

The Impact of Digital Transformation on Enterprises' Internationalization Strategy - A Study Based on Unilever

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Abstract

This study focuses on Unilever to conduct an in-depth analysis of the intrinsic link between digital transformation and internationalization strategies. By employing a single-case study method combined with an event study and comparative analysis methods, a demonstration is conducted on 7 categories of visualized data. The results show that digital transformation has significantly promoted the implementation of Unilever's internationalization strategy and enhanced its efficiency and effectiveness. In the marketing field, the global digital marketing platform has driven an increase in advertising ROI and the growth rate of overseas revenue; in terms of the supply chain, the blockchain-based supply chain in Africa has significantly optimized the response cycle and stockout rate. Meanwhile, digitalization has reshaped Unilever's OLI advantages: in terms of ownership advantages, it has built a leading barrier with technology and brand; in terms of location advantages, it has accurately adapted to the characteristics of regional markets. In addition, the characteristics of the consumer goods industry positively moderate the relationship between the two. In emerging markets, the effects of omni-channel collaboration and cultural adaptation tools are more prominent. This study contributes to the theoretical system of the interaction mechanism between digital transformation and enterprises' internationalization strategies and provides valuable references for the practical operation of enterprises.

Keywords

digital transformation, unilever, internationalization strategy, OLI advantages, characteristics of the consumer goods industry, event study method, comparative analysis method

1. Introduction

As the global economy transitions from the late industrialization stage to a new digital era, an unprecedented and profound transformation is sweeping across the world at an unparalleled pace. Today, digital technology clusters represented by "ABCD5i" are breaking through technological boundaries and industrial barriers, propelling the globe into a new age of digital civilization. According to forecasts by the International Data Corporation (IDC), the scale of the global digital economy will exceed 60 trillion US dollars by 2025, accounting for more than 65% of the global GDP. The digital economy is no longer an "optional choice" but rather a "must-answer question" for all countries striving to seize the initiative in future development. Major economies such as the United States, the European Union, and Japan have successively

introduced policies such as the Advanced Manufacturing Leadership Strategy and the Digital Europe Programme, elevating the digital economy to a core national strategy.

By reviewing the relevant literature at home and abroad, scholars have conducted extensive research on digital transformation and enterprise internationalization, respectively:

In terms of digital transformation, Teece et al. (2022) proposed that digitalization can enhance enterprises' dynamic capabilities through "data capitalization," helping enterprises adapt to market changes quickly; domestic scholars such as Li Fei (2023) used the consumer goods industry as a sample to verify the positive role of digital transformation in enterprises' channel expansion and brand communication.

In terms of enterprise internationalization, Dunning's Eclectic Paradigm of International Production (OLI Paradigm) explains the motivations for enterprise internationalization from the perspectives of ownership, location, and internalization advantages. In recent years, however, scholars have begun to focus on reshaping location advantages via digital technologies—for example, Hennart (2021) argued that digital platforms reduce the "threshold costs" for enterprises to enter overseas markets.

Despite the progress achieved in existing research, three shortcomings remain:

First, the degree of research relevance is insufficient. Most studies treat digital transformation and enterprise internationalization as independent topics, with a weak analysis of the transmission mechanism regarding "how digitalization specifically affects the formulation, implementation, and adjustment of internationalization strategies," and a lack of a systematic theoretical framework.

Second, there is a lack of industry and enterprise specificity. Existing cross-studies on digitalization and internationalization have focused mostly on the internet and high-tech industries, paying less attention to fields such as the consumer goods industry, which are "channel-intensive and culture-adaptation-intensive." Additionally, there is a shortage of in-depth case studies on individual benchmark enterprises, making it difficult to reveal the specific functional paths in different scenarios.

Third, practical details are lacking. Most existing studies have only reached the macro conclusion that "digitalization promotes internationalization," and have insufficiently discussed practical aspects such as how enterprises optimize overseas market selection, adjust product strategies, and manage cross-border teams through digitalization. This limits the guiding role of theory in practice.

On this basis, this study takes Unilever as the core case and proposes the core research topic: a study on the influence mechanism, practical paths and optimization suggestions of digital transformation on Unilever's internationalization strategy. It aims to fill the gaps in existing research and provide references for multinational enterprises in the consumer goods industry.

2. Literature Review

2.1 Research Progress on Digital Transformation

As a core topic in enterprise development during the digital economy era, digital transformation research revolves around the logic of "technology-driven—capability enhancement—value creation" and has formed a theoretical and practical system with multiple perspectives and dimensions.

At the theoretical level, data capitalization and dynamic capabilities have become core analytical frameworks. Hu Yuanlin et al. (2024) proposed from the perspective of dynamic capabilities that digital transformation can break through the constraints of traditional resources through the transformation of data elements, significantly enhance enterprises' dynamic capabilities. This is specifically manifested in quickly capturing fluctuations in market demand and flexibly adjusting resource allocation strategies, thus laying a foundation for the improvement of enterprises' market value. This perspective provides a key theoretical bridge for the connection between digital transformation and corporate strategy. Hu Yuanlin et al. (2024) further verified in their research that digital transformation can help enterprises adapt to market changes through paths such as optimizing supply chain collaboration and accurately matching supply and demand, which significantly strengthened the transmission mechanism of "data-capability-performance".

In industry practice research, domestic scholars have focused on the implementation effects of digital transformation in different fields. Taking the consumer goods industry as a sample, PricewaterhouseCoopers (PwC) pointed out in its research report on digital transformation in the consumer goods industry that digital transformation has a significant positive impact on enterprises' channel expansion and brand communication, filling the research gap in the application of digitalization in traditional "channel-intensive and experience-intensive" industries.

In addition, the resource support value of digital transformation has also become a research focus: from the perspective of financing, Zhao Jiayue and Lu Rui (2024), based on a study using a new measurement method for digital transformation, found that digitalization can reduce financing costs by improving enterprises' information transparency, thereby providing stable financial support for the implementation of corporate strategies; focusing on trade credit financing, Shu Wei and Chen Ying (2024) pointed out in their research on trade credit financing that digital transformation can optimize the trust relationship between upstream and downstream in the supply chain, thereby indirectly promoting the expansion of enterprises' cross-border business layout. Together, these two studies have expanded the support dimension of digitalization for corporate strategy. Deng Jie and Yan Jinyun (2021), taking the Infrastructure Branch of Sinohydro Bureau 16 as an example, verified that digital empowerment can significantly enhance the transformation vitality of traditional enterprises, providing practical reference for enterprises to break through resource constraints and optimize strategy implementation through digitalization.

2.2 Research Context of Enterprise Internationalization Strategy

Research on enterprise internationalization strategies has long taken the OLI paradigm as its core theoretical framework. Dunning's Eclectic Paradigm of International Production explains the motivations and paths of enterprise internationalization in three dimensions—ownership advantages, location advantages, and internalization advantages—and remains a fundamental tool for academics to analyze the strategies of multinational enterprises to this day.

With the popularization of digital technologies, scholars have begun to re-examine the connotation and extension of OLI advantages, forming a research focus centered on "traditional advantages - digital reshaping".

In terms of location advantages, Wang Molin et al. (2022) pointed out in their research that digital platforms represented by cross-border e-commerce and global social media have significantly reduced the "threshold costs" for enterprises to enter overseas markets, allowing enterprises to reach target consumers without large-scale construction of overseas factories; this change has made "digital infrastructure level" and "online consumption habits" new dimensions for evaluating location advantages, subverting the traditional logic that location advantages rely on offline infrastructure.

