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FROM FLOW TO VALUE: HOW MOBILE MARKETING IS RESHAPING THE DIGITAL TRADE ECOSYSTEM

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Abstract. With the accelerated development of the global digital economy, digital commerce is becoming an increasingly important part of global trade. At the same time, widespread mobile internet penetration and technological advances are creating unprecedented marketing channels and transaction scenarios. Mobile marketing plays a significant role not only in traditional e-commerce but is also gradually becoming a key factor in the transformation of the digital commerce ecosystem. This article demonstrates how mobile marketing is reshaping user engagement paths, conversion mechanisms, transaction logic, and brand relationships, thereby profoundly influencing the development models and trends of digital commerce.

Keywords: mobile internet, marketing, digital, trade, ecosystem.

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ОТ ТРАФИКА К ЦЕННОСТИ: КАК МОБИЛЬНЫЙ МАРКЕТИНГ ПРЕОБРАЖАЕТ ЭКОСИСТЕМУ ЦИФРОВОЙ ТОРГОВЛИ

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Аннотация. С ускоренным развитием глобальной цифровой экономики цифровая торговля становится все более важной частью мировой торговли. Одновременно с этим широкое распространение мобильного интернета и технологический прогресс создают беспрецедентные маркетинговые каналы и сценарии для осуществления сделок. Мобильный маркетинг играет важную роль не только в традиционной электронной коммерции, но и постепенно становится ключевым фактором, способствующим трансформации экосистемы цифровой торговли. В статье показано, как мобильный маркетинг перестраивает пути вовлечения пользователей, механизмы конверсии, логику сделок и отношения с брендом, оказывая тем самым глубокое влияние на модели развития и направления цифровой торговли.

Ключевые слова: мобильный интернет, маркетинг, цифровизация, торговля, экосистема.

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Introduction

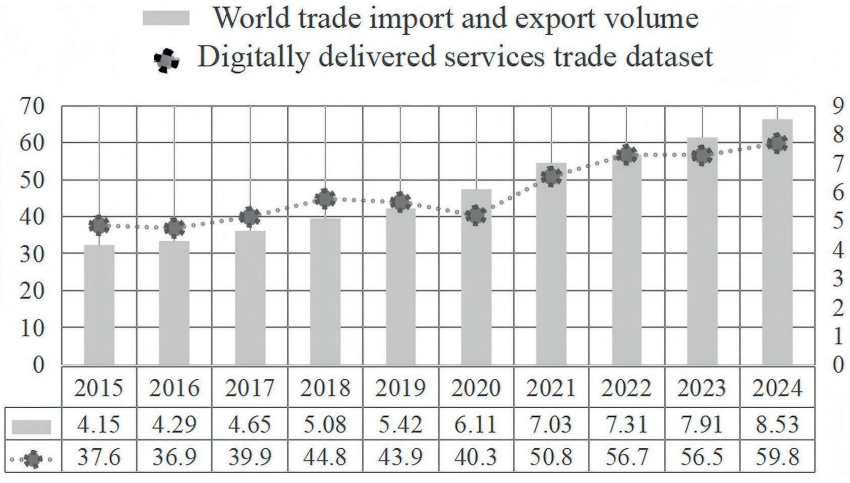
In the context of the accelerating evolution of the digital economy, mobile internet is profoundly altering the transaction logic and value structure of global commerce. Mobile marketing methods, represented by social media, short video platforms, and live-streaming e-commerce, are evolving from a simple "traffic tool" into a key engine driving the restructuring of the digital trade chain. Unlike traditional marketing, which relies on static advertisements and broad-based dissemination, mobile marketing leverages technology to achieve precise targeting, instant conversion, and deep user interaction, driving the efficient transformation from "traffic" to "transactions" and building new consumer pathways and business ecosystems.

At the same time, user data, platform algorithms, and content ecosystems are increasingly becoming core resources for digital trade. The responsiveness of supply chains and the flexibility of product customization are also being redefined. Mobile marketing not only expands market boundaries and activates fragmented demands but also accelerates the pace of localized operations and cross-border transactions. However, behind the opportunities lie structural challenges such as platform dependence, data compliance, and content homogenization. This paper will delve into how mobile marketing reshapes the digital trade ecosystem from multiple dimensions, including technology-driven innovations, scene transformations, user behavior, and data applications, and explore the transformation paths and challenges that businesses face in the new ecosystem.

