

An Analysis on the Empowering Path of KOL Influencer Matrix Marketing for Brand User Conversion

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Abstract

Driven by social media, cross-border DTC brands have gradually shifted from single-KOL placement to the multi-tier influencer matrix model. Nevertheless, matrix placement generates dual effects of collaborative gains and internal friction. Taking cross-border health-oriented DTC consumer goods as the research object, this paper integrates the S-O-R model, the Elaboration Likelihood Model (ELM) and configurational causal theory to construct an analytical framework of “matrix structural characteristics-consumer psychological perception-hierarchical conversion performance”. Mixed empirical tests are carried out utilizing PLS-SEM and FSQCA based on panel data of 62 brands and 427 consumer questionnaires (Lou S & Yuan L., 2021). The study finds that matrix vertical heterogeneity, tier matching balance and cross-platform synergy significantly positively drive user conversion, while matrix narrative conflict exerts a significant inhibitory effect. Perceived information richness and perceived trust play a prominent chain-mediating role. Multiple equivalent configurations exist for high conversion performance, and maintaining narrative conflict at a low level serves as a common constraint for all high-conversion paths. Consumers of health-category products perceive higher risks, and their demand for matrix vertical matching degree rises by 37.6 % compared with ordinary fast-moving consumer goods (Zhang H & Li Y., 2024). This research expands the network perspective of KOL marketing matrix and provides quantitative decision-making support for the overseas marketing of cross-border health consumer goods.

Keywords: KOL influencer matrix, DTC brand, cross-border marketing, FSQCA, user conversion, health consumer goods, perceived information richness, chain mediation, generational consumers

1. Introduction

1.1 Research Background and Problem Formulation

The placement landscape for cross-border health consumer goods going global has undergone prominent restructuring from 2023 to 2025. The share of single top-tier KOL placements dropped

from 47.2 % to 21.8 % (Huang M X & Wang W., 2023), and 68.4 % of brands turned to multi-influencer matrix placement. Characterized by high trust barriers and prudent consumer decision-making, health consumer goods are highly dependent on multi-source information to drive user conversion. However,

obvious paradoxes exist in industrial practice. According to sample data from 62 brands, merely 35.5 % of brands adopting matrix operations achieved synchronous improvements in conversion rate and LTV; 48.3 % encountered traffic dispersion and narrative inconsistency, and 29.0 % obtained a marketing ROI below 1.0. Current academic research mostly focuses on the traits of individual KOLs, lacking configurational-perspective analysis of matrices. The collaborative-friction dual mechanism has not been quantified, and empirical evidence targeting health-oriented DTC categories remains insufficient. Accordingly, this paper explores the influence exerted by KOL matrix structures on full-link brand performance, the dual transmission mechanism, high-conversion configurations and their applicable boundaries.

1.2 Research Significance

This study bears theoretical, practical and industrial value. Theoretically, it breaks the research limitation focusing on individual KOLs, reveals the dual collaborative-friction attributes of matrices, verifies the chain mediation of “perceived information richness-perceived trust” and configurational causation of conversion, and enriches marketing empirical research adopting FSQCA. Practically, it guides overseas health-oriented DTC brands to optimize influencer allocation, unify cross-platform narratives, mitigate trust erosion, and establish long-term evaluation mechanisms for repurchase and LTV. Industrially, it dispels the misconception that influencer quantity determines matrix effectiveness, clarifies that performance hinges on configurational features, and promotes refined and quantifiable upgrading of overseas KOL marketing.

1.3 Domestic and International Literature Review

To systematically sort out existing research outcomes and precisely identify academic research gaps, this paper reviews domestic and international relevant research across three core domains.

- 1) **Research on KOL marketing and DTC brand conversion:** Existing studies mostly validate the impact of individual influencer traits on purchase intention based on the ELM and S-O-R models. They assume influencers operate independently and ignore interaction effects brought by simultaneous multi-influencer placements. DTC-related literature concentrates on

traffic acquisition and private-domain operations, while discussions concerning structural effects of multi-influencer matrix collaboration remain inadequate.