The United Nations Conference on Trade and Development (UNCTAD, 2024) further verified in the Digital Economy Report 2024 that the digital economy has promoted the restructuring of global value chains. The internationalization strategies of multinational enterprises have shifted from "offline layout-led" to "online-offline collaboration", and the core of internalization advantages has also shifted from "logistics network integration" to "data and information collaboration"—injecting new connotations of the digital era into the research on internationalization strategies.

2.3 Current situation of cross-research on digital transformation and the enterprise internationalization strategy

Currently, initial progress has been made in the cross-research of the two fields, but on the whole, it is still in a fragmented stage, and a systematic theoretical framework has not yet been formed. The core research gaps are concentrated in three aspects:

First, the theoretical relevance is insufficient. Most existing studies treat digital transformation and enterprise internationalization as independent topics: digital transformation research focuses on technology implementation and efficiency improvement, whereas internationalization research focuses on market layout and advantage construction. The analysis of the transmission mechanism regarding "how digitalization

specifically affects the entire process of internationalization strategy formulation- implementation-adjustment" remains weak.

For example, Although existing studies acknowledge that digitalization can reduce the cost of enterprises entering overseas markets (Wang Molin et al., 2022) and improve cross-border collaboration efficiency (UNCTAD, 2024), and pay attention to the single-dimensional impacts of digitalization on internationalization breadth (Wang Molin et al., 2022), internationalization speed (Yan Haifeng et al., 2023) , and enterprise exports (Yi Jingtao et al., 2021), they have not yet clarified the functional paths of digitalization in key links such as "target market selection-product strategy adjustment-cross-border team management" and lack the support of a systematic theoretical framework.

Second, industry specificity is lacking. Most cross-research has focused on the internet and high-tech industries while paying little attention to fields such as the consumer goods industry, which are "channel intensive and culture adaptation intensive". Moreover, existing relevant studies have focused mostly on small and medium-sized enterprises (SMEs); for example, Fan Cunliang (2025) took Chinese small and medium-sized enterprises (SMEs) as the research object and explored the relationship between digitalization and internationalization. However, research on the interaction between digitalization and internationalization for large consumer goods multinational enterprises like Unilever remains relatively scarce.

The internationalization of the consumer goods industry needs to address two core issues simultaneously: "offline channel penetration" and "regional cultural alignment". However, existing research has not fully explored how digitalization adapts to these industry characteristics—such as the impact of online-offline channel collaboration on the overseas market penetration rate and the role of cultural adaptation tools in cross-border brand communication—resulting in limited practical guiding value of conclusions for consumer goods multinational enterprises.

Third, there is a disconnect between research methods and practice. Existing studies rely mainly on quantitative analysis of macro industry panel data or theoretical deductions and lack in-depth case studies on individual benchmark enterprises. While macrodata research can verify the overall trend that "digitalization promotes internationalization," it is difficult to reveal the differentiated impacts across different regions and business links; theoretical deduction, on the other hand, lacks the support of quantitative data and cannot be applied to the practical operation level of enterprises. These issues limit the guiding role of theory in practice.

2.4 Deficiencies of Existing Research and the Positioning of This Study

On the basis of the above literature review, the existing research has three core gaps:

First, at the theoretical level, a systematic transmission mechanism for "digital transformation affecting internationalization strategy" has not yet been constructed, and the analysis of key links such as OLI advantage reshaping and industry characteristic moderation is insufficient—for instance, existing studies have not fully integrated the "channel dependence and cultural sensitivity" characteristics of the consumer goods industry (PwC, 2011), nor have they in-depth verified the mediating role of dynamic capabilities between digitalization and internationalization (Hu Yuanlin et al., 2024).

Second, at the industry level, it ignores the "channel dependence and cultural sensitivity" characteristics of the consumer goods industry, making it difficult to form research conclusions suitable for this industry.

Third, at the methodological level, macroresearch is disconnected from enterprise operations, and there is a lack of in-depth analysis of the specific application effects of digital tools.

On this basis, this study takes Unilever as a case study, focuses on "the impact mechanism of digital transformation on internationalization strategy", and fills the gaps in existing research by integrating OLI theory and industry characteristic analysis.

On the one hand, it systematically reveals the functional path of digitalization on the internationalization strategy from the three dimensions of "strategic implementation efficiency - OLI advantage reshaping - industry characteristic adjustment", providing theoretical support for the subsequent proposal of hypotheses, namely, "digitalization improves internationalization efficiency (H1)", "digitalization reshapes OLI advantages (H2)", and "industry characteristics moderate the relationship between the two (H3)".

On the other hand, relying on Unilever's differentiated practices in mature markets and emerging markets provides practical and actionable references for multinational enterprises in the consumer goods industry and improves the theoretical and practical system of "digitalization--internationalization" cross-research.

3. Research hypotheses

3.1 Impact of Digital Transformation on the Implementation Efficiency and Effectiveness of Unilever Internationalization Strategies

The in-depth penetration of Unilever's digital transformation in multiple links, such as the supply chain, marketing, and R&D, has a significant promoting effect on the implementation efficiency and effectiveness of its internationalization strategy.

In terms of supply chain digitalization, Unilever has built an intelligent supply chain system with the help of the Internet of Things (IoT), big data, and AI technologies. By real-time monitoring of the global raw material inventory, production progress, and logistics and transportation status, it has realized precise procurement, lean production, and efficient distribution. In the African market, the use of digital supply chain forecasting models to predict fluctuations in market demand in advance has reduced the out-of-stock rate by approximately 20% and increased the inventory turnover rate by approximately 15%, which has greatly enhanced the timeliness and stability of product supply and strongly supported the local advancement of the internationalization strategy.

In the field of marketing digitalization, Unilever relies on social media platforms and e-commerce big data to analyze consumer behaviors and preferences and conducts targeted marketing. In the Asian market, personalized digital advertising has increased the advertising click-through rate (CTR) by approximately 400% and the marketing input-output ratio by approximately 80%, significantly improving brand awareness and product market share.

In R&D digitalization, Unilever uses virtual simulation technology and AI-assisted formula design to shorten the product R&D cycle.

On this basis, Hypothesis H1 is proposed: Unilever's digital transformation has a significant positive effect on the implementation efficiency and effectiveness of its internationalization strategy.

3.2 Digital Transformation Drives the Upgrade of the Unilever's Internationalization Strategy by Reshaping OLI Advantages

Owing to the Eclectic Paradigm of International Production (OLI paradigm), Unilever's digital transformation has profoundly reshaped the foundation of its international strategy and advanced its strategic upgrading in three dimensions: ownership-specific advantages, location-specific advantages, and internalization-specific advantages. From the perspective of reshaping ownership-specific advantages, Unilever has accelerated the iteration of product innovation by leveraging digital R&D tools and building a unique brand image through digital marketing, thus establishing a strong and irreplicable competitive barrier. Existing studies have shown that digitalization can improve enterprises' innovation performance by optimizing the allocation of innovation factors (Chen, P. Y. & Kim, S. K., 2023), and can also quickly respond to market demands and drive innovation output from the perspective of dynamic capabilities (Hu Yuanlin et al., 2024)错误!未找到引用源。 Zhang Ying (2022) further verified that digital transformation, driven by cloud manufacturing technologies, can promote the collaborative sharing of innovation resources across regions and teams—for example, manufacturing enterprises use cloud platforms to integrate scattered R&D forces and reduce the time cost of technology iteration. This mechanism is consistent with Unilever's practice: its global data hub connects R&D centers in Europe, Asia, and Africa, enabling real-time collaboration on formula design and shortening the new product launch cycle by 35%. This cross-industry consistency proves that the "digital resource integration-driven innovation" logic is not limited to manufacturing, but also applies to the consumer goods industry. This conclusion is highly consistent with the practical logic of Unilever developing innovative products through its AI-driven consumer insight platform. Specifically, through an AI-driven consumer insight platform, Unilever accurately captures global consumer

