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Internationalization of Digital and Traditional MNEs:

A Stylized Comparison of Antecedents, Processes, Strategies, and Consequences

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Biographic Note

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Executive Summary

This paper provides a stylized comparison of digital and traditional multinational enterprises (MNEs), examining how they differ in the antecedents, processes, strategies, and consequences of internationalization. Traditional MNEs expand gradually through tangible investments, foreign direct investment, and location-bound advantages. Digital MNEs, in contrast, rely on asset-light, platform-based models that allow for near-instant global reach, reshaping established patterns of international business. The comparison highlights that digital firms face reduced liabilities of foreignness but heightened liabilities of outsidership, shifting the internationalization logic from internalization toward externalization and ecosystem orchestration. While digital internationalization offers efficiency, scalability, and innovation, it also generates new risks, including regulatory challenges, dependency on external ecosystems, and environmental implications. By juxtaposing these "ideal types," the paper demonstrates both the continuities and discontinuities between digital and traditional internationalization paths. It questions the explanatory power of established IB frameworks and points to the relevance of emerging concepts such as ecosystem-specific and externalization advantages for understanding the evolving nature of global business in the digital age.

Dieser Beitrag liefert einen stilisierten Vergleich digitaler und traditioneller multinationaler Unternehmen (MNEs) und untersucht, wie sie sich in den Voraussetzungen, Prozessen, Strategien und Konsequenzen der Internationalisierung unterscheiden. Traditionelle MNEs expandieren schrittweise über materielle Investitionen, ausländische Direktinvestitionen und standortgebundene Vorteile. Digitale MNEs hingegen basieren auf „asset-light", plattformgestützten Geschäftsmodellen, die eine nahezu sofortige globale Reichweite ermöglichen und damit etablierte Muster des internationalen Geschäfts grundlegend verändern. Der Vergleich zeigt, dass digitale Unternehmen zwar geringere „Liabilities of Foreignness" (Nachteile der Auslandstätigkeit), dafür aber verstärkte „Liabilities of Outsidership" (Außenseiter-Nachteile) zu bewältigen haben. Dies verschiebt die Logik der Internationalisierung von Internalisierung hin zu Externalisierung und Ökosystem-Steuerung. Während digitale Internationalisierung Effizienz, Skalierbarkeit und Innovation eröffnet, bringt sie zugleich neue Risiken mit sich, darunter regulatorische Herausforderungen, Abhängigkeiten von externen Ökosystemen und ökologische Implikationen. Durch die Gegenüberstellung dieser „Idealtypen" werden sowohl Kontinuitäten als auch Brüche zwischen digitalen und traditionellen Internationalisierungspfaden deutlich. Das Papier hinterfragt die Erklärungskraft etablierter Theorien des International Business und verweist auf die Relevanz neuer Konzepte wie ökosystemspezifische und Externalisierungsvorteile, um die sich wandelnde Natur des globalen Geschäfts im digitalen Zeitalter zu verstehen

Contents

1. Introduction

The rise of digital multinational enterprises (MNEs) challenges established theories and practices in international business (Eden, 2016; Birkinshaw, 2022; Nambisan & Luo, 2022). Whereas traditional MNEs have internationalized primarily through tangible assets, foreign direct investment (FDI), and gradual geographic expansion (Johanson & Vahlne, 1977), digital MNEs rely on asset-light, platform-based business models that enable near-instantaneous global reach (Birkinshaw, 2022; Brouthers et al., 2022). This transformation raises critical questions about the adequacy of conventional frameworks in international business (IB) — including classical internationalization motives, barriers and strategies (Dunning, 1993; Zaheer, 1995; Bartlett & Ghoshal, 1989), as well as the Uppsala model (Johanson & Vahlne, 1977, 2015), the OLI paradigm (Dunning, 1993), and the CSA–FSA logic (Rugman & Verbeke, 2001) — in explaining the antecedents, processes, strategies, and consequences of internationalization in the digital era.

The following sections analyze differences between digital and traditional MNEs across three main dimensions. First, we examine antecedents of internationalization, exploring how motives, liabilities of foreignness (LoF), and liabilities of outsidership (LoO) diverge between the two types of MNEs. This discussion also entails applying the OLI/CSA-FSA framework to both traditional and digital MNEs in a stylized comparative manner. Second, we discuss the processes and strategies of internationalization, contrasting speed, scale, and scope of expansion and highlighting differences in global integration versus local responsiveness and entry modes (Brouthers et al., 2022). Third, we assess the consequences of internationalization for both firms and their external environments, identifying opportunities for efficiency, innovation, and growth alongside challenges such as regulatory pushback, environmental impacts, and risks of digital dependence.

By comparing digital and traditional MNEs in a stylized fashion, this paper contributes to a better understanding of how digitalization transforms internationalization patterns and strategies. It also reflects on whether established IB theories sufficiently capture these dynamics or whether new conceptual approaches — such as externalization theory (Strange 2021) and ecosystem-specific advantages (Li et al., 2019; Banalieva & Dhanaraj, 2019) — are required to explain the evolving nature of global business in the digital age.

In this paper we define digital MNEs based on Ibeh (2020) as enterprises “whose business model is based on digital technologies and that own and manage value-creating activities in two or more markets outside their home country” (p.169). Purely digital MNEs can be understood as MNEs whose production and operations as well as commercialization and sales are virtual and internet-based. A case in point would be digital solution providers or platform MNEs such as Google (WIR, 2017). Conversely, traditional MNEs are enterprises whose production and operations as well as commercialization and sales are primarily physical and location-bound, often relying on tangible assets, manufacturing facilities, and localized distribution systems. Typical examples include manufacturing firms in industries such as automobiles, chemicals, or consumer goods, which internationalize through conventional FDI in plants, subsidiaries, and physical supply chains. Between these two poles, however, a growing number of “hybrid” MNEs can be observed, combining physical and digital elements in their international business models — for instance, firms that manufacture hardware but also operate global digital platforms or service ecosystems. It goes without saying that MNEs are often blends of both traditional and digital forms. Traditional MNEs are increasingly moving in the direction of becoming more digitally embedded, while digital MNEs are either hybrid from the outset (e.g., Amazon) or gradually develop more localized, asset-based operations as part of their internationalization process. Hence, while acknowledging that many MNEs are in fact “hybrids”, that is, digital–traditional blends rather than purely digital-virtual or purely traditional brick-and-mortar firms, the following working paper rest for the most part on a stylized or “ideal type” comparison of digital and traditional MNEs to highlight their contrasts more clearly for educational purposes.