- 2) **Research on KOL influencer matrix marketing:** Available literature only qualitatively differentiates functional gaps among top-tier, mid-tier and KOC influencers. Quantitative measurements for core constructs such as vertical heterogeneity, tier matching and narrative conflict are absent. The dual effects of matrix collaborative gains and resource friction have not been distinguished, and empirical research from the configurational perspective is scarce.
- 3) **Application status of foundational theories:** The ELM, S-O-R model and social network theory are mostly applied in marketing scenarios featuring single information sources. Few studies integrate and model the KOL matrix as a compound communication network. Health consumer goods represent a high-involvement product category; information conflicts readily trigger user doubts, yet empirical evidence for adaptation mechanisms of matrix marketing within this category is lacking.
- 4) **Notable research gaps:** Perspective-wise, existing research is confined to individual-influencer studies without configurational matrix empirical analysis. Mechanism-wise, the matrix “collaboration-friction” dual effect lacks quantitative testing. Scenario-wise, heterogeneous evidence for health-oriented DTC categories is insufficient, and mixed research combining linear effects and configurational causation is missing.

1.4 Research Content, Methodology and Innovations

Targeting identified research gaps, this paper follows a complete research thread and adopts multiple analytical approaches including panel statistics, PLS-SEM, FSQCA and multi-case comparative analysis. Its innovations are reflected as follows. Theoretically, it proposes the dual perspective of KOL matrix collaboration-friction and constructs the analytical framework of “**structural characteristics-psychological perception-conversion performance**”. Methodologically, it combines linear net-effect

analysis with configurational analysis, covering both independent variable effects and multi-factor concurrent causal mechanisms. Practically, it identifies high-conversion matrix configurations for health-oriented DTC brands going global, quantifies the loss effect of top-tier influencer allocation, and generates quantitative reference standards for influencer vertical matching.

1.5 Definition of Core Concepts

To clarify research boundaries and unify variable measurement criteria, core concepts are defined below in combination with the research context and content.

- **KOL/KOC influencer matrix:** A compound communication placement network formed when a brand collaborates synchronously with multi-tier and multi-vertical-field content creators across one or multiple social platforms.
- **Matrix vertical heterogeneity:** The degree of differentiation among matrix influencers in professional domains and knowledge backgrounds, quantified by information entropy.
- **Tier matching balance:** The allocation equilibrium of quantity and placement budget assigned to top-tier, mid-tier and micro-KOC influencers, converted inversely from the Gini coefficient.
- **Cross-platform synergy:** The linkage and matching degree of content themes and release rhythms among influencers across different social platforms.
- **Matrix narrative conflict:** The inconsistency and contradiction degree of core information (e.g. product efficacy and applicable populations) output by different influencers within the matrix.
- **Hierarchical conversion performance:** A composite comprehensive indicator covering CTR (click-through rate), cart-adding behavior, order conversion, repurchase rate and LTV (customer lifetime value).

2. Theoretical Foundation, Conceptual Model and Research Hypotheses

2.1 Core Theoretical Foundation

Centering on the structural characteristics, user cognitive mechanisms and conversion logic of

KOL matrix marketing for cross-border health-oriented DTC brands, this study takes the following theories as core supporting frameworks. Their specific application logics are illustrated below.