Digital trade

Several authoritative organizations have provided definitions of "digital trade". UNCTAD defines digital trade as "all international trade transactions that are digitally ordered and/or digitally delivered. It encompasses both goods and services and aims to standardize measurement approaches globally" [1]. The OECD defines digital trade as "trade in products and services enabled by digital technologies, including e-commerce, cloud computing, and cross-border data flows. It extends beyond online transactions to include the digital delivery and platform-mediated exchange of goods and services" [2]. Another OECD definition states that "digital trade includes all trade that is digitally ordered or delivered, leveraging digital platforms, data flows, and technologies to facilitate cross-border transactions. It covers a wide range of sectors, from digital services to digitally enabled goods" [3]. The WTO also provides an explanation: "Digital trade is typically characterized by transactions where either the ordering process or the delivery (or both) occurs digitally. It reflects the growing role of data, digital platforms, and internet connectivity in modern international commerce" [1]. The author also offers a definition of "digital trade": digital trade refers to trade activities where data is the core element, digital platforms serve as the medium, and goods, services, technologies, and data are exchanged across borders electronically. This includes, but is not limited to, cross-border e-commerce, digital content services, fintech services, and cloud computing services. The digital trade ecosystem encompasses the entire "production-distribution-consumption-service" chain's digitization.

The author has compiled data on the total world trade import and export volumes and the total digital trade import and export volumes from 2010 to 2024, as shown in Fig. 1 [4].



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	4.15	4.29	4.65	5.08	5.42	6.11	7.03	7.31	7.91	8.53
	37.6	36.9	39.9	44.8	43.9	40.3	50.8	56.7	56.5	59.8

Fig. 1. World trade import and export volume and digitally delivered services trade dataset (trillions of dollars) [4]

Digital trade demonstrates its advantages and potential at various levels. At the economic level, digital flows have a more significant impact on GDP growth than the trade in goods [5]. Digital technologies can reduce trade costs by up to 25 % [6]. At the enterprise level, 96 % of eBay-enabled small businesses export, compared to less than 30 % of offline SMEs [7]. SHEIN's digital-first supply chain enables it to design, produce, and deliver new products in as little as seven days [8]. At the consumer level, consumers using cross-border e-commerce platforms benefit from an average 10–30 % lower price [9]. 1.3 billion adults gained access to digital financial services between 2017 and 2021 [10].

According to the definition of 'digital trade,' we can see that cross-border e-commerce is a crucial component of digital trade. Cross-border online shopping is a growing trend in the global e-commerce market, with an estimated value of 7.9 trillion U.S. dollars anticipated by 2030 [11]. The value of the total cross-border payments market worldwide in 2024 is 194.6 trillion U.S. dollars. From Fig. 2, we can predict the values of various cross-border payment methods by 2032 [12]. According to a survey of global cross-border shoppers in 41 countries, China was the most popular market to buy online from abroad, with 37 percent of respondents stating that they shopped from Chinese e-commerce sites. Germany ranked second with 13 percent, followed by the U.S. with 10 percent [13].

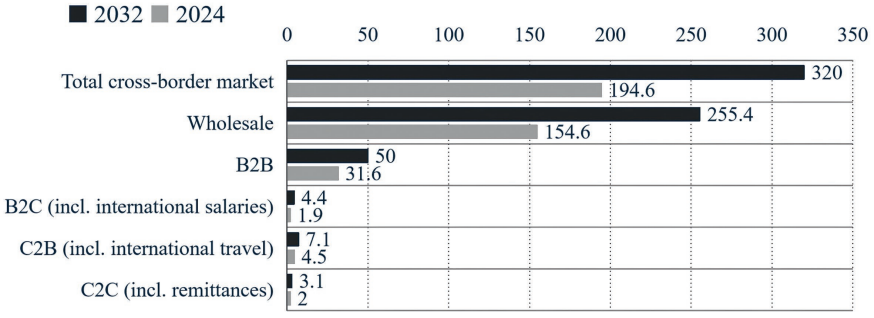


Fig. 2. Value of total cross-border payments market worldwide in 2024, with a forecast for 2032 (in trillion U.S. dollars) [12]

