



## **Review of Internationalization of Digital Enterprises**

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### **ABSTRACT**

The internationalization of digital enterprises has emerged as a pivotal area of scholarly inquiry in response to the growing global influence of digitally enabled firms. This review synthesizes recent literature on the drivers, barriers, strategies, and outcomes associated with the international expansion of digital firms. While digital technologies facilitate rapid market entry and scaling, these firms encounter distinctive challenges, notably the liability of ecosystem integration and persistent institutional and cultural barriers encapsulated by the CAGE framework. The paper evaluates the relevance of traditional internationalization theories - such as the Uppsala model, OLI paradigm, and internalization theory - while highlighting emerging frameworks like the platform-OLI model and digital ecosystem theory. It further explores the critical role of dynamic and adaptive capabilities in navigating volatile global environments. The review concludes by identifying key research gaps and proposing future directions, particularly the need for theoretical integration and deeper investigation into the role of artificial intelligence, data analytics, and digital infrastructures in shaping global strategies.

Keywords: Digital Internationalization, Digital Transformation, Ecosystem Integration, Dynamic Capabilities

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### **1. Introduction**

The internationalization of digital enterprises has garnered increasing scholarly attention due to their expanding influence in the global economy (Yang et al., 2025; Piqueras, 2020). These firms leverage technological infrastructures encompassing artificial intelligence, automation, and network effects to accelerate their penetration into global markets, thereby often circumventing traditional barriers including geographic distance and transaction costs (Monaghan et al., 2019; Stallkamp et al., 2022). While digital technologies significantly facilitate rapid international scaling, recent studies underscore that digital enterprises remain exposed to distinct challenges and costs. One of the most prominent among these is the liability of ecosystem integration, which necessitates the establishment and maintenance of embedded relationships with local user communities, complementary service providers, and institutional stakeholders (Rong et al., 2022). Consequently, successful international expansion for digital firms requires more than technological advantage; it also demands dynamic capabilities to continuously adapt and innovate business models in response to diverse foreign environments (Svanberg, 2023). This underscores the need for more comprehensive and integrative theoretical frameworks that can illuminate the multifaceted nature of digital internationalization and lay the foundation for future research in this evolving domain (Yang et al., 2025; Stallkamp et al., 2022).

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### **2. Literature Review**

#### ***2.1 Drivers and barriers to the internationalization of digital enterprises***

The international expansion of digital firms is shaped by both conventional determinants and distinct attributes of the digital era. According to Johanson and Vahlne (1977), the traditional Uppsala model conceptualizes internationalization as a gradual process, driven primarily by the pursuit of foreign market opportunities and the incremental accumulation of experiential and market-specific knowledge. Their later revision (2009) further emphasizes the centrality of business networks and reliance on strategic partnerships in overcoming entry barriers in foreign markets.

In the digital context, these foundational dynamics are magnified through unique affordances such as real-time interactivity, network externalities, and the capacity for rapid scaling at minimal marginal cost (Monaghan et al., 2019; Piqueras, 2020). Born-digital firms often exhibit early and accelerated international orientation, enabled by their integration with digital technologies, internet infrastructure, and online platforms that facilitate immediate access to global markets (Vadana et al., 2019; Stallkamp et al., 2022).

Nevertheless, despite these enabling conditions, digital enterprises encounter substantial impediments during internationalization. Johanson and Vahlne (2009) highlight the liability of outsidership, the structural disadvantage that arises when firms lack access to essential local networks in host markets. Building on this, Rong et al. (2022) introduce the concept of liability of ecosystem integration, describing the necessity for digital firms to actively embed themselves within local stakeholder ecosystems, including users, service providers, and regulatory institutions.

Additionally, structural disparities encapsulated by the CAGE framework (cultural, administrative, geographic, and economic distances) continue to impose formidable constraints, limiting both market accessibility and the effectiveness of international operations (Ghemawat, 2001; Shaheer & Li, 2020; Stallkamp et al., 2022).

Confronting these barriers requires more than technological leverage. Digital firms must cultivate adaptive capacities, continuously update contextual knowledge, and develop flexible strategies that mitigate the risks associated with institutional and environmental divergence across national boundaries (Svanberg, 2023; Yang et al., 2025).

## ***2.2 Internationalization strategies of digital enterprises***

The internationalization strategies pursued by digital enterprises diverge significantly from those traditionally adopted by conventional firms. Digital firms frequently engage in rapid internationalization, capitalizing on digital technologies, online platforms, and globally connected infrastructures to achieve near-immediate access to international markets from the earliest stages of their operations (Monaghan et al., 2019; Stallkamp et al., 2022). These firms commonly rely on digital distribution channels, such as app stores, e-commerce platforms, and other online ecosystems, to minimize market entry costs and accelerate global expansion (Piqueras, 2020; Stallkamp et al., 2022).