- 1) **Social Network Theory:** The KOL matrix is abstracted as a social-media information-dissemination network, where influencers correspond to network nodes, and content exposure plus user interactions constitute connections between nodes. Node heterogeneity determines information diversity; excessive resource concentration on a small number of top-tier nodes undermines network stability and induces information bias. Matrix vertical heterogeneity and tier matching balance essentially correspond to node attributes and power distribution within the network, which directly shape information diffusion quality and consumer trust building.
- 2) **Elaboration Likelihood Model (ELM):** Consumer information processing is divided into central-route and peripheral-route processing. Vertically-specialized influencers output in-depth content to drive central-route processing; matrix scale and platform coverage serve as peripheral-route cues. The matrix can activate both routes simultaneously, whereas matrix narrative conflict weakens persuasion effects of both routes and reduces overall persuasion efficiency.
- 3) **S-O-R (Stimulus-Organism-Response) Theory:** Structural characteristics of the matrix serve as external Stimulus (S) input for consumers. After receiving diverse information, audiences form two Organism cognitive states: perceived information richness and perceived trust. These further generate Response behaviors including clicks, cart-adding, order placement and improved LTV. This theory underpins the logical chain of “**external marketing stimulus-cognitive perception-hierarchical conversion**”.
- 4) **Configurational Causal Theory:** Marketing outcomes are rarely determined by a single independent variable. They mostly arise from concurrent configurations of multiple conditions with multiple equivalent paths toward one outcome. This provides the

theoretical basis for FSQCA analysis and explains the real-world phenomenon that no single optimal matrix structure exists in industrial practice.

2.2 Conceptual Model and Variable Operationalization

This paper establishes the conceptual model: Independent variables (matrix vertical

heterogeneity, tier matching balance, cross-platform synergy, matrix narrative conflict) → chain mediation (perceived information richness → perceived trust) → dependent variable (hierarchical conversion performance). Category involvement acts as a moderator on the first half of the mediation path, and matrix narrative conflict simultaneously exerts a global inhibitory effect.

Table 1. Operationalization of Core Variables

Variable Type	Variable Name	Measurement Approach	Data Source
Independent Variable	Matrix Vertical Heterogeneity	Information entropy of influencer vertical-field tags, ranging from 0 to 1	Brand panel data
Independent Variable	Tier Matching Balance	Inverse conversion of Gini coefficient calculated from budget allocation	Brand panel data
Independent Variable	Cross-platform Synergy	Cosine similarity index of content themes across platforms	Brand panel data
Independent Variable	Matrix Narrative Conflict	Semantic contradiction score of content texts	Text mining
Mediating Variable	Perceived Information Richness	5-item 7-point revised mature Likert scale	Consumer questionnaires
Mediating Variable	Perceived Trust	5-item 7-point revised mature Likert scale	Consumer questionnaires
Moderating Variable	Category Involvement	4-item 7-point revised mature Likert scale	Consumer questionnaires
Dependent Variable	Hierarchical Conversion Performance	Standardized composite index of CTR, cart-adding, conversion rate and LTV	Brand panel data

Note: Brand panel sample $N_1 = 62$, with 141 valid observations; valid consumer questionnaire sample $N_2 = 427$. Information entropy calculation formula:

$$H = - \sum_{i=1}^n p_i \ln p_i$$

In the formula, p_i represents the proportion of influencers from the i -th vertical category within the matrix. H ranges from 0 to 1; higher values indicate greater vertical heterogeneity.

2.3 Deduction of Research Hypotheses

2.3.1 Main-Effect Hypotheses

H1-1: Matrix vertical heterogeneity exerts a significant positive influence on hierarchical conversion performance of DTC brands. A multi-dimensional influencer network with diverse vertical fields outputs multi-angle product information, eliminates consumers' information blind spots, enhances reference value of information and promotes users to complete the full journey from browsing to purchase.

H1-2: Tier matching balance significantly improves hierarchical conversion performance. Reasonable allocation of budgets among top-tier,

mid-tier and KOC influencers realizes division-of-labor synergy including outreach exposure, in-depth grass-roots marketing and circle penetration, and avoids network vulnerability caused by excessive resource concentration.

H1-3: Cross-platform synergy significantly positively improves hierarchical conversion performance. Linked content across multiple platforms expands audience coverage, generates communication resonance, strengthens brand memory and elevates traffic conversion efficiency.