Lastly, the following stylized comparison rests on a cursory literature review centering on seminal contributions to the topic. In a similar vein, the examples provided in the text do not rest on systematic data collection but are rather provided selectively for illustrative purposes. Hence, the paper makes no claim of comprehensiveness and does not attempt to capture the full empirical diversity of MNEs. Rather, it is intended as a pedagogical and heuristic device that simplifies complex realities into “ideal types” in order to highlight key differences. This approach allows for a clearer conceptual contrast between traditional and digital MNEs, thereby serving the educational purpose at hand while acknowledging the more fluid and blended nature of these firms in practice.

2. Antecedents of Internationalization

2.1 Internationalization Motives and Liability of Foreignness

According to Dunning’s (1993) classical framework, MNEs typically invest abroad to seek markets, efficiency, resources, or strategic assets. A range of scholars has argued that traditional and digital MNEs differ significantly in their internationalization motives (e.g. Gestrin & Staudt, 2018; Eden, 2016; WIR, 2017). In this view traditional MNEs rely on market-seeking FDI, establishing physical retail chains, sales operations, or overseas production to access foreign consumers. They also engage in efficiency-seeking FDI, setting up production in lower-cost locations to optimize labour and trade costs. In contrast, digital MNEs often bypass these traditional market-seeking motives, reaching consumers online and distributing through third-party platforms, reducing the need for physical infrastructure (WIR, 2017).

At the same time, digitalization weakens efficiency-seeking FDI, as integrated digital operations reduce dependence on specific locations. This transformation makes global value chains more intangible and transnational: *“Operations take place mostly on the internet and are thus intangible and transnational (or even stateless) by nature”* (WIR, 2017, p.164). Instead of traditional motives, digital MNEs are seen to prioritize knowledge-seeking FDI, investing in innovation hubs and digital talent, alongside financial- and tax-driven FDI, which has a limited impact on their international production footprint (WIR, 2017).

While traditional MNEs expand internationally for market access, resource availability, or cost efficiencies, digital MNEs focus on scaling quickly across borders, rapid user acquisition, and acquiring strategic digital assets (Gestrin & Staudt, 2018; Eden, 2016). Their ability to operate with minimal physical investment shifts the emphasis from efficiency-seeking FDI toward digital ecosystem participation and strategic knowledge acquisition.

Relatedly, the reduced need for physical presence in foreign countries diminishes key challenges related to market entry and liability of foreignness (LoF). Hence, a key distinction between digital multinational enterprises MNEs and traditional MNEs has been seen in the reduced LoF of the former (e.g., Stephens et al., 2024; Nambisan & Luo, 2022; Chen et al., 2019; Verbeke & Hutzschenreuter, 2021). Verbeke and Hutzschenreuter (2021, p. 610) argue that digital MNEs "*benefit from context-specific advantages to overcome liabilities of newness and foreignness*" because "t*he business context—more specifically, the similarity in industry and market—supposedly matters much more than national boundaries*". They suggest that digital MNEs *"offer value propositions that can easily be applied across national boundaries without much need for adaptation".*

While traditional MNEs must navigate cultural, institutional, and many regulatory challenges when expanding abroad, digital MNEs leverage digital platforms, data analytics, and cloud infrastructure to internationalize without a physical presence, significantly lowering LoF (Stephens et al., 2024).

Netflix, for example, entered over 190 markets using cloud-based distribution and data-driven recommendations, bypassing the need for local broadcasting facilities. Similarly, Airbnb expanded worldwide without owning real estate, instead connecting hosts and guests through its peer-to-peer platform. Both illustrate how digital MNEs leverage intangible assets and platform models to achieve rapid, asset-light internationalization.

Nambisan and Luo (2022) also highlight how digital connectivity mitigates LoF by providing firms with new, time- and space-independent means of acquiring market knowledge:

> *Firms today can learn enormously about the host country from widely available information resources without a physical presence or learn about establishing local legitimacy via radical acquisitions. More broadly, geographical distance concerns are alleviated to a great extent when business functions and processes can be virtualized. (Nambisan & Luo, 2022, p.131-2)*

Beyond reducing entry barriers, digital MNEs also benefit from global network effects, which enable rapid expansion (Bruche, 2022). Uber, for instance, leverages its international user base and a standardized mobile app, allowing customers in different countries to use the service with minimal adaptation. Chen et al. (2019) argue that digital platforms can bypass many traditional LoF challenges by leveraging international user bases:

> *As traditional MNEs diversify into more foreign markets, they are bound to face rising liabilities of foreignness due to cross-country differences (Zaheer, 1995). Conversely, ibusiness platforms may leverage international network effects that traverse different territories, so that a larger global installed base will attract more potential adopters in a target market, regardless of where the existing users physically reside. (Chen et al., 2019, p.176)*

However, while digital MNEs tend to face lower LoF, as their business models often allow them to bypass some geographic and institutional barriers, they frequently encounter a different challenge: liabilities of outsidership (LoO). LoO refers to the difficulties firms experience when they are not embedded in relevant foreign networks, limiting their access to local knowledge, partnerships, and legitimacy (Chen et al., 2019; Cadestin et al., 2021; Meyer et al., 2023) (see Table 1 for a summary).