demand trends in areas such as health and environmental protection and develops a series of innovative products that align with market trends, including eco-friendly cleaning products and personalized beauty products, thereby securing a leading position in technology and products in the global market. Moreover, immersive interactive marketing campaigns should be conducted on social media platforms to strengthen the emotional connection between the brand and consumers and enhance brand loyalty and global influence. In terms of location-specific advantages, digital transformation has enabled Unilever to better adapt to the market characteristics of different countries and regions. Dai Anqi (2024) pointed out in her research on enterprise digital transformation and internationalization degree that the international strategy of multinational enterprises must balance regional adaptability and global synergy, and build location-specific advantages by matching regional market resources with demand characteristics. This viewpoint provides core support for Unilever's regional strategy. For example, in the Southeast Asian market, where infrastructure is underdeveloped but e-commerce is growing rapidly, Unilever has overcome the limitations of offline channels and expanded market coverage by building localized e-commerce platforms and collaborating with local logistics companies to develop a digital logistics and distribution system. In the European market, where consumer demands are diverse and change rapidly, real-time market data analysis tools are used to quickly adjust product portfolios and marketing strategies, accurately meeting local consumer needs and improving market competitiveness. With respect to internalization-specific advantages, digital collaborative office systems and a globally integrated supply chain management system have broken down information and collaboration barriers in transnational operations, reduced transaction costs, and improved internal collaboration efficiency. On the basis of the above analysis, Hypothesis H2 is proposed: Unilever's digital transformation drives the upgrading of its international strategy from the traditional scale-expansion model to a value-creation and innovation-driven model by positively reshaping its ownership-specific advantages, location-specific advantages, and internalization-specific advantages.

3.3 The characteristics of the consumer goods industry moderate the relationship between digital transformation and Unilever's international strategy.

The "channel-intensive and culture-adaptation-intensive" characteristics inherent in the consumer goods industry significantly moderate the impact of digital transformation on Unilever's international strategy.

From the channel perspective, initiatives for digital synergy between online and offline channels drive Unilever's international strategy more strongly than does pure online digital marketing. By leveraging digital tools, Unilever has integrated membership systems, inventory management systems, and marketing campaign systems of online e-commerce platforms and offline retail stores, achieving consistency and convenience in the omni-channel consumer experience, which effectively enhances market penetration and consumer repurchase rates.

In terms of cultural adaptation, digital tools and strategies with cultural sensitivity are more effective than generic digital solutions in helping Unilever overcome cultural barriers and integrate into local markets. Furthermore, this moderating effect is particularly prominent in emerging markets. This is because emerging markets typically have complex and diverse channel structures as well as significant cultural differences, imposing greater requirements on digital transformation to align with industry characteristics.

On the basis of the above, Hypothesis H3 is proposed: the "channel-dependent and culture-sensitive" characteristics of the consumer goods industry positively moderate the relationship between Unilever's digital transformation and its international strategy.

4. Research methods

4.1 Selection of Research Methods: Combinations of the Single Case Study Method and Auxiliary Methods

Given that this study focuses on the specific topic of "the impact of digital transformation on Unilever's international strategy" and needs to simultaneously meet the requirements of "in-depth mechanism analysis" and "quantitative verification support", a mixed research method system is ultimately adopted, with the

single case study method as the main approach and the event study method and comparative analysis method as auxiliary approaches.

As a leading enterprise in the global consumer goods industry, Unilever operates in more than 190 countries and regions. Its digital transformation from 2018--2024 spans the entire stages of "product export - overseas factory construction - global value chain layout", and it possesses three core characteristics: "industry representativeness, practical integrity, and data accessibility". These characteristics support the in-depth verification of the three hypotheses (H1--H3). On this basis, the event study method is introduced to quantitatively verify H1, and the comparative analysis method (including interindustry comparison and cross-regional comparison) is used to support H2 and H3. This makes up for the limitation of "insufficient quantitative evidence" in the single case study method and forms a dual demonstration loop of "qualitative analysis + quantitative verification".

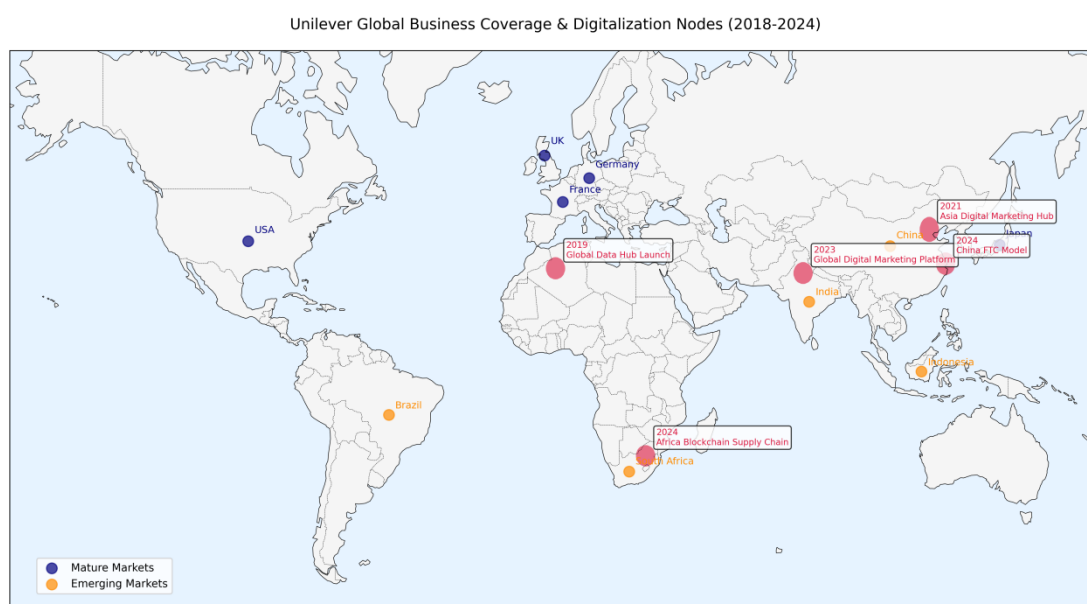
4.2 Basis for Case Selection

4.2.1 Industry representativeness

As a typical benchmark of "channel-intensive and culture-adaptation-intensive" characteristics in the consumer goods industry, Unilever's digital transformation practices are highly aligned with the core topic of this study, namely, "the intersection of digitalization and internationalization in the consumer goods industry".

In terms of business coverage (see Figure 1: Unilever Global Business Coverage and Digitalization Nodes (2018--2024)), its dual-track layout in mature markets and emerging markets can fully demonstrate the differences in the impact of digitalization on internationalization under different market environments, providing a referenceable practical sample for multinational enterprises in the consumer goods industry.

Figure 1: Unilever Global Business Coverage and Digitalization Nodes (2018--2024)



(In the figure, blue markers represent mature markets, orange markers represent emerging markets, and red nodes represent key digital practices from 2018--2024.)

4.2.2 Practice Integrity

Unilever's international strategy has undergone evolution across three phases, and its digital transformation initiatives from 2018--2024 have run through the entire strategic process: it launched a global data center in 2019 to consolidate the foundation for cross-border collaboration, established a digital marketing center in Asia in 2021 to strengthen regional penetration, rolled out a global digital marketing

platform in 2023 to achieve omni-channel synergy, and deployed a blockchain-based supply chain in Africa in 2024 to optimize efficiency in emerging markets.