Mobile marketing

Next, we will focus on another main section of the article – mobile marketing. However, before we delve into that, we first need to discuss mobile internet. With the popularity of smartphones, mobile internet has greatly changed people's lives in a very short period of time. Over half our time online is spent on mobile phones. Adding wireless connections to our portable devices has shaped the modern digital environment for both hardware and software, while helping digitalization in emerging markets. A recent survey from Global System for Mobile Communications Association Intelligence (GSMA) found that 4.6 billion people across the globe are now connected to mobile internet – or roughly 57 % of the world's population [14]. In the last quarter of 2024, mobile devices (excluding tablets) generated 62.54 percent of global website traffic, as shown in Fig. 3 [15]. In January 2025 mobile devices excluding tablets accounted for over 63 percent of web page views worldwide [16]. Now global users spent almost 60 percent of their online time browsing the web from their mobile phones. The mobile revolution continues to transform internet usage behavior: according to a survey of global smartphone users, watching videos was the most popular mobile activity, followed by reading the news, and online shopping.

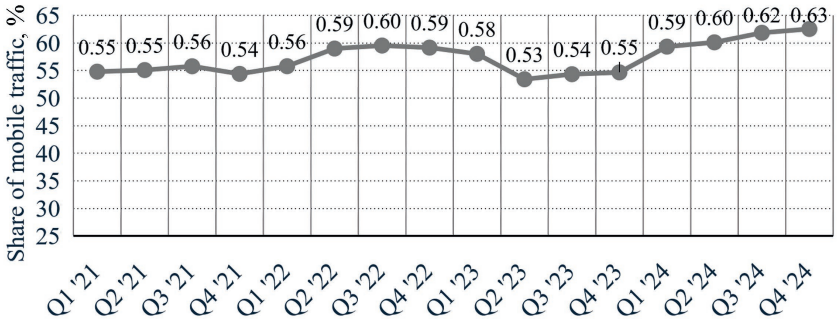


Fig. 3. Percentage of mobile device website traffic worldwide from 1st quarter 2015 to 4th quarter 2024 [15]

Mobile internet has brought enormous commercial value and potential, and "mobile marketing" has emerged accordingly. Some scholars have conducted research on mobile internet marketing. For mobile internet marketing, Shankar and Balasubramanian have provided a concise and accurate definition, "the two-way or multi-way communication and promotion of an offer between a firm and its customers using a mobile medium, device or technology" [17, p. 118]. Wei et al. defined mobile commerce, that is "any transaction including transfer of ownership or rights of any goods or services carried out by using mobile access through mobile devices" [18, p. 383]. Scholars think that mobile marketing is playing an increasingly important role. Shankar et al. believe that mobile devices and mobile applications offer retailers more than just the opportunity to exploit a new channel to reach customers. Mobile devices offer opportunities to combine information search, phone functionality and interaction while shopping in-store or using a product. A mobile device is a constant companion to the consumer, a gateway to a relationship between the consumer and the retailer, making it an ideal supplementary channel for distance selling and physical retailing [19]. There are also opinions about mobile marketing on website "adobe.com", compared with traditional e-commerce (based on using desktops and laptops), m-commerce has excelled worldwide as the online commercialization method that has grown the most in terms of business volume and number of transactions, tending to overcome the traditional e-commerce in the coming years [20].

Mobile marketing has also demonstrated outstanding commercial impact, which can be seen that from the data. In 2022, mobile advertising spending reached a record 327 billion U.S. dollars worldwide, and this figure was over 400 billion in 2024. Overall, the mobile marketing market size is expected to increase five-fold by 2030, highlighting how deeply embedded mobile technologies are into today's digital infrastructure and interconnected personal lives [21]. In 2024, the United States is leading the ranking by ad spending via mobile in the 'Digital Advertising Mobile' segment of the digital advertising market, recording 203.22 billion U.S. dollars. Following closely behind is China with 146 billion U.S. dollars, while the Netherlands is trailing the ranking with 2.6 billion U.S. dollars, resulting in a difference of 200.62 billion U.S. dollars to the ranking leader, the United States [22]. In 2024, the size of the global mobile marketing market was estimated at 21.37 billion U.S. dollars, and the source projected that it would reach 57.85 billion dollars by 2030. This would signify a compound annual growth rate (CAGR) of over 18 percent, it can be seen from Fig. 4 [23].