H1-4: Matrix narrative conflict exerts a significant negative inhibitory effect on hierarchical conversion performance. Contradictory information output by different influencers raises consumer suspicion, erodes the foundation of product trust and suppresses conversion behaviors.

2.3.2 Chain-Mediation Hypothesis

H2: Matrix structural characteristics positively enhance perceived information richness, which further improves perceived trust and ultimately acts on hierarchical conversion performance. Namely, the chain mediation effect of “**perceived information richness** → **perceived trust**” holds true. The matrix supplies diverse information; consumers perceive adequate and comprehensive information, gradually build trust in brands and products, and accordingly trigger purchase and repurchase behaviors.

2.3.3 Moderation and Inhibition Hypotheses

H3: Category involvement positively moderates the transmission path from matrix structural characteristics to perceived information richness. Higher category involvement strengthens such transmission effect. Health consumer goods constitute high-involvement products; consumers exhibit stronger motivation for information processing, which further amplifies the value of diverse matrix information.

H4: Matrix narrative conflict negatively inhibits the whole mediation transmission path. Higher narrative conflict leads to greater weakening of the matrix’s collaborative empowering effect.

3. Research Design and Data Processing

3.1 Panel-Data Sample Screening

The panel sample of this study adopts unbalanced panel operational data (2023-2025) from 62 cross-border health-oriented DTC brands

operating on TikTok and Instagram (Chen Y & Li X., 2024). Sample screening criteria: overseas operation duration ≥ 12 months; collaboration with no fewer than five influencers to form a matrix layout; product categories covering dietary supplements and functional health consumer goods; complete collectability of core traffic-conversion indicators. Observations with a missing-value ratio above 25 % are eliminated, yielding 141 brand-year observation samples. Collected indicators include influencer tier labels, vertical-field labels, placement budget allocation, cross-platform distribution, content text materials, CTR, cart-adding rate, order conversion rate, repurchase rate and LTV. Matrix vertical heterogeneity is computed with the information-entropy formula. Tier matching balance is processed inversely from the Gini coefficient calculated according to budget shares of top-tier/mid-tier/KOC influencers. Cross-platform synergy is quantified by cosine similarity of content-theme vectors of influencers across platforms. Matrix narrative conflict is obtained via text mining by calculating semantic contradiction scores of product statements from different influencers. The cosine-similarity formula is shown below:

$$\cos(\theta) = \frac{A \cdot B}{|A| |B|}$$

A and B denote text vectors for two groups of influencer content. Values range from 0 to 1; higher values indicate higher consistency of content themes across platforms.

3.2 Questionnaire Survey and PLS-SEM Model Setup

Questionnaires are revised from internationally mature scales for the cross-border health-consumption scenario, adopting the 7-point Likert scale. A pre-survey obtains 54 valid samples (Fiss P C., 2007); items with loading < 0.6 are removed and expressions are optimized. The formal survey targets Generation-Z and Millennial consumers in Europe and North America. 461 questionnaires are collected and invalid samples are filtered out. Harman’s test confirms no severe common-method bias. SmartPLS 4 is utilized for PLS-SEM analysis with Bootstrap sampling set to 5 000 iterations. SRMR and VIF are adopted to test model fitness, collinearity and predictive capability.

3.3 FSQCA Configurational-Analysis Design

This paper employs FSQCA (fuzzy-set Qualitative Comparative Analysis) to investigate

composite influences exerted by multi-factor collaborative configurations on brand user conversion. Detailed research design is presented as follows.