For example, Amazon struggled to gain a foothold in China, where entrenched competitors such as Alibaba and JD.com had already built highly integrated digital ecosystems and secured deep local market penetration (Nambisan & Luo, 2022). Likewise, Facebook (Meta) encountered significant barriers in markets dominated by local social media platforms, such as WeChat in China and VK in Russia, stemming from a combination of government restrictions and strong user loyalty to domestic providers (Bruche, 2022). These cases illustrate that, although digital MNEs can circumvent some traditional market entry barriers and expand rapidly across borders, long-term success still requires gaining legitimacy and embedding themselves within local digital networks and ecosystems.

Table 1: Contrasting Traditional and Digital MNEs in Terms of Motivations & Main Liabilities

Dimension	Traditional MNEs	Digital MNEs
Internationalization motives	The main internationalization motives of traditional MNEs are market-seeking, by setting up shops, factories, or offices to access consumers abroad, efficiency-seeking, by relocating production to low-cost countries, and resource-seeking, by securing natural resources and raw materials. Knowledge- and tax-seeking motives play a role but are less central compared to digital MNEs.	Market- and efficiency-seeking motives are less central for digital MNE since customers are reached online and efficiency gains stem from technology rather than location. Instead, they prioritize knowledge-seeking through innovation hubs and digital talent, ecosystem- and tax-seeking through favorable networks and regulations, and a form of resource-seeking focused on data, infrastructure, and skilled human capital rather than raw materials.
Main liabilities - liability of foreignness (LoF) & liability of outsidership (LoO)	For traditional MNEs, the main challenge is the LoF, as they must adapt to host-country cultures, institutions, and regulations when expanding abroad. The LoO is less significant, since international expansion relies to a substantial degree on asset internalization, that is, hierarchy and internal control	For digital MNEs, the LoF is reduced through virtual presence and asset-light models, though it resurfaces when local adaptation or compliance with national rules is required. Their dominant challenge is the LoO, as success depends on being embedded in host-country digital ecosystems and user networks; without this, expansion often fails

Source: Author summary

2.2 Ownership, Location and Internalization Advantages

Traditional internationalization theories, notably the Eclectic Paradigm (OLI framework) and the Country-Specific Advantage (CSA)/Firm-Specific Advantage (FSA) framework, suggest that firms expand internationally based on ownership advantages (O), locational advantages (L), and internalization advantages (I). Let us see how digital and traditional MNE compare in this regard.

Ownership Advantages: Compared to traditional MNEs, digital MNEs are suggested to rely less on, or on different types of, ownership, as well as locational and internalization advantages for their internationalization. Specifically, digital MNEs derive ownership advantages primarily from intangible digital assets, which distinguish them from traditional MNEs. These assets include digital platforms (e.g., Spotify), proprietary algorithms (e.g., Google's search algorithm), extensive user data (e.g., Facebook), advanced data analytics capabilities (e.g., Netflix), and digital networks (e.g., LinkedIn) (Gestrin & Staudt, 2018; dos Santos & Williamson, 2024; Nambisan & Luo, 2021; Eden, 2016; Bruche, 2022; Banalieva & Dhanaraj, 2019).

Unlike traditional MNEs, which often build competitive advantages through proprietary manufacturing processes, brand equity, and production capabilities and geographically optimized supply chains, digital MNEs rely on their ability to collect, analyze, and leverage data to sustain and expand their market presence globally. Because their ownership advantages are primarily intangible and digital, they lend themselves to be understood as non-location-bound FSAs (Verbeke & Hutzschenreuter, 2021; Ietto-Gillies, 2022; Chen et al., 2019).

A distinctive feature of digital MNEs is that some of their most critical competitive advantages—most notably large user networks—are not directly owned or controlled by the firm. This challenges the traditional understanding of ownership advantages (Brouthers et al., 2022). To address this, Banalieva & Dhanaraj (2019) propose the concept of network advantages (On) as a distinct category of ownership advantage, alongside asset-based (Oa), such as a user-friendly platform, and transaction-based (Ot), such as a system's capacity to learn and reduce transaction costs. The competitiveness of digital MNEs thus relies heavily on network effects, whereby the value of a platform increases with the expansion of its user base (dos Santos & Williamson, 2024).

In a similar vein, Li et al. (2019) argue digital MNEs – digital platform MNEs in particular – depend on ecosystem-specific advantages (ESAs). Li et al. (2019) introduce the concept of **ESAs** to explain how digital MNEs derive competitiveness not only from internal firm-specific assets, but also from value created in platform-centric ecosystems. Specifically, ESAs consist of three interrelated components (Li et al., 2019):

- **Resources - Complementary assets and distributed innovation by ecosystem participants:** Ecosystems gain value from the diverse resources and innovations contributed by participants — such as apps, services, or user-generated content. The more and better these complementary resources, the greater the ecosystem's overall value.
- **Structure - Complementarity and positive externalities between ecosystem participants:** Ecosystem participants benefit when their products and services enhance each other's value. This creates a powerful incentive for both users and complementors to remain within the ecosystem. Network effects, where a platform becomes more valuable as more users and complementors join, are a special case of this dynamic.
- **Governance - Rules aligning the participation of autonomous actors:** Because participants are independent actors with their own goals, ecosystems require governance to coordinate activities and maintain alignment. Governance includes formal rules (e.g., pricing, access, quality standards) as well as softer tools like rankings, certifications, or promotional support. Effective governance ensures cooperation and maximizes the positive externalities created by the ecosystem.

In contrast to traditional FSAs, which are internally owned and controlled, ESAs reflect the **orchestration of external resources and relationships**. Hence, unlike traditional FSAs, which are primarily internally owned and controlled, network advantages or ESAs arise from external collaboration. They are especially critical for digital firms, whose competitiveness depends on network effects and ecosystem coordination rather than on conventional ownership structures. As Verbeke & Hutzschenreuter (2021) emphasize, this represents "*a shift in thinking about FSAs, away from resource ownership toward resource orchestration*" (Verbeke & Hutzschenreuter, 2021: 610).