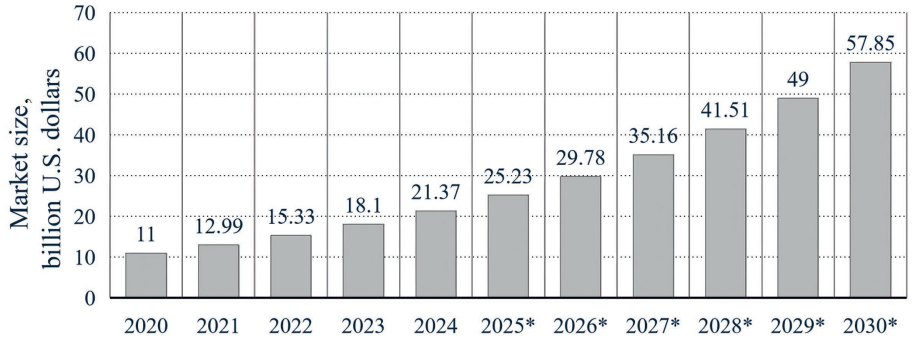


Fig. 4. Mobile marketing market size worldwide from 2020 to 2030 [23]

How does mobile marketing impact the digital trade ecosystem?

Mobile marketing is not only the 'traffic engine' of digital trade but also the core driving force behind its ecosystem reconstruction. It optimizes efficiency through data loops, expands markets through contextualized reach, and drives innovation through technology integration (Fig. 5).

1. Traffic acquisition: mobile marketing reshapes market connectivity and demand structure.

• Mobile marketing can precisely reach fragmented demand, integrating previously inaccessible or niche needs into a systematic trading network, thereby reconstructing the market connectivity mechanism of the digital trade ecosystem. This data-driven marketing approach uses smart algorithms to analyze user behavior in real-time, delivering personalized content directly to target users, thereby achieving a 'customized' communication effect. Compared to the geographical, temporal, and cost limitations of traditional marketing channels, mobile marketing offers high flexibility and immediacy, enabling earlier and more effective intervention in the user decision-making process, leading to conversions.

For example, platforms like Douyin (TikTok), WeChat Mini Programs, and others have become key tools for brands to reach marginal markets, allowing previously marginalized consumer groups to participate in digital trade.

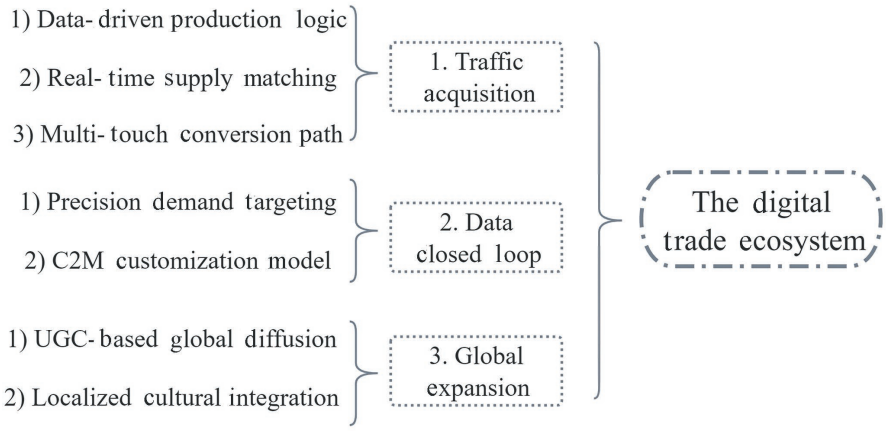


Fig. 5. How mobile marketing impacts the digital commerce ecosystem

• Mobile marketing effectively mitigates information asymmetry, enabling real-time matching between production and consumption through dynamic feedback loops. By leveraging multi-dimensional data such as user feedback, click behavior, and social interactions, businesses can not only gain insights into consumers' true preferences but also dynamically adjust product structures and marketing strategies for rapid experimentation and precise iteration. This 'data feedback' mechanism significantly improves the matching efficiency between supply chains and market demand, accelerating the transition from traditional trade to the digital trade ecosystem.