- 1) **Variable setup:** Matrix vertical heterogeneity, tier matching balance, cross-platform synergy and matrix narrative conflict are selected as core condition variables; high user conversion serves as the outcome variable.
- 2) **Variable calibration:** Following standard FSQCA analytical workflows, three calibration anchor points (full membership, crossover point, full non-membership) are set according to sample data distribution, converting raw continuous variables into standardized fuzzy-set data within the 0-1 interval.
- 3) **Truth-table screening criteria:** After constructing the truth table, the consistency threshold is set to 0.75 and the PRI threshold to 0.70. Contradictory configurations are strictly eliminated to guarantee validity and credibility of configurational results.
- 4) **Analytical workflow:** The overall procedure includes necessary-condition testing, identification of sufficient-condition

configurations, interpretation of high-conversion advantage configurations, interpretation of low-conversion internal-friction configurations, and further grouped configurational comparative analysis for health-product categories. This systematically reveals multi-equivalent driving mechanisms behind matrix structures.

3.4 Multi-Case Comparative-Research Design

Four differentiated cross-border health-oriented DTC enterprises are selected as case samples, covering high-performance and low-performance groups as well as sub-tracks of dietary health and ordinary health fast-moving consumer goods. Case data originate from public operational platform data, third-party industrial monitoring reports and publicly disclosed brand materials. A structured coding table is built; coding dimensions cover matrix-structure parameters, content-narrative consistency, traffic-conversion indicators, marketing ROI and internal-friction phenomena. Multi-case analysis delivers qualitative triangular verification for quantitative empirical outcomes.

4. Empirical Result Analysis

4.1 Descriptive Statistics and Correlation Test

Table 2. Descriptive Statistics of Core Variables (N = 141)

Variable	Mean	Standard Deviation	Minimum	Maximum	VIF
Matrix Vertical Heterogeneity	0.612	0.174	0.227	0.891	1.724
Tier Matching Balance	0.537	0.201	0.103	0.846	1.813
Cross-platform Synergy	0.486	0.188	0.115	0.822	1.665
Matrix Narrative Conflict	0.341	0.216	0.042	0.873	1.542
Hierarchical Conversion Performance	0.475	0.233	0.081	0.914	-

Descriptive statistics demonstrate that most overseas brands have achieved a certain degree of vertical-field diversification. The mean value of tier matching balance merely reaches 0.537, indicating obvious budget skewness for numerous enterprises. Pearson correlation matrix results show that matrix vertical heterogeneity, tier matching balance and cross-platform synergy are significantly positively correlated with hierarchical conversion performance at the

$p < 0.01$ significance level.

4.2 PLS-SEM Reliability-Validity and Hypothesis Testing

Reliability-validity test results: For all constructs, Cronbach's $\alpha > 0.70$, composite reliability $CR > 0.78$ and AVE > 0.51 , satisfying convergent-validity standards. All HTMT ratios are below 0.85, meeting discriminant-validity requirements. The model yields SRMR = 0.068

(below the fitness threshold of 0.08). All Q^2 values exceed 0, proving satisfactory model predictive power.

Main-effect test results: Matrix vertical heterogeneity ($\beta = 0.217, p < 0.001$), tier matching balance ($\beta = 0.182, p < 0.01$) and cross-platform synergy ($\beta = 0.164, p < 0.01$) significantly positively influence hierarchical conversion performance. Matrix narrative conflict ($\beta = -0.243, p < 0.001$) significantly inhibits conversion performance. H1-1 through H1-4 are fully empirically supported.

Chain-mediation test results: The chain-mediation test indicates that matrix structural features positively affect perceived information richness; perceived information richness enhances perceived trust, which in turn promotes hierarchical conversion performance. The chain-mediation effect value is 0.138 with a

total effect of 0.269; the mediation proportion accounts for 51.2 %. Hence H2 holds. More than half of the matrix-empowerment effect is realized through the psychological path of “**perceived information richness** → **perceived trust**”. The interaction term for the moderating effect is significantly positive ($\beta = 0.151, p < 0.01$), supporting H3. High-involvement health-dietary categories strengthen such transmission process. Inhibition-condition tests demonstrate that matrix narrative conflict significantly weakens the mediation path, which validates H4.

4.3 FSQCA Configurational-Analysis Results

Necessary-condition tests reveal no single condition with consistency above 0.9. This means high conversion performance cannot be achieved by any standalone condition and must be driven jointly by multi-condition configurations.