In summary, digital MNEs differ from traditional MNEs in that they derive a large share of their competitive advantages from external ecosystems, through platforms, user contributions, and distributed innovation, rather than solely from internal firm-specific assets. Yet, they also retain traditional FSAs, albeit in digital form. For instance, Amazon combines ecosystem-driven value creation with proprietary AI-based logistics, while Google's search algorithm and Netflix's recommendation engine remain core internal assets. Thus, digital MNEs sustain competitiveness by blending internal digital FSAs with external network and ecosystem-specific advantages.

Locational Advantages: Locational advantages, also referred to as country-specific advantages (CSAs) within Rugman's CSA/FSA framework, have historically provided important explanations for firm internationalization. Traditional MNEs typically internationalize by leveraging firm-specific advantages and exploiting locational advantages such as direct consumer market access, proximity to essential resources, cost-effective labour, and efficient supply chains. However, the emergence of digital MNEs challenges this traditional understanding by introducing asset-light, geographically flexible business models. According to the World Investment Report 2017:

> *Traditional MNEs reach foreign consumers in downstream parts of the value chain through market-seeking FDI (e.g., retail distribution chains or sales and marketing operations) or through building overseas production operations that sell through local distributors. Digital MNEs can dispense with much of that effort. They reach consumers online and often distribute through third-party channels. In smaller markets, they often maintain only local corporate offices, for minimal representation purposes. For instance, as a digital music streaming service, Spotify provides personalized playlists and recommendations to users worldwide through its platform, eliminating the need for physical presence in each market*. *(WIR, 2017, p.164)*

Significant differences thus exist between traditional and digital MNEs concerning their dependence on market-related locational advantages. While traditional MNEs require physical market presence to access localized consumer insights and distribution channels, digital MNEs leverage AI-driven personalization techniques, eliminating traditional geographic market segmentation.

Digital MNEs like TikTok and Spotify employ sophisticated algorithms to analyse user behaviour data, facilitating highly personalized services tailored to individual users or 'segments-of-one'. Dos Santos and Williamson (2024) emphasize that:

> *Countries, therefore, are no longer necessarily a fundamental unit of analysis for born-digital MNEs' internationalisation, being replaced instead by personalising the MNE's offering for segments-of-one – wherever they are. The resulting country-agnostic strategies for value creation focus is on increasing the global number of users and the share of wallet or time budget captured from each user.* (dos Santos and Williamson, 2024, p.9)

These AI-based strategies reduce reliance on traditional factors such as cultural differences, demographic data, or local market preferences, significantly decreasing the importance of physical proximity and country-specific insights (Nachum & Zaheer, 2002).

Consequently, digital MNEs adopt strategies centred on global user base expansion and personalized consumer engagement, effectively diminishing the relevance of traditional locational advantages, that is local presence, local learning and local adaptations (Verbeke & Hutzschenreuter, 2021). Instead of exploiting locational advantages, their global expansion rests on context-specific advantages.

> *For example, a platform-based MNE's advantages are likely to be enhanced when the value proposition offered by the platform is consistent across national boundaries, which then would make entry to new foreign markets easier and faster. Such context-specific advantages may also accrue from the standardization of business processes, business models, and digital infrastructures across nations. In such situations, MNEs could easily port their context-specific advantages across national boundaries and pursue international expansion. (Nambisan et al., 2019, p.1474)*

In other words, pure digital MNEs operate with business models enabling simultaneous service to global consumers, significantly reducing the importance of specific national markets. Their entirely virtual and highly individualized consumer interfaces further diminish the necessity of selecting and exploiting particular national markets. Importantly, traditional and digital MNEs differ not only in their exploitation of locational advantages on the demand or downstream side but also significantly on the upstream or supply side. As articulated in the World Investment Report 2017:

> *Digitalization affects not only downstream functions but often the process of production. Digitalization of production and operations is occurring in many forms: fully digital products and services (e.g. internet platforms), digitalized physical products (e.g. digital content), and the digitalization of selected parts of the production process […]. In all these forms, some or all of the GVC is digital, either digitally born or turning from physical to digital. Operations take place mostly on the internet and are thus intangible and transnational (or even stateless) by nature. In this context, some of the traditional motivations for FDI weaken or may be insufficient to compensate for the location costs or coordination and governance issues associated with FDI. These dynamics affect primarily efficiency-seeking FDI, motivated for example by the reduction of labour costs or of trade costs. (WIR, 2017, p.164)*

Thus, while traditional MNEs frequently undertake FDI to access immobile resources or to minimize production factor costs such as labour and supplies, digital MNEs are far less dependent on these traditional locational advantages (Nachum & Zaheer, 2002). For example, Toyota strategically leverages locational advantages by sourcing low-cost labour and materials in countries such as Thailand, Mexico, and the U.S. to optimize manufacturing efficiency. In stark contrast, digital MNEs organize their supply chains with minimal reliance on physical locational advantages. Companies such as Netflix, Facebook (Meta), and Airbnb demonstrate global expansion capabilities without establishing factories, warehouses, or substantial local offices. Netflix provides services entirely through cloud infrastructure, eliminating the need for physical distribution centres. Likewise, Facebook engages billions of users globally without traditional brick-and-mortar investments, instead relying on strategically located data centres and regulatory adaptability. These examples illustrate how digital MNEs transcend traditional geographic constraints.

Although digital MNEs are generally perceived as less dependent on traditional locational advantages than their conventional counterparts, locational factors and country-specific advantages continue to play a significant role, albeit in different ways. For instance, digitalization has reshaped the geographical logic of global value chains (GVCs). While digital technologies enable remote collaboration, they do not entirely eliminate geographical gravity. Instead, they consolidate previously dispersed processes into shorter, integrated digital value chains (Li et al., 2024). This geographical integration and concentration of value creation still relies on locational advantages. Yet, the nature of locational advantages is shifting from traditional cost efficiencies and physical infrastructure toward digital infrastructure, regulatory frameworks, digital resources and capability, market conditions and the business environment as well as financial and tax incentives (Gestrin & Staudt, 2018; Birkinshaw, 2022; dos Santos & Williamson, 2022; Li et al., 2024; WIR, 2017; 2025).