• The multiple entry points of mobile platforms, including social media, short videos, and live-streaming – reduce consumer access costs, reshape user decision-making paths, and create an internal circulation system that sustains the growth of digital trade. In this model, social media plays a role in awakening interest, short videos with visual impact deepen user recognition and emotional connection, while live-streaming strengthens interaction and trust, driving immediate conversions. This effectively improves conversion efficiency in digital trade. This multi-touchpoint, full-link marketing system not only reshapes the user's purchasing path but also fundamentally changes the flow logic of goods. In the traditional model, products move through layers of distributors to reach the end consumer; however, today, brands can drive content and social sharing to complete the entire process from exposure to transaction in a very short time, achieving exponential growth in trade efficiency.

2. Data closed loop: mobile marketing reconstructs the supply logic of digital trade.

• Real-time feedback from mobile platforms, such as click rates, favorites, and return data – transforms user behavior into the basis for production decisions, reshaping the connections among information flow, logistics flow, and value flow. The data accumulated through mobile marketing feeds back into the production end, enabling a “demand-driven supply” model. This shift disrupts the traditional linear approach of “produce first, sell later”, pushing enterprises toward more flexible and agile supply chain systems. By deeply analyzing user behavior data, such as browsing paths, time spent on pages, and purchase frequency, businesses can accurately capture real consumer preferences and emerging trends. This enables dynamic responses in product design, inventory management, and even production capacity allocation. Such a production model, built on real-time feedback, significantly reduces the risk of unsold inventory and lowers storage costs, enhancing the adaptability and resilience of digital trade.

• Represented by the customer-to-manufacturer (C2M) model, mobile marketing transmits consumer demand directly to manufacturers through user data, achieving on-demand customization and rapid delivery. This enables a fundamental transformation of the supply chain from a linear structure to a data-driven ecosystem. Cross-border e-commerce platforms like AliExpress and Pinduoduo have already adopted C2M practices. By analyzing big data to identify best-selling trends and collaborating with factories for targeted product development, they can ensure that products become instant hits upon launch. This not only boosts customer satisfaction but also supports the digital and intelligent transformation of manufacturing, injecting new momentum into digital trade. This data-driven “agile supply

chain" significantly shortens the cycle from consumer intent to product delivery and enhances the digital trade platform's ability to respond to market changes. In the long run, this mechanism not only optimizes operational cost structures but also strengthens the responsiveness and coordination of the entire digital trade ecosystem.

3. Global expansion: mobile marketing rebuilds cross-border interaction and cultural integration.

• User-generated content (UGC) dissemination on mobile social platforms shifts global market expansion from centralized output to decentralized co-creation, forming a value communication network co-created by international consumers and promoting global synergy within the digital trade ecosystem. Through formats like short videos, photos, and product reviews, users actively share their experiences, enhancing content credibility and forming a decentralized brand communication network. In this model, companies do not need to rely heavily on traditional advertising or distribution channels; instead, they can quickly achieve market penetration by leveraging users' social networks. Platforms like TikTok and Instagram are prime examples, one high-quality UGC video can go viral across regions and cultures, providing natural momentum for digital trade to expand into international markets. Furthermore, this user-driven dissemination mechanism has fueled the emerging trend of "social as a channel". Social media platforms act both as traffic sources and transaction channels: UGC not only influences consumer decisions but also directly drives purchases. For instance, on TikTok Shop, videos often include product purchase links, creating a closed loop from content to interest to transaction, and dramatically shortening the conversion path of traditional cross-border marketing. This consumer-driven, decentralized trade communication model enhances both the efficiency and diversity of the global digital trade ecosystem.