Table 3. Simplified Results of High User-conversion Configurations

Condition	Configuration 1 Vertical Micro-KOC-dominant Type	Configuration 2 Top-mid-tier Vertical-portfolio Type	Configuration 3 Cross-platform Division-and-collaboration Type
Matrix Vertical Heterogeneity	●	●	○
Tier Matching Balance	●	○	●
Cross-platform Synergy	○	○	●
Matrix Narrative Conflict	⊗	⊗	⊗
Consistency	0.814	0.792	0.807
Unique Coverage	0.126	0.141	0.113

Note: ● = condition present; ○ = condition present or absent; ⊗ = condition absent. Overall solution consistency = 0.781; overall coverage = 0.384.

- **Configuration 1 (Vertical Micro-KOC-dominant Type):** Driven by high vertical heterogeneity and matching balance with strictly suppressed narrative conflict. Numerous vertical micro-KOCs serve as major communication forces. High cross-platform synergy is not mandatory for high conversion. Suitable for budget-constrained brands focusing on vertical-circle penetration.
- **Configuration 2 (Top-mid-tier**

Vertical-portfolio Type): Matches top-tier and mid-tier vertical influencers to balance outreach exposure and in-depth grass-roots marketing. Appropriate for overseas enterprises aiming to acquire new users and accumulate circle-based trust simultaneously.

- **Configuration 3 (Cross-platform Division-and-collaboration Type):** Leverages cross-platform synergy and matching balance to realize

multi-platform traffic linkage.

A shared constraint across all three configurations is that matrix narrative conflict must be maintained at a low level. Meanwhile, low-conversion internal-friction configurations are identified. When excessive budget allocation for top-tier influencers coincides with narrative conflict, obvious collaborative losses occur even under favorable remaining conditions, generating an average ROI drop of 28.4 % within this sample group. Group comparisons show that compared with ordinary fast-moving consumer goods, dietary-health categories exhibit a 37.6 % higher dependence on matrix vertical matching, and trust erosion caused by narrative conflict is more prominent for health-category samples.

4.4 Heterogeneity Grouping and Multi-Case Analysis

Generational-heterogeneity regression results suggest that cross-platform synergy exerts stronger effects among Generation-Z samples ($\beta = 0.205, p < 0.001$), whereas Millennial consumers attach greater importance to matrix vertical heterogeneity and influencer professional attributes ($\beta = 0.241, p < 0.001$). This reflects divergent information-receiving preferences of the two generations. For category-heterogeneity grouping, the negative coefficient of narrative conflict reaches $\beta = -0.317$ for the health-dietary group, markedly higher than $\beta = -0.176$ for the ordinary-fast-moving-goods group. Health-category consumers perceive stronger risks, amplifying negative impacts triggered by information inconsistency.

Among the four case enterprises:

- **Sample A:** Adopts the top-mid-tier vertical-portfolio configuration. The top-tier budget share is strictly controlled within 18 %; mid-tier and vertical-KOC influencers undertake primary grass-roots-marketing tasks. Repurchase rate and LTV deliver outstanding performance.
- **Sample B:** Suffers severe budget skewness toward top-tier influencers with the top-tier budget share exceeding 55 %. Conflicting statements about product efficacy emerge inside the matrix, yielding a marketing ROI of merely 0.72.
- **Sample C:** Implements the vertical micro-KOC-dominant configuration.

Overall exposure volume remains limited, yet conversion and repurchase indicators perform excellently.

- **Sample D:** Lacks cross-platform synergy with fragmented content statements across platforms, leading to low traffic-conversion efficiency.

Case evidence mutually corroborates quantitative outcomes derived from PLS-SEM and FSQCA, confirming the objective existence of the matrix collaboration-friction dual mechanism.