- For digital MNEs, robust *digital infrastructure*, including high-speed internet, advanced cloud computing, and secure digital payment systems, is critical. After all, digital infrastructure affects transmission speed, computing power, and network growth and countries differ in their provision with some host countries offering advantageous conditions and other having serious bottlenecks (Li et al., 2019). For instance, countries such as Ireland and Singapore have positioned themselves as key hubs for digital enterprises by offering advanced technological ecosystems and innovation-friendly regulatory environments that support digital expansion.
- Digital *regulatory frameworks* also significantly shape digital MNEs' location strategies, shifting priorities from tariffs and trade agreements toward data protection laws, intellectual property rights, and digital-specific compliance requirements. Estonia's e-residency program exemplifies regulatory attractiveness by enabling digital entrepreneurs to operate remotely. Conversely, stringent regulations, such as U.S. data protection laws, have compelled firms like TikTok to restructure their operational models to comply with national regulations (dos Santos & Williamson, 2024). According to dos Santos & Williamson (2024), digital MNEs increasingly invest in FDI primarily to fulfil regulatory requirements (e.g., local data storage) or enhance value-capture activities, including localized logistics and sales.
- Access to specialized *digital resources and capability*, most notably digital talents significantly influences the locational strategies of digital MNEs. Unlike traditional firms that seek low-cost labour, digital enterprises prioritize locations with highly skilled human capital, such as software engineers, cybersecurity specialists, and AI researchers (WIR, 2025). Tech hubs like Silicon Valley and Bangalore attract digital MNEs due to their deep talent pools, reflecting a shift from labour cost considerations to talent-driven expansion (Birkinshaw, 2022).
- *Market conditions and the business environment* are key locational determinants of FDI by digital MNEs. According to the World Investment Report 2025 (WIR, 2025), attractive host economies include for instance expanding user bases, SME digitalization, start-up ecosystems, access to finance, R&D incentives, venture capital, innovation clusters, and strong university–industry linkages.
- *Financial and tax-based advantages* also shape location decisions of digital MNEs. The World Investment Report 2017 (WIR, 2017) highlights that, as market- and efficiency-seeking FDI motivations weaken due to digitalization, knowledge-seeking as well as financial and tax-driven FDI become more prominent.

Hence, digital MNEs continue to depend on locational advantages, albeit with a different emphasis compared to traditional brick-and-mortar MNEs. For example, Facebook (Meta) established its European headquarters in Dublin to benefit from Ireland's corporate tax regime and growing tech cluster. Its data centers, by contrast, are typically located in regions with abundant renewable energy, cool climates, and stable infrastructure, such as Sweden and Denmark. Meanwhile, its innovation hubs remain concentrated in Silicon Valley, where Meta leverages cutting-edge expertise, venture capital, and strong intellectual property protections.

While purely digital firms may appear less dependent on traditional locational advantages, digital MNEs, particularly hybrid business models, continue to rely heavily on complementary and country-specific assets. As Brouthers et al. (2022, p. 2996) notes, digital firms often need to "*establish a presence in the foreign country to comply with local legislation, gain legitimacy, attract local complementors, and create value for customers/users*". Similarly, Verbeke & Hutzschenreuter (2021, p.612, see also Meyer et al., 2023) stress that "[*i]dentifying, accessing, and utilizing complementary assets remain critical to both born-digitals and going-digitals*". The role of locational advantages also varies by business model (see Box 1). Amazon provides a clear example: despite its digital core, the company depends on extensive physical infrastructure – fulfilment centres, last-mile delivery hubs, and partnerships with local logistics providers – to serve customers worldwide.

In sum, digital MNEs may rely less on, or prioritize different, FDI-related country advantages compared to traditional MNEs. Yet they still engage in FDI and must account for country-specific (dis)advantages. Their success ultimately depends on combining digital flexibility with complementary local assets and adapting to host-country conditions to sustain international expansion.

Box 1: Drivers and Determinants of FDI in the Digital Economy

	Drivers and determinants			
Types of FDI	**Enabling infrastructure**	**Digital capabilities and resources** (skills, data access)	**Digital regulation**	**Market conditions and business environment**
ICT manufacturing	Industrial zones, energy and logistics infrastructure, connectivity	Skilled technical workforce, ability to integrate into production networks	Trade and investment policies, product safety and standards	Cost competitiveness; local supplier base, policy stability, export platforms
ICT infrastructure	High-speed broadband, power reliability, data centres, spectrum access	Telecommunications engineers, cloud professionals, basic data operations personnel	Transparent licensing, spectrum policy, infrastructure-sharing rules	Demand for connectivity, public-private partnerships, stable investment climate
Digital services and solutions	Mobile coverage, Internet access, payment systems	Digital entrepreneurs, UX/UI skills, early-stage innovation hubs	Consumer protection, fintech rules, interoperability standards	Growing user base, SME digitalization, startup ecosystems, access to finance
AI, automation and R&D	Advanced computing infrastructure, cloud platforms	AI engineers, data scientists, cybersecurity professionals; access to quality data set	IP rights, data governance, cross-border data rules, competition policy	R&D incentives, venture capital, innovation clusters, university–industry linkages

Source: WIR (2025)

***Internalization Advantages*:** Internalization advantages play a crucial role in determining a firm's mode of internationalization, influencing whether firms engage in FDI through wholly or jointly owned subsidiaries or opt for non-equity modes such as exporting, licensing, franchising, or strategic alliances (Buckley, 2014). Meyer et al. (2023) present the essence of the internalization rationale as follows:

> *Internalization theory suggests that the growth of MNEs is driven by the exploitation of firm-specific advantages by combining them with local advantages in host societies within the boundaries of the MNE […]. (Meyer et al., 2023, p.585)*

Internalization advantages primarily mitigate risks and uncertainties in market transactions by protecting proprietary technologies, safeguarding intellectual property, and managing contractual complexities. However, these advantages also entail costs for MNE, deriving from cross-border coordination, managerial complexity, cultural differences, and logistical challenges (Buckley, 2014).