Some digital enterprises adopt a fully digital strategy, delivering products and services exclusively through online platforms without establishing any physical presence in target markets (Piqueras, 2020; Yang et al., 2025). Others implement a hybrid approach, combining virtual operations with selective investment in physical infrastructure abroad to satisfy regulatory requirements and accommodate the specific needs of local markets (Piqueras, 2020; Yang et al., 2025).

Moreover, a growing number of digital firms emphasize strategies that foster integration within local ecosystems. These strategies involve proactively cultivating relationships with domestic stakeholders, including end-users, complementary partners, and local regulatory institutions. Such efforts are aimed at mitigating the liability of ecosystem integration, an increasingly recognized impediment to successful digital internationalization (Rong et al., 2022; Svanberg, 2023). This perspective echoes Johanson and Vahlne's (2009) proposition that firms must embed themselves within local business networks to overcome entry barriers, a concept that remains highly relevant in the digital context (Rong et al., 2022).

Recent studies underscore that dynamic capabilities (such as strategic agility, continuous knowledge renewal, and the ability to swiftly adapt to changing environments) are critical to the successful implementation of internationalization strategies by digital firms (Svanberg, 2023; Stallkamp et al., 2022).

## ***2.3 Outcomes and performance of digital firm internationalization***

The performance of digital firm internationalization is typically assessed through indicators such as speed of global expansion, revenue generated from foreign markets, and the degree of adaptation to local conditions. While certain firms achieve rapid success by leveraging digital technologies and exploiting network effects, others encounter substantial challenges stemming from legal or cultural barriers (Mithani, 2023). Notably, performance outcomes vary widely, influenced by the firm's capacity to manage internal resources and its adaptability to the complexities of foreign environments (Svanberg, 2023).

Digital firms that effectively harness technological infrastructures to scale internationally tend to outperform their peers in terms of both growth and profitability. This success is often attributed to economies of scale and the low marginal costs associated with digital operations (Monaghan et al., 2019; Vadana et al., 2019). However, the literature consistently emphasizes that not all digital ventures experience uniform success. Many still grapple with inherent risks linked to platform dependencies, institutional and cultural distances described by the CAGE framework, and the liability of ecosystem integration (Jean et al., 2020; Rong et al., 2022; Shaheer & Li, 2020).

Firms that demonstrate high performance in international markets are often distinguished by their dynamic capabilities, including continuous business model innovation and the ability to navigate digital-specific risks through effective strategic management (Anwar et al., 2024; Cassetta et al., 2019).

Internationalization can also yield substantial advantages such as enhanced revenue streams, broader brand reach, and more efficient utilization of digital assets (Shaheer et al., 2020). Conversely, if poorly executed, global expansion may result in adverse outcomes (such as diluted brand control or fragmented operational oversight) compromising overall organizational coherence and long-term sustainability.

## ***2.4 Contextual factors influencing the internationalization of digital enterprises***

The internationalization landscape for digital enterprises is shaped by an interplay of technological, institutional, and socio-cultural dimensions. Earlier studies have underscored that institutional factors, particularly local regulatory frameworks and governance policies, constitute formidable obstacles that firms must navigate when entering foreign markets (Ghemawat, 2001; Johanson & Vahlne, 2009). More recent contributions by Stallkamp et al. (2022) and Rong et al. (2022) expand this view, noting that the digital business environment has grown increasingly complex due to the rapid evolution of technologies such as artificial intelligence, blockchain, and the Internet of Things. In addition, intensifying competition from both domestic and international players, coupled with pronounced heterogeneity in digital consumer behaviors and cultural preferences across countries, further compounds the strategic challenges faced by digital firms.

In response to these shifting dynamics, firms must cultivate agile managerial capabilities and develop high levels of responsiveness to adjust swiftly to international market volatility (Svanberg, 2023). Countries equipped with advanced digital infrastructure tend to provide more favorable conditions for cross-border expansion, while differences in legal systems, regulatory standards, and cultural norms can significantly hinder the pace and scope of international growth (Li et al., 2023). Some jurisdictions actively support digital enterprise development through business-friendly policies, whereas others impose stringent legal constraints and data governance requirements (Rong et al., 2022).

Sectoral variation also plays a critical role. Industries characterized by inherently digital value propositions tend to internationalize more rapidly than those that are asset-intensive and dependent on localized physical investments, as is the case with e-commerce (Rong et al., 2022). Moreover, firms that exhibit strong resource orchestration capabilities are generally better positioned to leverage technological tools to enhance the efficiency and effectiveness of their internationalization processes (Stallkamp et al., 2022).

## 2.5 Theories

The study of digital firm internationalization draws upon several foundational and emergent theoretical frameworks, each offering distinct perspectives on the drivers, mechanisms, and outcomes of cross-border expansion:

**Uppsala internationalization process model:** Introduced by Johanson and Vahlne (1977, 2009), this model serves as a foundational lens for analyzing internationalization processes. It emphasizes the gradual accumulation of market knowledge, experiential learning, and the importance of relational networks in entering foreign markets. While originally developed for traditional firms, it remains relevant for understanding non-technological dimensions of digital firm internationalization (Rong et al., 2022).