• Mobile marketing also bridges cultural differences through localized content, such as language adaptation and holiday-based campaigns, creating a diverse and interconnected cultural hierarchy within the digital trade system, and enhancing the inclusiveness and sustainability of the ecosystem. In digital trade, cultural differences often pose barriers between user perception and purchase intent – localization strategies are key to overcoming this. By tailoring content to suit language preferences, religious beliefs, and festive customs of different countries or regions, companies can communicate in culturally appropriate ways. At the same time, localization fosters content diversity on digital platforms. By involving local influencers (KOLs), UGC creators, and consumers in co-creating content, platforms enhance cultural resonance and community engagement. This "localized content" strategy positions brands not only as product providers but also as participants in cultural exchange, increasing global user recognition and accelerating both transactions and brand penetration. For example, cross-border e-commerce platforms like SHEIN have established local social media teams in various countries to create themed content around holidays like Christmas, Thanksgiving, and back-to-school seasons. They also collaborate with local influencers for fashion showcases, successfully building globally appealing digital consumption experiences.

Challenges and opportunities

Against the backdrop of mobile marketing reshaping the digital trade ecosystem, a new structure and logic have emerged within the ecosystem, bringing numerous opportunities for enterprises, but also posing significant challenges.

1. Intensified platform dependence and the unsustainability of traffic dividends.

Mobile marketing relies heavily on the traffic distribution mechanisms of major platforms such as Instagram, TikTok, and Taobao. Once platform rules or algorithms change, businesses may face a "traffic drought" crisis. This platform-dominated traffic allocation model makes enterprises highly dependent on algorithm transparency and stability. For example, even a slight adjustment in TikTok's content distribution mechanism can cause once-popular videos to lose visibility overnight, directly impacting product conversion and sales. Without their own "private traffic" (i. e., proprietary user bases), companies become vulnerable in a "traffic-is-survival" scenario.

Moreover, the cost of acquiring traffic continues to rise. As more merchants enter the market, competition intensifies among brands on the same platform, driving up click-through and conversion costs and compressing profit margins. This situation is particularly challenging for small and medium-sized enterprises (SMEs) and emerging brands, which often lack the budget to maintain high visibility within algorithm-driven ecosystems.

In this new landscape, businesses urgently need to explore "decentralized" alternatives, such as launching mini-program stores, building brand-owned channels (e. g., email marketing, membership systems), or managing user communities. These strategies can reduce dependence on third-party traffic sources while enhancing risk resilience and customer lifetime value. Only by establishing a stable mechanism to retain and engage users can companies achieve sustainable growth in the evolving digital trade ecosystem.

2. Dispersed user attention and severe content homogenization.

In an age of information overload, user attention has become a scarce resource. To maintain visibility, companies must continuously produce high-quality content. However, the flood of homogeneous content has led to declining conversion rates and increasing user fatigue. This phenomenon is particularly prominent across mainstream formats such as short videos, images, and livestreams, where users are frequently exposed to repetitive messaging, formulaic narratives, and indistinguishable recommendations. As a result, brand influence weakens, and marketing efficiency diminishes.

In this context, businesses must urgently pursue content differentiation and personalized creativity to break through the attention barrier. Emerging technologies such as AI-generated content (AIGC) and virtual influencer marketing are offering new creative opportunities. In an era where content must compete fiercely for limited user attention, only companies that continuously innovate in their modes of expression and enhance user engagement mechanisms can sustain a competitive edge within the digital trade ecosystem.

3. Rising risks of data privacy and regulatory compliance.

With the widespread application of technologies such as personalized recommendations and location-based services (LBS), the collection and use of user data are increasingly subject to stringent laws and regulations (e. g., GDPR, cross-border data transfer restrictions). Businesses must now balance marketing efficiency with the rising costs of compliance.

Under the European Union's General Data Protection Regulation (GDPR), users have enhanced control over their personal data. If a company collects, tracks, or uses data without proper user consent, it risks facing heavy fines and legal action. This presents a direct challenge to data-driven mobile marketing models, especially in areas like cross-border e-commerce and international digital advertising, where data collection, storage, and transfer must strictly adhere to local legal requirements.

Furthermore, countries are increasingly emphasizing "data sovereignty", giving rise to data localization policies. For example, China's Personal Information Protection Law and Data Security Law require that critical data be stored within national borders. As a result, businesses engaged in cross-border marketing or multi-country data integration face significantly higher compliance thresholds.