Traditional MNEs, such as Toyota and Nestlé, typically internalize foreign operations to secure control over production, supply chains, and market access, thereby reducing reliance on intermediaries and optimizing cost efficiencies through vertically integrated production networks. In contrast, digital MNEs can be seen to rely less on internalization advantages for several reasons.

First, digital MNEs predominantly employ virtual, asset-light business models requiring limited physical presence abroad. Consequently, they have less need to exploit or recombine with locational advantages, reducing their need for internalizing cross-border operations. Instead, they orchestrate global activities efficiently without extensive physical infrastructures or subsidiary ownership.

Second, digital technologies significantly reduce transaction risks and costs in international markets by enabling seamless cross-border interactions, automating transactions, and enhancing transparency in dispute resolution. Birkinshaw (2022) argues that these technologies lower transaction costs, thereby decreasing the necessity for internalization of contracts between firms and across borders. As a result, digital MNEs face lower risks and uncertainties when expanding internationally through non-equity modes such as licensing or strategic partnerships. Apple's App Store illustrates how digital MNEs expand globally through platform-based internationalization. By enabling third-party developers worldwide to create and distribute apps via a centralized platform, Apple avoids the need to establish local subsidiaries for software development and distribution. This asset-light model reduces financial and operational risks while leveraging licensing and digital infrastructure for efficient global scaling.

Third, digital MNEs derive competitive advantages to a large extent from network advantages or ecosystem-specific advantages (ESAs) rather than traditional ownership-based firm-specific advantages (FSAs) (Banalieva & Dhanaraj, 2019; Li et al., 2019; Li et al., 2024; Nambisan et al., 2019; Brouthers et al., 2020). Banalieva & Dhanaraj (2019, p.1379) propose that *"digitalization extends the choice of governance structure of market versus hierarchy by adding digital networks as a third choice"*, positioning them as alternatives to traditional asset-heavy and internalization-based models. They further assert that network governance, rather than hierarchical control, has become central to exploiting technology-based FSAs internationally. Similarly, Li et al. (2019, p.1451) note that "*the exploitation of FSAs by platform firms follows an externalization logic […] and hinges on the bundling of external, complementary assets owned and controlled by autonomous complementors […]"*.

> *With the application of digital technology, the competitive advantages of platform-based MNEs increasingly rely on the knowledge found in external networks, such as the localized/contextual knowledge provided by domestic users and the even wider institutional networks of host countries (Zeng et al., 2019). For example, the rapid global adoption of the Android platform has mainly been the result of Google's decision to share its Android code with mobile phone manufacturers and to provide additional platform resources (Li et al.,2019).(Li et al., 2024, p.393)*

As the competitive advantage of digital MNEs rests more on ecosystems and the orchestration of external resources than on asset ownership (Nambisan et al., 2019; Verbeke & Hutzschenreuter, 2021), their preferred mode of international governance shifts toward externalization rather than internalization and hierarchical ownership. Consequently, the traditional internalization logic, which emphasizes firm-controlled ownership of foreign operations, is less applicable to digital firms. Instead, they thrive by integrating external partners, leveraging digital ecosystems, and capitalizing on network effects rather than internalizing market activities abroad. This observation suggests a theoretical refocusing in IB: from the classical question of *when and why firms internalize* to the complementary question of *when and why firms externalize*—a perspective elaborated in externalization theory (see Box 2).

Box 2: Externalization Theory as a Competing Perspective

In international business, internalization theory and externalization theory provide competing perspectives on firms' governance choices.

- **Internalization theory** explains why firms bring cross-border activities inside the firm to overcome market imperfections such as transaction costs and opportunism.
- **Externalization theory**, by contrast, asks why firms choose to externalize, relying on external partners, platforms, or markets.

A leading proponent of externalization theory is Strange (2021), who in his article *"Do we need a theory of externalisation?"* analyzes why factoryless goods producers (FGPs) such as Apple massively outsource manufacturing while retaining control over design, branding, and distribution.Strange (2021) argues that externalization – as manifested in outsourcing – may be superior to internalization for several reasons:

- **Efficiency** – Firms can concentrate on core competencies and economize scarce resources.
- **Innovation** – Collaboration with independent partners fosters complementarities and knowledge exchange.
- **Flexibility** – Outsourcing reduces fixed investments and enhances responsiveness to demand or technological shifts.
- **Specialization and cost advantages** – External suppliers may offer economies of scale, lower costs, or superior quality.

A central question for externalization theory is how lead firms can externalize production while retaining control over contract manufacturers. Strange (2021) argues that sustainable externalization requires:

1. **Power asymmetries** – Lead firms must control scarce and valuable assets (e.g., product design, R&D, brand reputation).
2. **Isolating mechanisms** – Firms must prevent imitation by external partners and competitors, thereby safeguarding long-term advantage.

Key isolating mechanisms that safeguard long-term advantage include:

- **Tacit and complex knowledge** – Hard-to-imitate know-how embedded in processes and learning.
- **Intellectual property protection** – Patents, trademarks, and licensing that safeguard proprietary assets.
- **First-mover advantages** – Pre-emptive access to markets, technologies, and customer bases.
- **Reputation and brand power** – Enhancing trust, signaling quality, and locking in customers.
- **Big data capabilities** – Advanced analytics that smaller rivals cannot replicate.
- **Geographic scope** – Access to diverse resources and knowledge through multinational presence.
- **Service-based offerings** – Bundling products with complementary services across markets to deepen customer relationships and build complex, hard-to-imitate advantages.

