire, it was not retrospectively modified. Future studies should therefore refine the measurement of Social Media Marketing by using indicators that refer more directly to specific social-media marketing activities, such as personalized content, interactive communication, consumer engagement, and promotional exposure.

Fifth, the current model focused on a defined set of product-related, marketing-related, experiential, and relational constructs. Future studies could extend the framework by examining additional factors that may shape online cosmetics repurchase decisions, such as social influence from online communities, influencer reviews and endorsements, perceived risk, risk acceptance, trust, platform credibility, price sensitivity, promotional intensity, and perceived authenticity. Including these factors may provide a more comprehensive explanation of how consumers evaluate online cosmetics purchases, particularly in environments where social-media content and influencer-generated information play an increasingly prominent role.

Finally, the fsQCA findings demonstrated partial rather than absolute robustness. Although the principal configurational pattern remained stable under several threshold specifications, stricter thresholds and alternative calibration anchors produced changes in some pathways. Alternative equally parsimonious reductions also limited the uniqueness of core and peripheral classifications. Future research should therefore replicate the configurational analysis using independent samples, alternative calibration strate-

gies, and different online retail contexts to assess the stability and generalizability of the identified pathways.

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Abbreviations

The following abbreviations are used in this manuscript:

FDM	Fuzzy Delphi Method
CFA	Confirmatory Factor Analysis
SEM	Structural Equation Modeling
fsQCA	Fuzzy-set Qualitative Comparative Analysis
PQ	Product Quality
SMM	Social Media Marketing
IMG	Image
AW	Awareness
eWOM	Electronic Word-of-Mouth
LOY	Loyalty
CS	Consumer Satisfaction
RI	Repurchase Intention through Online Platforms

Appendix A

To provide transparency regarding construct operationalization and measurement, the items used to assess the eight constructs in this study are reported in Table A1. The measurement instrument comprised 38 items covering Product Quality, Social Media Marketing, Image, Awareness, electronic word-of-mouth, Loyalty, Consumer Satisfaction, and Repurchase Intention through Online Platforms. All items were measured using a seven-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree.

The questionnaire was developed and administered in Thai. Measurement items were adapted from established scales in prior studies and subsequently evaluated through the Fuzzy Delphi Method to assess their appropriateness and applicability within the context of online cosmetics purchasing in Thailand. A pilot test with 30 eligible respondents was also conducted before the main data collection to assess the clarity and reliability of the instrument. The English wording presented in Table A1 was translated from the final Thai questionnaire for reporting purposes.

Table A1. Measurement Items.

Construct	Code	Measurement Item
Product Quality (PQ)	PQ1	I believe that cosmetic products sold on online platforms contain high-quality ingredients.
	PQ2	I believe that cosmetic products sold on online platforms are quality certified through safety testing.
	PQ3	I believe that cosmetic products sold on online platforms meet reliable standards.
	PQ4	I believe that cosmetic products sold on online platforms provide clearly noticeable results after use.
Social Media Marketing (SMM)	SMM1	I believe that online stores selling cosmetic products offer products that meet my needs.
	SMM2	I believe that the content provided by online stores selling cosmetic products is credible.
	SMM3	I believe that the content provided by online stores selling cosmetic products is consistently up to date.
	SMM4	I feel entertained when viewing content from online stores selling cosmetic products.
Image (IMG)	IMG1	I believe that online stores selling cosmetic products have logos that are easy to recognize.
	IMG2	I believe that online stores selling cosmetic products have a distinctive identity.
	IMG3	I believe that online stores selling cosmetic products have an image that is different from other stores.
	IMG4	I believe that online stores selling cosmetic products have a good reputation.
	IMG5	I believe that online stores selling cosmetic products are widely recognized.
Awareness (AW)	AW1	I can quickly recall the logo of the online cosmetic store from which I purchase.
	AW2	I can remember the online cosmetic store from which I purchase.
	AW3	I feel familiar with the reputation of the online cosmetic store from which I purchase.
	AW4	I can quickly recall the online cosmetic store from which I purchase.
	AW5	I can clearly recognize and distinguish the online cosmetic store from which I purchase from other similar stores
	AW6	I am more familiar with online stores selling cosmetic products than with offline stores.
Electronic Word-of-Mouth (eWOM)	eWOM1	I often recommend acquaintances to purchase cosmetic products on online platforms.
	eWOM2	I often share positive experiences of using cosmetic products purchased on online platforms.
	eWOM3	I often express positive opinions about cosmetic products on online platforms.
	eWOM4	I am willing to repost cosmetic products on online platforms from influencers.
Loyalty (LOY)	LOY1	I feel attached to purchasing cosmetic products on online platforms.
	LOY2	I always prefer to purchase cosmetic products on online platforms.
	LOY3	When I intend to buy cosmetic products, I always consider online platforms as my first choice.
	LOY4	I insist on purchasing cosmetic products on online platforms even when others recommend buying from physical stores.
	LOY5	I am willing to continue purchasing cosmetic products on online platforms even if I have occasionally been disappointed.
	LOY6	I consistently prefer purchasing cosmetics online, even though I cannot try the products in person.

Table A1. *Cont.*

Construct	Code	Measurement Item
Consumer Satisfaction (CS)	CS1	I am satisfied with how quickly I can find the cosmetic products I want when purchasing on online platforms.
	CS2	I am satisfied with the convenient and fast purchasing process for cosmetic products on online platforms.
	CS3	I am satisfied with the variety of payment channels available when purchasing cosmetic products on online platforms.
	CS4	I am satisfied with the fast delivery service when purchasing cosmetic products on online platforms.
	CS5	I am satisfied with the after-sales service when purchasing cosmetic products on online platforms.
Repurchase Intention through Online Platforms (RI)	RI1	I intend to purchase cosmetic products on online platforms again.
	RI2	I intend to regularly repurchase cosmetic products on online platforms.
	RI3	I intend to purchase cosmetic products on online platforms consistently.
	RI4	I intend to continue purchasing cosmetic products on online platforms.

Note: All items were measured using a seven-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree.

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