In response to these trends, companies are gradually adopting a "compliance-first" data strategy. On one hand, they are investing more in privacy-enhancing technologies (such as data anonymization, differential privacy, and secure multi-party computation) to unlock data value while safeguarding user rights. On the other hand, they are working to rebuild user trust by strengthening consent mechanisms and enhancing transparency in privacy policies. In the long term, compliance capability will become a vital form of soft power for companies participating in global digital trade. Those who can strike the right balance between efficiency and privacy will gain a strategic edge in an increasingly complex digital ecosystem.

4. High flexibility demands on supply chains put pressure on SMEs.

While data-driven supply can improve efficiency, it also requires businesses to rapidly adapt their production and inventory in real time. For traditional enterprises that have yet to complete their digital transformation, this presents a significant challenge.

A lack of digital infrastructure, such as ERP systems, smart warehousing, and supply chain visualization platforms, makes it difficult for these companies to process large volumes of data from mobile channels in real time, let alone achieve accurate forecasting and agile turnover.

Moreover, flexible production is not solely a technological issue; it also demands upgrades in organizational structures and coordination mechanisms. Traditionally, departments such as marketing, sales, logistics, procurement, and production have operated in silos. However, a data-driven supply chain requires tight integration between front-end marketing and back-end production, enabling agile responses where "marketing is forecasting" and "orders become production instructions". This shift places enormous pressure on business process reengineering, management system optimization, and talent restructuring.

To overcome these challenges, some leading companies are exploring breakthrough approaches. For example, certain apparel brands are leveraging C2M (Customer-to-Manufacturer) platforms to transmit user data, such as clicks, favorites, and pre-orders — directly from mobile interfaces to partner factories. This enables small-batch, high-frequency flexible production. Thus, building a digital supply system is not merely a technological upgrade but a systemic restructuring of management logic and business models. Those who successfully transition from a "linear supply chain" to a "data-driven network" will gain a competitive edge marked by greater resilience and efficiency in the evolving digital trade ecosystem.

Conclusion

1. Mobile marketing not only transforms the consumer journey but also reconstructs the operational logic of digital trade. From "traffic acquisition" to "transaction conversion", and from "user engagement" to "data feedback", mobile marketing has become deeply integrated into every aspect of digital trade, including product development, brand communication, supply chain management, and cross-border operations, emerging as a key driver of high-quality growth in the digital trade ecosystem.

2. This study demonstrates that mobile marketing reshapes the digital trade ecosystem through three primary mechanisms: market expansion, data-driven innovation, and global integration. Through traffic acquisition and multi-touchpoint interaction mechanisms, mobile marketing converts consumer attention into sustained market demand, thereby expanding the scale and efficiency of digital trade. The data feedback loop mechanism drives the transformation of digital trade from supply-driven to demand-driven production. Real-time user behavior feedback enables production and logistics systems to respond rapidly, giving rise to the Customer-to-Manufacturer (C2M) model, which enhances the adaptability and resilience of the digital trade system. Meanwhile, user-generated content (UGC) and localized dissemination mechanisms allow mobile marketing to overcome geographical and cultural barriers, enabling brands to achieve global expansion at lower marginal costs and promoting diversity and inclusiveness in international digital trade.

3. However, this ecological reconstruction also introduces new structural challenges. Excessive dependence on platforms exposes enterprises to risks of algorithmic volatility and "traffic monopolies"; content homogenization weakens brand communication and user engagement; and the sensitivity of data privacy, combined with the growing demand for supply chain flexibility, poses additional obstacles. To maintain sustainable competitiveness, enterprises must develop diversified content systems, build private traffic channels, implement compliant data strategies, and advance the digital transformation of their supply chains.

4. In general, mobile marketing is evolving from a transactional tool into a systemic driver of digital trade transformation, redefining the relationships among production, distribution, and consumption in the digital economy. The main contribution of this study lies in identifying and elucidating a complete transformation mechanism, that is "traffic→data→supply→transaction", which serves as a new engine of value creation within the digital trade ecosystem.

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