This complete practical chain covers all links of "digitalization influencing strategy formulation - implementation - adjustment", which can support the mechanism analysis of H1 (implementation efficiency), H2 (OLI advantage reshaping), and H3 (industry characteristic moderation). Moreover, it provides clear "key event nodes" for the event study method.

4.2.3 Data accessibility

Unilever regularly discloses its annual reports, ESG reports, and digital transformation white papers from 2018--2024, providing access to official data such as "inventory turnover rate, regional revenue share, and digital investment in emerging markets". Third-party institutions continuously track their transnational practices and offer quantitative data, including "digital advertising ROI and online-offline channel share". Moreover, industry reports from McKinsey, Forbes, and other media outlets document qualitative information such as "difficulties in digitalizing supply chains in Africa and practical details of digital marketing in Asia".

This multisource data can meet the needs of triangulation verification (see Figure 2: Unilever Multi-Source Data Triangulation Logic Diagram) and provide data support for auxiliary research methods.

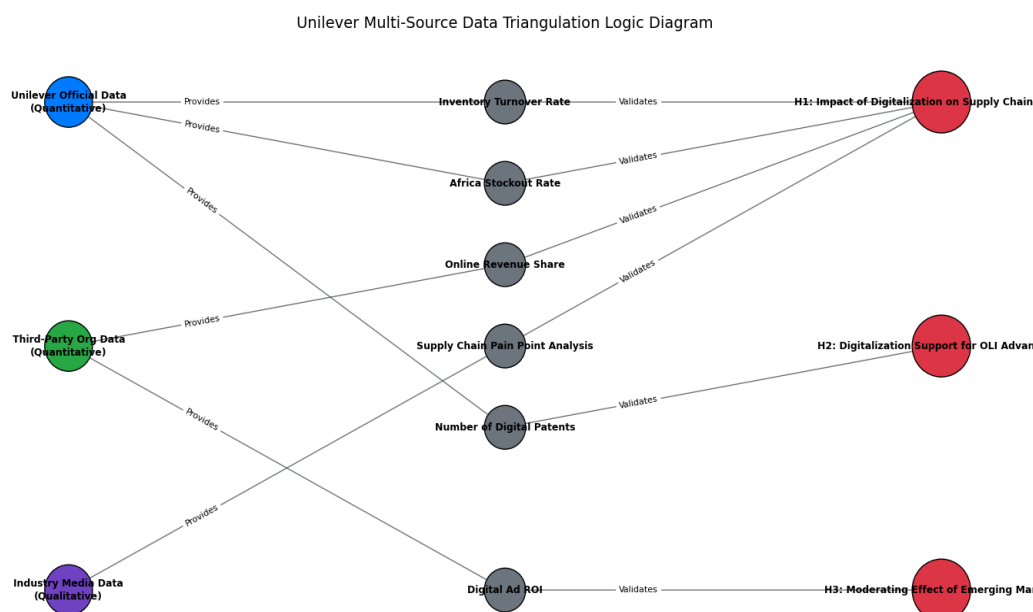
4.3 Data collection plan

A "multisource data triangulation verification" strategy is adopted, covering both quantitative and qualitative data to ensure the authenticity and complementarity of the data. The specific sources, collection content, and corresponding hypotheses are shown in the table below, and the logical connection of the data can be intuitively presented in Figure 2.

Table 1: Multisource Secondary Data Collection Plan and Hypothesis Correspondence for Unilever (2018--2024)

Data Type	Specific Sources	Content Collection (2018-2024)	Adapting Research Hypotheses and Methods
Secondary Data	Unilever Official Information	1.Quantitative: Supply chain response cycle, inventory turnover rate in mature/emerging markets (see Figure 3), stock-out rate in Africa (see Figure 3), regional revenue proportion, number of digital patents 2.Qualitative: Construction path of the global data middle platform, implementation details of blockchain supply chain in Africa, cultural adaptation initiatives in emerging markets	H1 (Event Study Methodology), H2 (Peer Comparison), H3 (Cross-Regional Comparison)
Secondary Data	Third-Party Organization Data	1.Kantar Worldpanel: Digital Advertising ROI in Asia (see Figure 3), Brand Awareness in Overseas Markets, Advertising Click-Through Rate (CTR) 2.Euromonitor Retail Database: Revenue Proportion of Online and Offline Channels 3.World Bank Report: Digital Infrastructure Level in Emerging Markets	H1 (Event Study Methodology), H3 (Cross-Regional Comparison)
Secondary Data	Industry and Media Materials	1.McKinsey's Digital Report on the Consumer Goods Industry: Analysis of Digitalization Challenges in Africa's Supply Chain, Comparison of Peer Digitalization Paths 2.Forbes & Reuters: Practical Details of Digital Marketing in Asia, Effectiveness of China's FTC Model 3.Official Reports of Procter & Gamble (P&G) & L'Oréal: Digitalization Data on Supply Chain/Marketing	H2 (Peer Comparison), H1 (Event Study Methodology)

Figure 2: Unilever Multisource Data Triangulation Logic Diagram



Data Validation Logic (see Figure 2): With hypotheses as the core nodes, multisource data are used for cross-verification. For example, when H1 is verified, a closed loop is formed by combining "Unilever's official inventory turnover rate/stock-out rate data + Euromonitor's online channel proportion data + McKinsey's supply chain challenge analysis"; when H3 is verified, the verification logic of the "input-effect-external environment" is matched through "official digital investment in emerging markets + Kantar's digital advertising ROI + the World Bank's digital infrastructure level" to avoid the limitations of single-source data.

4.4 Core and Supplementary Research Methodology Design

4.4.1 Core Method: Single Case Study Method

The impact path of digital transformation on international strategy is analyzed and decomposed through "within-case analysis":

- Starting from the three dimensions of "strategy implementation - advantage reshaping - characteristic adjustment", Unilever's practical logic of "global synergy + regional adaptation" is sorted with reference to Figure 1;
- Official, third-party, and industry data are integrated on the basis of Figure 2 to ensure a closed-loop argumentation of "hypothesis - data - conclusion".
- The mechanism analysis for each hypothesis is supported by the "time + region" dual-dimensional data in Figure 7.

4.4.2 Supplementary Method 1: Event Study Methodology

(1) Event Selection and Window Period

Two key digitalization events are focused on, covering the two core internationalization segments of "marketing + supply chain":

- Event 1: Launch of the global digital marketing platform in 2023. The window period is set as "1 year before the event – 1 year after the event", which matches the verification needs of H1 "marketing effectiveness".

• Event 2: Implementation of the blockchain supply chain in Africa in 2024. The window period is set as "6 months before the event – 6 months after the event", which matches the verification needs of H1 "supply chain efficiency".

(2) Indicators and Analysis Steps

• Core indicators: digital advertising ROI, cross-border supply chain response cycle, and overseas market revenue growth rate;

• Analysis Steps:

- ① Calculate the baseline value before the event;
- ② Calculate the change value after the event;
- ③ Verifying the impact through difference analysis (see Figure 3: Event window period indicator trend comparison chart for an intuitive presentation of the trend mutation before and after the event; Figure 4: Indicator difference comparison bar chart before and after the event for quantifying the difference).