Comparison of Internalization and Externalization Theories

Dimension	Internalization Theory	Externalization Theory
Core question	Why do firms bring activities inside the firm?	Why do firms rely on external partners without losing control?
Primary rationale	To overcome market failures (transaction costs, opportunism, protection of knowledge).	To leverage efficiency, flexibility, specialization, and innovation from partners.
Who performs activities?	The MNE and its foreign subsidiaries.	Contract manufacturers, independent partners, or ecosystems.
Mode of control	Ownership and hierarchy.	Power asymmetries and isolating mechanisms (e.g., IP, brand, big data).

Source: Adapted from Strange (2021)

While digital MNEs increasingly rely on externalization and ecosystem orchestration, internalization remains highly relevant in strategic domains. Firms often internalize key technologies, protect intellectual property, and manage critical data infrastructure to safeguard their competitive edge. For example, Amazon and Google have acquired foreign AI startups, such as Annapurna Labs in Israel (Hirschauge, 2015) and DeepMind in the UK (Shu, 2014), to ensure proprietary control over core technological assets.

Verbeke & Hutzschenreuter (2021) argue that despite increased digital intensity, fundamental governance choices regarding ownership and location remain significant. Even leading digital MNEs must navigate governance structures that range from short-term contracts with external partners to fully internalized operations for critical business functions (Verbeke & Hutzschenreuter, 2021). Although digital networks and platforms facilitate decentralized coordination, core assets and infrastructures — such as proprietary algorithms, cloud services, and data centers — often remain under direct firm control. For instance, Amazon Web Services (AWS) operates a globally distributed cloud infrastructure, yet Amazon retains ownership of the underlying technology, ensuring control over data storage, cybersecurity, and operational reliability.

In summary, while digital MNEs rely less on traditional internalization advantages, they leverage network-based governance and externalization strategies to internationalize. The shift from internalization to externalization advantages has also given rise to calls for a theoretical reorientation towards externalization advantages and corresponding theories (see Box 2 for an exploration of externalization theory). However, even though digital MNEs use asset-light business models and digital technologies to lower transaction costs and reduce the need for owning and controlling operations abroad, internalization still plays a crucial role (see Table 2 for summary).

Table 2: Contrasting Traditional and Digital MNEs in Terms of the OLI framework

OLI Dimension	Traditional MNEs	Digital MNEs
Ownership Advantages (O)	Competitive strength rests on internally owned, tangible assets such as factories, brands, and optimized supply chains. Focus on resource ownership.	Competitive strength rests on intangible, digital assets (platforms, algorithms, data) and on ecosystem- and network-specific advantages. Focus on resource orchestration.
Location Advantages (L)	Strongly depend on country-specific advantages such as market access, natural resources, low-cost labour, and supply chain efficiency. Require physical presence and local adaptation.	Less dependent on traditional CSAs; expansion is asset-light and online. Depend mainly on digital infrastructure, regulatory frameworks, talent hubs, and innovation ecosystems (e.g., data laws, tax regimes).
Internalization Advantages (I)	Rely heavily on internalization to secure control over production, supply chains, and market access; mitigate risks via ownership, integration, and hierarchy.	Rely more on externalization and ecosystem orchestration (platforms, complementors, networks). Still internalize core technologies and infrastructures (e.g., AI, cloud, data centres) for control and security.

Source: Author summary

In the following, we shall examine the processes and strategies of internationalization by comparing digital and traditional MNEs. We will first explore the processes, focusing on the speed, scope, and scale of internationalization. This will be followed by a closer look at internationalization strategies in terms of global integration-local responsiveness framework and entry modes.

3. Processes and Strategies of Internationalization

3.1 Internationalization Speed, Scale and Scope

A key way to describe the process and extent of firm internationalization is by examining the speed, scale, and scope of expansion. These three dimensions collectively define how MNEs establish and grow their international presence. Speed refers to how early from inception and how fast it enters foreign markets, scale captures the extent and intensity of their international footprint, and scope defines the breadth of geographic markets and business activities they engage in.

Speed of internationalization: International business research has long examined the pace at which firms expand abroad. Early work, most prominently the Uppsala model (Johanson & Vahlne, 1977), conceptualized MNEs as internationalizing cautiously and incrementally. Firms were expected to expand first into nearby or culturally similar markets, accumulating market knowledge and reducing uncertainty before committing significant resources further away. In this perspective, the speed of internationalization refers both to the time elapsed between a firm's inception and its first foreign market entry (early vs. late internationalization) and to the pace of subsequent expansion into additional markets.

Historically, traditional MNEs followed this gradual, stepwise expansion model. The Uppsala model emphasized incremental learning and foreign market commitment: firms expanded first into proximate and familiar countries before venturing into more distant and institutionally dissimilar environments.

By contrast, digital MNEs often internationalize from inception, reaching multiple foreign markets almost instantaneously. This accelerated path is enabled by the virtual nature of digital business models and their asset-lightness, which allow firms to bypass the experiential and incremental learning processes described in the Uppsala tradition (Birkinshaw, 2022). One key factor is the absence of a requirement for FDI or physical presence to enter new markets. Unlike brick-and-mortar MNEs, which must invest in factories, retail outlets, supply chains, or local offices, digital MNEs expand by deploying internet-based services globally at relatively low marginal cost. Their scalability and reliance on network effects enable them to reach international customers with limited physical investment.

The virtual and asset-light character and relatedly the instantaneous nature of digital internationalization has reinvigorated and reinterpreted the born-global concept (Knight & Cavusgil, 1996), giving rise to the notion of "born digital" enterprises (Monaghan et al., 2020). Similar to born globals, digital MNEs bypass incremental international learning and instead expand simultaneously across multiple markets, facilitated by digital infrastructures and reduced transaction costs. Digital-first firms such as TikTok and Zoom, for instance, were able to operate globally almost instantly, requiring minimal local adaptation or physical infrastructure. This dynamic is captured by Monaghan et al. (2020):

> *Born digitals operate to a very high degree 'in space', and their connection to markets around the world can be nearly instant. That is, with one finger on the 'Go' button, a digital offer is accessible to international markets. Such is the case with firms like TransferWise (a money transfer service) or DuoLingo (a language-learning website and app), both of which have a business model that enables the firm to serve foreign markets instantaneously. (Monaghan et al., 2020, p.13)*

If a business model inherently allows for global reach without substantial foreign investment, international experience, or major market adaptation (Birkinshaw, 2022), then a digital MNE can internationalize from inception or soon thereafter. For instance, Shopify served international customers shortly after its founding in 2004, even though structured internationalization efforts were not implemented until 2018 (Monaghan et al., 2020).