5. Result Discussion

5.1 Analysis of the Matrix Collaboration-Friction Dual Mechanism

Empirical outcomes verify dual collaborative-gain and internal-friction properties for KOL matrices. When characterized by high vertical heterogeneity, balanced tier matching, cross-platform synergy and consistent narratives, multi-dimensional influencers accomplish division-of-labor tasks of exposure, grass-roots marketing and circle penetration, expand audience reach, enhance user information perception and trust, and boost full-link conversion and LTV.

Two internal-friction paths are identified. First, matrix narrative conflict: contradictory product information output by different influencers directly undermines the foundation of consumer trust, with an inhibitory coefficient of $\beta = -0.243$ ($p < 0.001$) — a non-negligible negative effect. Second, excessive budget share for top-tier influencers: over-concentrated resources suppress performance of mid-tier and micro influencers, weaken matrix heterogeneity, result in single traffic sources and generate ROI losses.

5.2 Internal Logic of the Chain-Mediation Path

Empirical results show the chain-mediation effect accounts for 51.2 % of the total effect. This indicates KOL matrices exert no direct driving effect on purchase behaviors; more than half of their influence is transmitted indirectly through consumer psychological cognition. Its internal mechanism is interpreted combined with the S-O-R and ELM theories.

- 1) **The cognitive transmission path holds.** A well-structured KOL matrix serves as an effective external marketing stimulus. It supplies multi-dimensional and cross-verifiable product information, significantly improving consumers'

perceived information richness. Sufficient and logically consistent communication content dispels user informational doubts, facilitates the construction of brand perceived trust, and sequentially promotes consumers to complete full-link conversion behaviors including cart-adding, order placement and repurchase.

- 2) **Health-product categories feature prominent mechanism premiums.** Compared with ordinary consumer goods, cross-border health consumer goods are associated with high risk perception and highly prudent decision-making, which amplifies transmission weight of the psychological-cognition mediation chain. This means short-sighted marketing modes that solely pursue traffic exposure while ignoring cultivation of user cognition and trust cannot achieve long-term conversion or accumulate sustainable brand user assets for brands.

5.3 Interpretation of FSQCA Multiple-Equivalent Configurations

FSQCA results demonstrate that no single optimal matrix solution exists. Three equivalent driving configurations (overall consistency = 0.782, PRI = 0.714) can realize high conversion: micro-KOC dominance suits budget-limited brands; top-mid-tier portfolios balance user acquisition and grass-roots marketing; cross-platform synergy fits well-funded brands. All configurations require narrative conflict to stay low; rising conflict offsets structural advantages of matrices substantially.

5.4 Discussion on Heterogeneity of Health Consumer-Good Categories

Dietary health consumer goods relate directly to human physical health, placing consumers in a typical high-involvement decision-making scenario with elevated risk perception. Quantitative results reveal their demand for matrix vertical matching rises by 37.6 % relative to ordinary fast-moving consumer goods. Influencers with massive fan bases yet deficient vertical professional backgrounds deliver limited persuasion efficacy. Moreover, trust-destructive effects caused by narrative conflict are significantly stronger for health-category products. Accordingly, health-oriented DTC brands going global cannot directly copy matrix placement logics adopted by beauty, apparel and

other fast-moving-goods industries. They must strengthen screening for influencer vertical attributes and unified management of content narratives.

5.5 Dialogue with Existing Literature

Most prior KOL-marketing empirical research centers on individual-influencer attributes. This study treats the whole matrix as an integrated communication network and verifies independent explanatory power of matrix configurational structures, expanding application boundaries of Social Network Theory in multi-influencer marketing scenarios. Conventional literature predominantly addresses positive values of KOL marketing; this paper introduces an internal-friction inhibitory perspective and uncovers the collaboration-friction dual effect.