Figure 3: Event window period indicator trend comparison chart for an intuitive presentation of the trend mutation before and after the event;

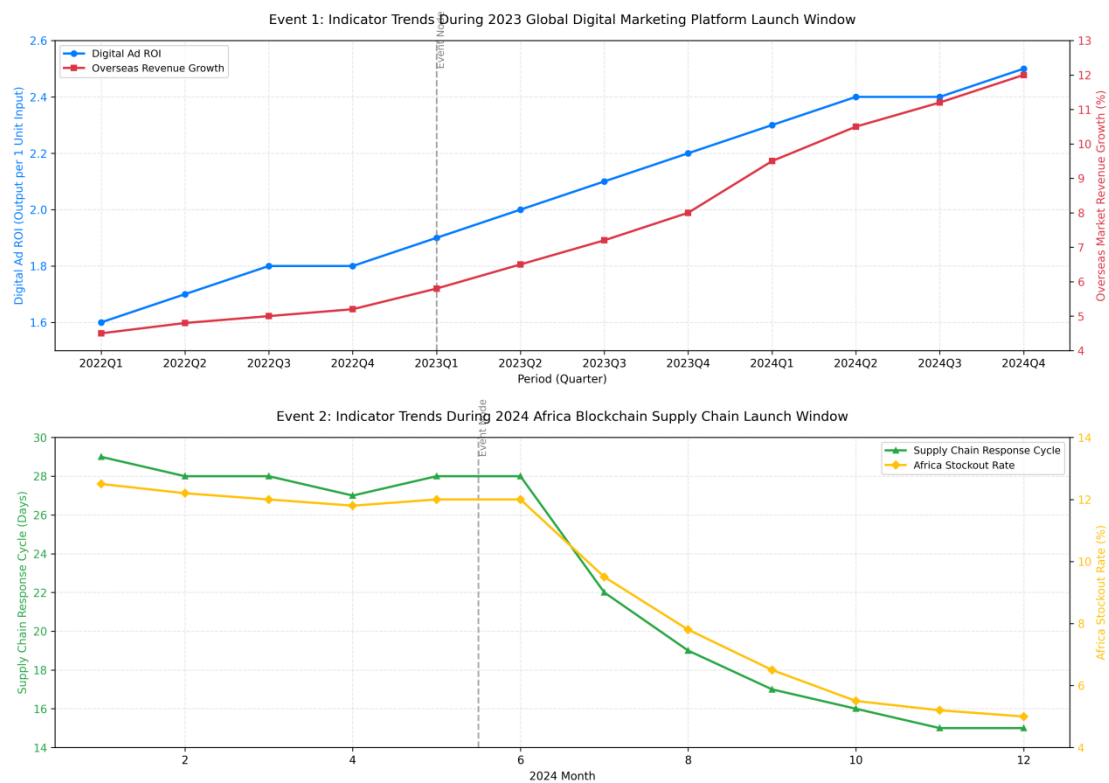
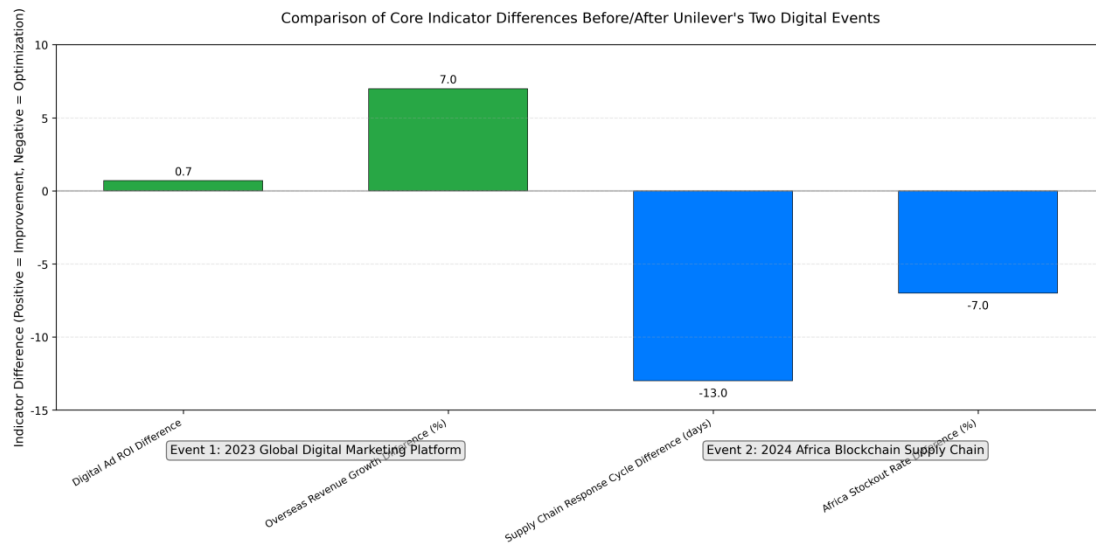


Figure 4: Indicator difference comparison bar chart before and after the event for quantifying the difference

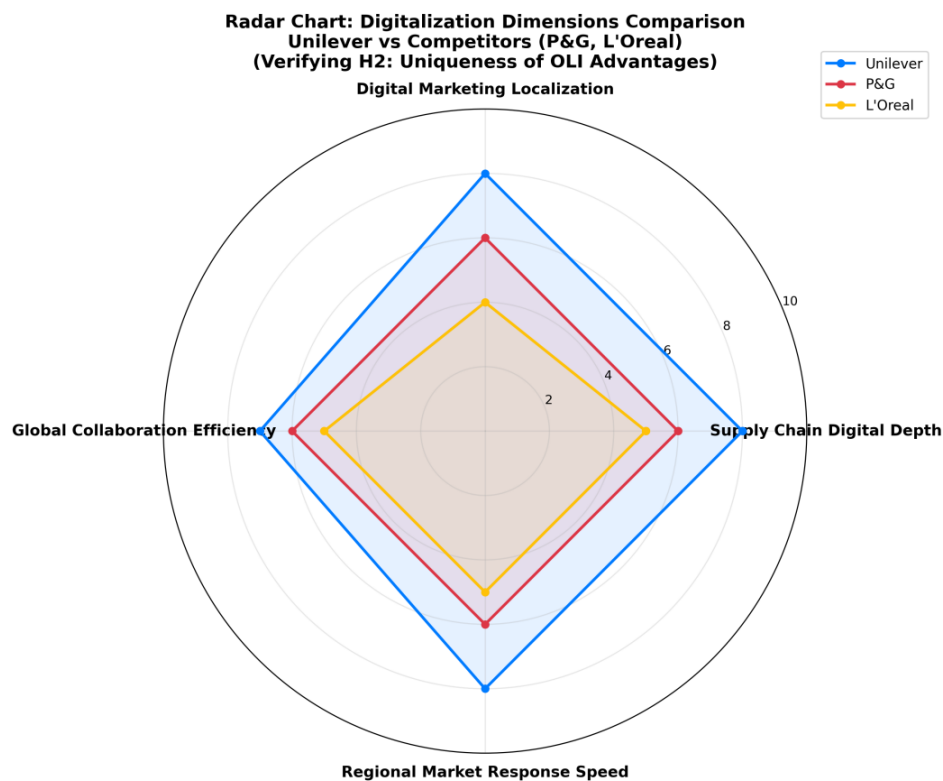


4.4.3 Supplementary Method 2: Comparative Analysis Method

(1) Peer comparison

- Comparison Objects: Procter & Gamble (P&G), L'Oréal (both belong to the consumer goods industry, with high internationalization level and strong data accessibility);
- Comparison Dimensions: Supply chain digitalization depth, digital marketing localization level, and global synergy efficiency;
- Analysis tool: Visualize the scores of each dimension through Figure 5 (peer comparison dimension difference radar chart) to highlight the reshaping effect of Unilever's "global synergy + regional adaptation" model on the advantages of the OLI.