**Dynamic capabilities theory:** Proposed by Teece (2007), this theory defines dynamic capabilities as a firm's ability to integrate, reconfigure, and leverage internal and external resources in response to rapidly changing environments. It has gained prominence in digital internationalization research for explaining how firms innovate and adapt in dynamic global markets (Svanberg, 2023).

**OLI Paradigm (Ownership-Location-Internalization):** Digital internationalization has extended the applicability and interpretation of the OLI framework. In particular, it underscores the relevance of digital ownership advantages (e.g., proprietary algorithms or platforms) and digital location advantages (e.g., access to global online infrastructure), moving beyond traditional reliance on physical assets (Nambisan et al., 2019).

**Platform-OLI (P-OLI) Framework:** A recent theoretical innovation, the P-OLI model adapts the OLI logic to the unique characteristics of digital platform firms. It highlights platform-specific advantages such as the ability to scale information flows and access dispersed user resources, capabilities that are often unattainable for conventional enterprises (Surana et al., 2024).

**Internalization theory:** Traditionally focused on minimizing transaction costs by internalizing operations, this theory has seen its explanatory power diminish in the digital era. Digital firms increasingly rely on externalization strategies—leveraging open ecosystems and platform-mediated networks—rather than internal control mechanisms (Brouthers et al., 2022).

**Internationalization motivations theory:** This framework examines the underlying motivations driving digital firms to internationalize, including strategic positioning, economic opportunity, and technological innovation. It reflects the multifaceted rationale for global expansion in the digital context (Autio et al., 2021).

**Adaptive capability theory:** This perspective centers on firms' ability to flexibly respond to diverse international environments. It explores how digital enterprises cultivate adaptive capabilities that enable them to modify strategies and exploit digital technologies to enhance global competitiveness (Teece, 2018).

**Digital ecosystem theory:** Offering a more nuanced understanding of digital firm internationalization, this theory expands upon traditional network perspectives by emphasizing the strategic role of digital platforms and ecosystems. It explains how interconnected digital environments support international scaling and resource orchestration (Li et al., 2019).

## 2.6 Ongoing debates in digital firm internationalization

The internationalization of digital enterprises remains a subject of considerable academic debate, particularly concerning the speed and nature of expansion models.

Some scholars argue that digital firms are capable of scaling globally from inception, thanks to digital platforms and the amplifying effects of network externalities (Monaghan et al., 2019). In contrast, others contend that despite digital enablers, these firms must still follow more conventional internationalization trajectories due to the necessity of adapting to local regulatory frameworks and managing ecosystem-related risks (Johanson & Vahlne, 2009; Rong et al., 2022).

The extent to which digital technologies eliminate internationalization barriers is also contested. While some studies emphasize that digital tools facilitate seamless access to global markets (Piqueras, 2020; Yang et al., 2025), alternative perspectives caution that CAGE distances remain persistent and substantial impediments, particularly in culturally and institutionally distinct markets (Shaheer & Li, 2020; Rong et al., 2022).

A further point of contention involves how digital firms adapt to local ecosystems. While some organizations adopt a standardized global model, a growing body of literature warns that failing to tailor strategies to local contexts may result in underperformance or market failure (Monaghan et al., 2019; Rong et al., 2022).

Lastly, the question of whether digital enterprises can genuinely transcend traditional internationalization logics remains unresolved. Certain studies assert that digital firms can bypass sequential stages such as establishing physical infrastructure abroad (Vadana et al., 2019). However, opposing views maintain that traditional elements—including relational networks and organizational capabilities—continue to be critical determinants of international success (Johanson & Vahlne, 2009; Rong et al., 2022).

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### 3. Conclusion and future research directions

The internationalization trajectory of digital enterprises is being profoundly shaped by technological advancements, particularly the digitization of value chains, platform-based expansion mechanisms, and the strategic exploitation of network effects to accelerate global market entry. Despite these transformative capabilities, digital firms continue to face substantial challenges, including CAGE-related institutional and cultural distances, the liability of ecosystem integration, and risks inherent to digital platforms. These factors underscore the necessity for developing dynamic capabilities and continuously innovating business models to achieve sustainable internationalization performance.

Significant research gaps remain within this evolving field, pointing to several promising avenues for future inquiry:

- Theoretical integration: There is a critical need to synthesize traditional internationalization theories with emerging frameworks to more accurately reflect the complexities of digital firm globalization (Yang et al., 2025).
- Impact of digital transformation: Expanded investigation is required into how digital technologies influence the speed, sequence, and nature of internationalization strategies (Feliciano-Cestero et al., 2023).
- Role of data and artificial intelligence: As AI and big data analytics become integral to global scaling, further research is essential to explore their strategic implications for market entry, adaptation, and resource allocation in international contexts (Santos & Williamson, 2024).

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