6. Optimization Paths and Managerial Implications

6.1 Optimization Paths for Building the KOL Influencer Matrix

6.1.1 Optimize Matrix Vertical Heterogeneity, Reasonably Control Top-Tier Influencer Budget Share and Value Vertical Micro-KOCs

Health-oriented DTC brands should not blindly chase high-traffic top-tier KOLs. Reasonable thresholds must be set for top-tier-influencer budget shares to avoid excessive resource concentration. Cooperation proportions for vertical-field micro-KOCs should be elevated to build user trust relying on their professional vertical attributes. Drawing on empirical evidence from samples, the budget share of top-tier influencers is suggested to stay within the 15 %-22 % interval.

6.1.2 Improve Tier Matching Balance and Adopt Cross-Platform Division-and-Collaboration Strategies

Construct a hierarchical structure of “**top-tier for outreach exposure-mid-tier for grass-roots marketing-micro-KOC for circle penetration**” to enhance tier matching balance. Deploy differentiated content divisions according to platform attributes of TikTok and Instagram: TikTok focuses on short-video exposure and traffic diversion; Instagram devotes efforts to review content and community accumulation, improving cross-platform synergy and preventing content fragmentation across different platforms.

6.1.3 Establish Unified Matrix-Narrative

Management Mechanisms to Mitigate Trust Erosion from Narrative Conflict

Build a standardized brand core-information library to unify key statements covering product efficacy, applicable populations and risk warnings. Pre-review influencer-produced content to reduce semantic contradictions inside the matrix. For health-dietary product categories where negative effects of narrative conflict intensify, content review and management ought to be assigned higher priority.

6.1.4 Build a Multi-Dimensional Matrix-Performance Evaluation System Adapted to Health-Product Categories

Abandon single-indicator assessment logic focusing merely on exposure and short-term GMV. Incorporate repurchase rate, LTV and user-trust perception into evaluation frameworks, forming comprehensive KPIs balancing short-term traffic and long-term user assets. Prevent over-drafting long-term brand trust for short-term sales surges.

6.2 Research Implications

Systematic research implications are derived at theoretical, corporate-practice and industrial levels.

- 1) **Theoretical level:** Break research limitations confined to positive effects of individual KOLs; uncover the dual collaboration-friction characteristics of matrices; verify the chain mediation of “**perceived information richness-perceived trust**” and configurational causation of conversion; enrich FSQCA-based digital-marketing empirical research.
- 2) **Corporate-practice level:** Health-oriented DTC brands going global shall abandon extensive placement modes, optimize influencer hierarchical allocation, activate value of mid-tier and micro influencers, unify cross-platform narratives, mitigate trust erosion, and establish long-term performance evaluations oriented toward repurchase and LTV.
- 3) **Industrial level:** Dispel the misconception that influencer quantity determines matrix effectiveness, clarify that performance is dominated by configurational structural features, and drive overseas KOL marketing toward refined and quantifiable transformation.

7. Research Limitations and Future Prospects

7.1 Research Limitations

First, this study adopts annual panel data and follows a relatively static perspective. Dynamic iteration processes of matrix structures are not fully captured, and lag effects generated by matrix adjustments remain to be further explored. Second, samples are mainly sourced from health-oriented DTC brands operating in European and North-American markets. Samples covering emerging markets such as Southeast Asia and the Middle East are limited; regional-cultural heterogeneity requires further expansion. Third, research variables do not incorporate emerging elements including AI virtual influencers and AIGC-generated content; explanatory power for new hybrid-matrix forms is constrained.

7.2 Future Research Prospects

Follow-up research may collect high-frequency monthly panel data to conduct dynamic tracking, explore matrix-structure evolution paths, and analyze dynamic relationships between matrix iteration and user conversion. Multi-regional market comparative studies can be carried out to analyze configurational adaptation differences under diverse cultural contexts. Empirical research targeting human-virtual-influencer hybrid matrices can be performed to investigate collaboration-friction mechanisms under hybrid-matrix scenarios. Combined with sentiment text mining of user comments, micro-level action paths of matrix content features on consumer emotions and brand attitudes can be further analyzed.

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