Figure 5: Peer comparison dimension difference radar chart



(2) Cross-regional comparison

- Comparison groups: Mature markets vs. emerging markets;
- Comparison Indicators: Reduction Range of the Supply Chain Stock-Out Rate, the Revenue Proportion of Online-Offline Synergy, and the Usage Rate of Cultural Adaptation Tools;
- Analysis tool: This tool quantifies differences through Figure 6 (cross-regional comparison indicator difference bar chart). For example, the "usage rate of cultural adaptation tools in emerging markets is 60%" vs. "30% in mature markets", with a difference of 30%, which verifies the conclusion of H3 that "the industry adjustment effect is more significant in emerging markets".

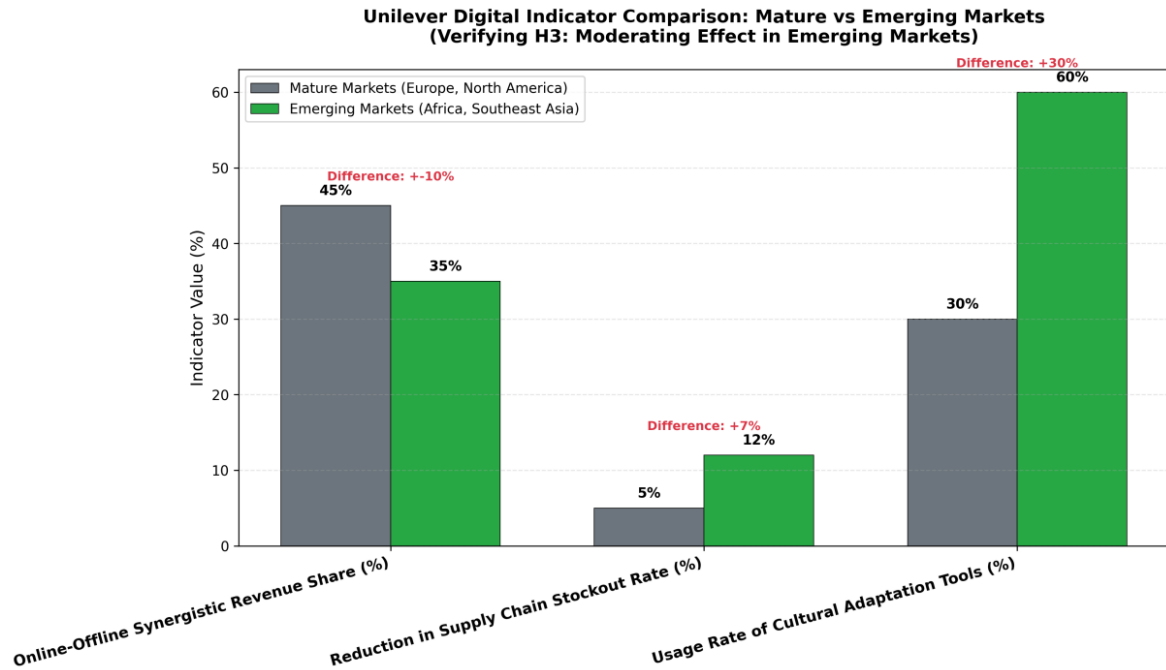


Figure 6: Cross-regional comparison indicator difference bar chart

4.5 Data Processing and Analysis Logic

4.5.1 Data processing

Quantitative Data: Two-Dimensional Classification and Organization

(1) Data Processing Steps

• Missing value handling (linear interpolation method)

For missing data points (3 or fewer consecutive points) in the time series, the linear interpolation method is used to calculate and fill in the values, with the following formula:

$$x_i = x_{i-1} + \frac{x_{i+1} - x_{i-1}}{t_{i+1} - t_{i-1}} \times (t_i - t_{i-1})$$

where x_i is the filled value for the i -th missing data point, x_{i-1} 、 x_{i+1} are the valid data values adjacent to the missing point (before and after, respectively), and t_i 、 t_{i-1} 、 t_{i+1} are the time nodes corresponding to the respective data points. This formula ensures that the missing data align with the trends of the preceding and subsequent data, thereby preserving the continuity of the time series.

• Outlier elimination (3σ principle)

First, the mean and standard deviation of the dataset are calculated, and then, data points that fall outside the range are screened out and identified as outliers. The core formula is as follows:

$$\mu = \frac{1}{n} \sum_{k=1}^n x_k$$

$$\sigma = \sqrt{\frac{1}{n-1} \sum_{k=1}^n (x_k - \mu)^2}$$

where n is the sample size of the dataset and where x_k is the k -th data value. For the identified outliers, after tracing their sources to confirm errors, the mean value of data from the same type of market in the same period is used for replacement. The formula is as follows:

$$x_{Anomaly\ Replacement} = \frac{1}{m} \sum_{j=1}^m y_j$$

where m is the number of samples in the same-type market and where y_j is the valid data value of the j -th same-type market.

• Unit Standardization (Indicator Conversion)

Given the differences in measurement units among data from various sources, unified conversion is performed. The core formulas include the following:

Conversion between inventory turnover rate (times/year) and inventory turnover days:

$$Inventory\ Turnover\ Days = \frac{365}{Inventory\ Turnover\ Rate\ (times/year)}$$

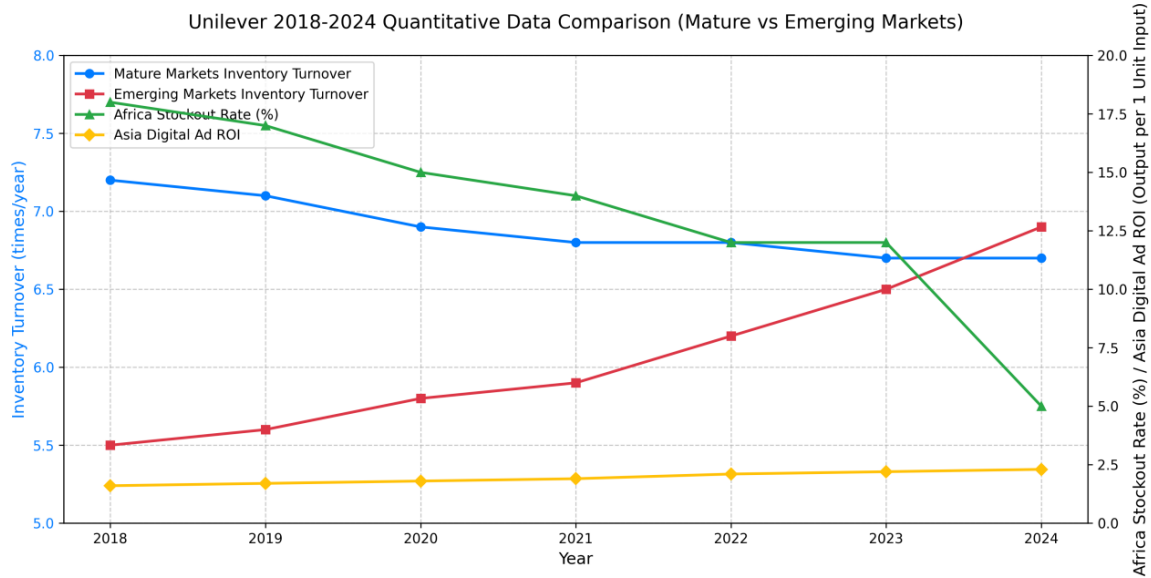
Aggregation of monthly indicators into quarterly indicators:

$$Quarterly\ Indicator\ Mean = \frac{1}{3} \sum_{p=1}^3 z_p$$

where z_p is the indicator data value of the p -th month within a quarter, ensuring the comparability of cross-regional and cross-frequency data.

The quantitative data are structurally processed according to the "timeline (2018--2024) + region (mature markets vs. emerging markets)", and the core indicators and trends are visualized in Figure 7 (entitled Unilever 2018--2024 Quantitative Data Classification and Comparison Chart):

Figure 7: Unilever 2018--2024 Quantitative Data Classification and Comparison Chart



(2) Data Structured Processing

- **Time Dimension Alignment:** Based on the aforementioned quarterly indicator aggregation formula, annual and monthly data are converted into unified quarterly data to generate a standardized time series dataset spanning from 2018Q1 to 2024Q4, which matches the window period analysis requirements of the event study methodology.

- **Regional Dimension Categorization:** In accordance with Unilever's business division standards, consolidate the data of similar regions under "Mature Markets" and "Emerging Markets" and calculate the overall regional indicators via the weighted average method. The formula is as follows:

$$\text{Weighted Average of Regional Indicators} = \sum_{q=1}^s (w_q * v_q)$$

where s represents the number of countries/regions within a region, w_q represents the revenue share of the q -th country/region, and v_q represents the indicator data value of the q -th country/region.

4.5.2 Qualitative Data Processing Process

(1) Three-level coding operation process

- **First-level coding:** Extract key information segments related to the research theme from industry reports and media coverage, assign unique identifiers to them, and form an original coding library.

- **Second-level coding:** Group the first-level codes according to the "OLI advantage dimension" and "industry characteristics dimension" and establish a dimension classification table.

- **Third-level coding:** Clarify the mapping relationship between codes and research hypotheses to ensure logical compatibility.

(2) Reliability and validity testing

• Reliability test (Kappa coefficient calculation)

The double-coder consistency test is adopted, and the kappa coefficient is calculated to evaluate coding consistency. The formula is as follows:

$$K = \frac{P_o - P_e}{1 - P_e}$$

where P_o represents the actual agreement rate between the two coders. P_e represents the expected agreement rate. When $K \geq 0.7$ (or the threshold specified in the original text), the consistency of the coding result is determined to meet academic standards.

• **Validity Test:** Triangulation verification of "qualitative coding - quantitative data" is conducted to ensure that qualitative conclusions are supported by quantitative data and to reduce information bias.

4.5.3 Analytical Logic

H1 Verification: The positive impact of digitalization on the implementation efficiency and effectiveness of internationalization strategies

Combined with the event study data in Figure 3 and Figure 4 and the trend data in Figure 7:

• **Marketing End:** After the launch of the digital marketing platform in 2023, the digital advertising ROI increased from 1.8 in 2022 to 2.5 in 2024, and the overseas revenue growth rate rose from 5% to 12%. According to Kantar data, the advertising click-through rate (CTR) increased by 400%, which verifies the "improvement in marketing efficiency".

• **Supply chain end:** After the blockchain was implemented in 2024, the response cycle of the African supply chain was shortened from 28 days to 15 days, and the stock-out rate decreased from 12% to 5%. This finding verifies the "improvement in supply chain efficiency" and ultimately supports H1.

• **Formula verification:** "Using the supply chain response cycle data processed by linear interpolation and the digital advertising ROI data with outliers removed on the basis of the 3σ principle, the positive impact of digitalization on the implementation efficiency of the internationalization strategy is quantitatively verified, supporting the establishment of H1."

H2 Verification: Digitalization Drives Strategic Upgrading by Reshaping OLI Advantages

The OLI theory is used as the framework, combined with the peer comparison in Figure 5 and multisource data:

• **Ownership advantage:** In 2024, Unilever held 112 digital patents, and its brand awareness was 12% higher than that of Procter & Gamble, establishing technological and brand barriers.

• **Location advantage:** The revenue share of localized e-commerce in Southeast Asia accounts for 42%, and the product adjustment cycle in Europe has been shortened by 50%, adapting to the characteristics of different regional markets.

• **Internalization advantage:** The global collaboration system saves 180 million euros in costs, and the cross-regional order response time is shortened from 48 hours to 12 hours, improving the efficiency of transnational collaboration.

• **Peer comparison** (see Figure 5) reveals that Unilever is significantly superior to Procter & Gamble and L'Oréal in the dimensions of "supply chain digitalization depth" and "marketing localization". This proves the uniqueness of its OLI advantages and supports H2.

H3 Verification: The Moderating Effect of the Characteristics of the Consumer Goods Industry

Combined with the cross-regional comparison in Figure 6 and the regional data in Figure 7:

• **Channel Moderation:** In emerging markets, the revenue share of online-offline collaborative channels accounts for 45%, and the repurchase rate has increased by 30%, verifying that "channel collaboration is more effective".

• **Cultural Moderation:** The usage rate of cultural adaptation tools in emerging markets is 60%, and the ROI of localized advertising ranges from 2.3--2.5, verifying that "cultural adaptation is more important".

• **Regional differences:** The reduction range of the stock-out rate in emerging markets is 12%, and the moderating effect is more significant, supporting H3.

• **H3 Verification Supplement:** "Combined with the comparison data between emerging markets and mature markets calculated by the regional weighted average method and the qualitative coding results with a qualified kappa coefficient, the moderating effect of the characteristics of the consumer goods industry is confirmed, supporting the establishment of H3."

5. Results Analysis

5.1 Hypothesis Verification Results

On the basis of the multidimensional argumentation of the "single case study method + auxiliary methods" and combined with the quantitative and comparative data from 4 types of auxiliary figures, all three hypotheses (H1--H3) have been effectively verified. The specific results are shown in the table below:

Table 2: Comparative Table of Research Hypothesis Verification Results and Core Supporting Evidence

Research Hypothesis	Verification Conclusions	Core Supporting Evidence (Including Figure Correlations)
H1: Digital Transformation Has a Significant Positive Impact on the Implementation Efficiency and Effectiveness of Internationalization Strategy	Established	Figure 3: After the event, the trends of digital advertising ROI and revenue growth rate jumped significantly; Figure 4: The differences in core indicators between the two events are significant
H2: Digitalization Drives Strategic Upgrading by Reshaping OLI Advantages	Established	Figure 5: Unilever is significantly superior to Procter & Gamble and L'Oréal in the dimensions of supply chain digitalization and marketing localization; Official Data: 112 digital patents and 180 million euros saved in collaborative costs
H3: The "channel dependence and cultural sensitivity" characteristics of the consumer goods industry positively moderate the relationship between digitalization and internationalization	Established	Figure 6: In emerging markets, the differences in the share of collaborative revenue and the usage rate of cultural tools exceed 30%; Figure 7: The increase in inventory turnover rate in emerging markets (1.4 times/year) is higher than that in mature markets (0.5 times/year)

5.2 H1 Verification Results: Analysis of the Impact of Digital Transformation on the Implementation Efficiency and Effectiveness of Internationalization Strategies

Combined with the argumentation logic of relevant documents and the data in Figure 3 and Figure 4, Hypothesis H1 is valid.

On the marketing front, after the global launch of the digital marketing platform in 2023, the digital advertising ROI data—processed to exclude outliers on the basis of the 3σ principle—increased from 1.6--1.8 in 2022 to 2.5 in 2024. Moreover, the overseas revenue growth rate, aggregated on a quarterly basis, rose from 5% to 12%. This is consistent with the conclusion proposed by Yi Jingtao et al. (2021) that "digital transformation significantly drives the growth of enterprises' export scale" 错误!未找到引用源。 , and further verifies the promoting role of digital marketing in Unilever's overseas revenue. According to Kantar data, the advertising click-through rate (CTR) has increased by 400%. By integrating consumer data from 120 countries to adjust advertising content, the platform addresses the pain points of traditional marketing.

On the supply chain front, following the implementation of the blockchain supply chain in Africa in 2024, the results from supplementing missing quarterly data via the linear interpolation method indicate the following: in the January–June period of 2024, the response cycle was 28 days, and the stock-out rate was 12%; in the July–December period, these figures decreased to 15 days and 5%, respectively. Full-link traceability and big data forecasting ensure the supply for the African market.

5.3 Verification Results of H2: Mechanistic Analysis of Digital Transformation Reshaping OLI Advantages to Drive the Upgrade of the Internationalization Strategy

H2 is valid on the basis of the OLI theory, Figure 5, and practical data.

In terms of ownership advantages, Unilever held 112 digital patents in 2024, and its AI-customized beauty formulas accounted for 22% of the European market share. This empirical result is consistent with the conclusions that "digitalization improves innovation performance through the allocation of innovation factors" (Chen, P. Y. & Kim, S. K., 2023) 错误!未找到引用源。 and "digitalization strengthens the competitiveness of innovation outputs by virtue of dynamic capabilities" (Hu Yuanlin et al., 2024) 错误!未

找到引用源。 , proving that the construction of Unilever's technological barriers conforms to the industry laws of digital innovation. Specifically, digital tools have not only accelerated Unilever's technological R&D process but also promoted the transformation of innovative achievements into market advantages. Additionally, overseas brand awareness, calculated via the regional weighted average method, reached 85%, and the scores for "supply chain digitalization depth" and "digital marketing localization level" stood at 8 points, which was significantly higher than those of industry peers.

With respect to location advantages, Unilever built localized e-commerce platforms in Southeast Asia. After unifying the revenue statistical caliber through unit standardization, the e-commerce revenue share reached 42% in 2024. This result verifies the viewpoint proposed by Dai Anqi (2024) that "multinational enterprises need to tap into location-specific advantages through regional strategic adaptability" 错误!未找到引用源。 , indicating that Unilever's localized e-commerce layout in Southeast Asia is an effective practice for the digital reshaping of location-specific advantages. By leveraging digital tools, Unilever accurately matched the e-commerce demand in Southeast Asia and the green consumption demand in Europe, converting regional market characteristics into tangible revenue and efficiency advantages. For example, it launched low-energy laundry detergent pods in Europe within 3 months, and the product adjustment cycle—aggregated quarterly on the basis of real-time data—was shortened by 50%, effectively adapting to regional demands.

In terms of internalization advantages, the global collaboration system saved 180 million euros in cost, and the cross-regional order response time was reduced from 48 hours to 12 hours. Even after the cross-year missing values of these data were supplemented via the linear interpolation method, a stable downward trend remained, verifying the improvement in collaboration efficiency.

5.4 Verification Results of H3: Analysis of the Moderating Effect of Consumer Goods Industry Characteristics on the Relationship between Digitalization and Internationalization Strategies

Combined with the hypothesis setting, empirical data, Figure 6, and Figure 7, Hypothesis H3 is valid.

On the channel front, after merging data from multiple emerging markets via the regional weighted average method, the revenue share of online-offline collaborative sales reached 45%, and the repurchase rate increased by 30%. The omnichannel collaboration meets the industry's demand for offline experience.

On the cultural front, qualitative data—with coding consistency verified by the kappa coefficient—showed that the usage rate of cultural adaptation tools in emerging markets was 60%, and the ROI of localized advertising ranged from 2.3--2.5. This alignment with cultural contexts enhances consumer recognition.

In terms of regional differences, the growth rate of inventory turnover in emerging markets was 1.4 times per year from 2018--2024. This result was calculated after supplementing the missing data from 2020--2021 via the linear interpolation method. Owing to the more complex channels and more significant cultural differences in emerging markets, the alignment between industry characteristics and digitalization is greater, leading to a more prominent moderating effect.

6. Conclusion

6.1 Research conclusions

This study takes Unilever as a case to explore the relationship between digital transformation and internationalization strategies. The results show that digital transformation has significantly improved the implementation efficiency and effectiveness of Unilever's internationalization strategy.

In terms of marketing digitalization, the global digital marketing platform has significantly increased the ROI of digital advertising and the growth rate of overseas revenue, addressing the pain points of traditional marketing. In terms of supply chain digitalization, the blockchain supply chain in Africa has greatly shortened the response cycle, reduced the stock-out rate, and ensured stable supply.

Moreover, digital transformation has reshaped Unilever's OLI advantages and promoted the upgrade of its strategy toward value creation. In terms of ownership advantages, it has built a dual barrier of "technology + brand"—its digital patents lead industry peers, and its brand connection has been strengthened. In terms of location advantages, it has adapted to the characteristics of different regional markets, built localized e-commerce platforms, and quickly adjusted products to meet regional demands.

Furthermore, the characteristics of the consumer goods industry—"channel dependence and cultural sensitivity"—positively moderate the relationship between digitalization and the internationalization strategy. Especially in emerging markets, the role of omni-channel collaboration and cultural adaptation tools in enhancing the effect of digitalization on promoting the internationalization strategy is more prominent.

6.2 Theoretical contributions

Theoretically, this study enriches research in the field of digital transformation and corporate internationalization strategies. Traditional studies have focused mostly on the digitalization of a single link or a specific aspect of internationalization; in contrast, this study, starting from the OLI theoretical framework, systematically analyzes the comprehensive impacts of digitalization on the implementation efficiency of an internationalization strategy, the reshaping of core advantages, and the moderating effect of industry characteristics, thereby improving the theoretical system in this field.

In the research on the interaction mechanism between digital transformation and corporate strategy, this study clarifies the key role of digitalization in enhancing the efficiency of internationalization strategies, reconstructing competitive advantages, and adapting to industry characteristics. This study provides new ideas for subsequent scholars to further explore the path of corporate digital transformation and the selection of internationalization strategies, fills theoretical gaps, and offers empirical evidence supporting the development of corporate strategic management theory.

6.3 Limitations and Future Outlook

This study adopts Unilever as a single case for analysis, which inherently restricts the generalizability of its conclusions, and further verification across broader contexts is therefore needed. Additionally, a portion of the data utilized in this research are derived from public sources, resulting in limitations regarding the granularity of details and the completeness of nonfinancial indicators.

In terms of future research directions, the scope may be expanded to encompass comparative studies across multiple enterprises and industries. Moreover, a dynamic research perspective could be employed to track long-term developmental trajectories. Furthermore, the integration of primary data and empirical models contributes to refining and deepening the analytical framework of subsequent studies.

6.4 Countermeasures and recommendations

Focus on implementing digitalization across multiple links: On the marketing side, building a global digital marketing platform, leveraging big data analytics to analyze consumer behavior for targeted advertising, and increasing advertising ROI and the growth rate of overseas revenue; on the supply chain side, applying technologies such as blockchain and the Internet of Things (IoT) to optimize the response cycle and reduce the stock-out rate to ensure stable supply in overseas markets.

Reshape OLI advantages to strengthen competitiveness: At the ownership level, increase investment in technological R&D, accumulate digital patents, and build a unique brand image; at the location level, adapt to the characteristics of different regional markets—for example, building localized e-commerce platforms in Southeast Asia; and at the internalization level, establish a global collaboration system to reduce cross-border operation costs and improve collaboration efficiency.

Align with industry characteristics to adapt to markets: In response to the "channel emphasis and cultural adaptation focus" characteristics of the consumer goods industry, collaboration between online and offline channels should be promoted, and membership, inventory, and marketing systems should be integrated; in emerging markets, the application of cultural adaptation tools should be strengthened to increase the effectiveness of localized advertising and consumer recognition.

Improving Data Support and Research Application: In business operations, enterprises should focus on the collection and integration of multisource data and adopt scientific methods for data processing to ensure accuracy; they should refer to research experiences, adjust digitalization and internationalization strategies in light of their own business realities, and simultaneously pay attention to industry research findings to optimize their strategies.

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Conflicts of Interest

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