Compared to traditional MNEs, which must gradually build market-specific knowledge and physical presence, digital MNEs achieve rapid scale with fewer resources, bypassing many conventional barriers. Traditional firms rely on progressive learning, adaptation, and resource-intensive commitments, while digital MNEs internationalize at high speed thanks to scalability, lower capital intensity, and reduced dependency on experiential knowledge. The contrast is stark: as Banalieva and Dhanaraj (2019) observe, Marriott Hotels took nearly 100 years to expand into 122 countries, whereas Airbnb reached 190 countries in just eight years. Similarly, Uber entered 63 countries within roughly eight years, illustrating the speed advantage of digital platforms (Nambisan & Luo, 2022).

Scale of Internationalization: The scale of internationalization refers to the extent and intensity of a company's operations outside its home country, capturing the size of its international footprint. Traditionally, this has been measured through indicators such as the number of foreign markets entered, the share of revenue generated abroad, the percentage of foreign employees, and the volume of FDI. In international business research, the most common measures are foreign sales, foreign assets, and foreign employees.

Digital MNEs tend to achieve global scale rapidly while requiring relatively limited physical investment abroad. Their asset-light model enables them to internationalize without relying on traditional FDI in production facilities or subsidiaries. Unlike traditional MNEs, which expand through tangible investments in supply chains, manufacturing, and local infrastructure, digital MNEs leverage platforms, cloud computing, and network-based business models. Because digital services such as software, streaming, and online marketplaces can be distributed globally at near-zero marginal cost, they are able to enter multiple foreign markets simultaneously, bypassing many of the capital-intensive commitments required by traditional firms.

A defining feature of digital MNEs' scale is network-based growth. Once a platform or app is developed, adding new users in another country incurs minimal marginal costs, allowing for exponential scalability. This characteristic enables digital firms to reach millions of users globally without establishing local subsidiaries or a physical presence. For example, Facebook and Google expanded internationally by acquiring users online rather than through conventional entry modes, reaching over a billion global users within roughly a decade from their foundation.

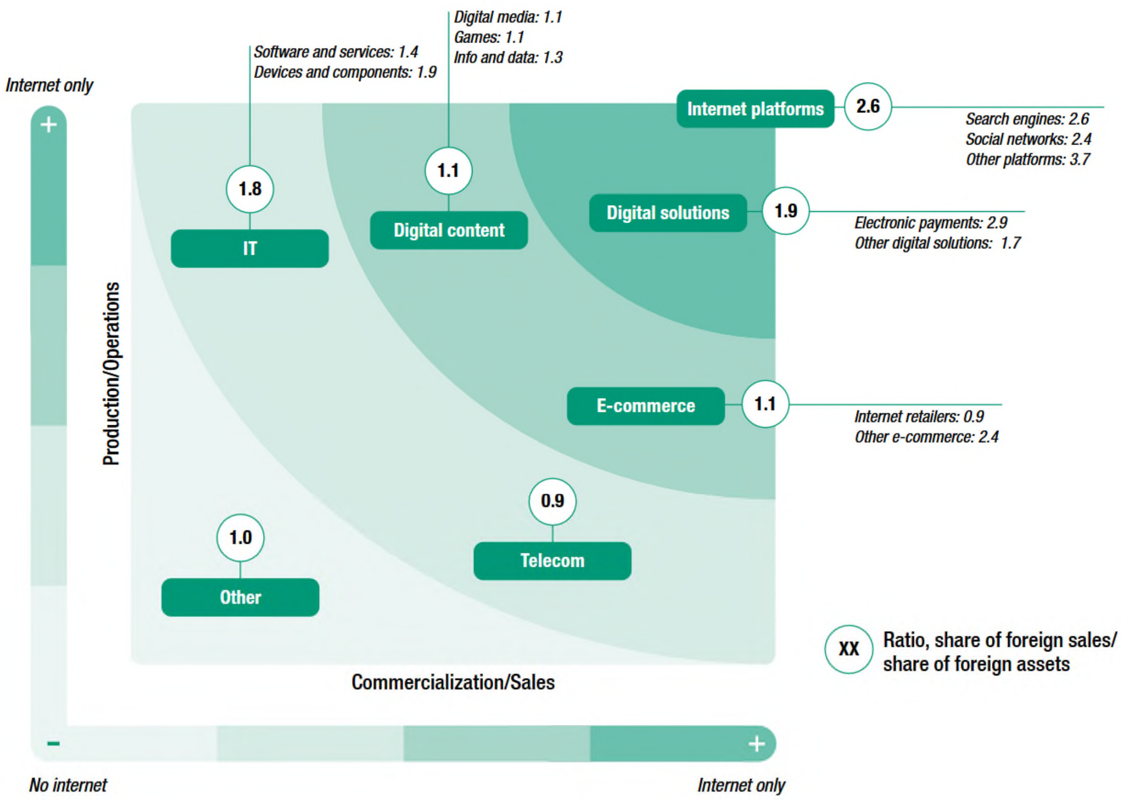
However, while digital MNEs scale rapidly in terms of usage and sales, their FDI intensity remains modest. Many expand by offering services online rather than investing in factories, retail outlets, or offices. As a result, their international scale – when measured in terms of foreign assets – is relatively low, and they typically exhibit a high ratio of foreign sales to foreign assets, reflecting revenue growth without a proportional rise in tangible investment (Trentini et al., 2022; WIR, 2022).

By contrast, traditional MNEs achieve scale through capital-intensive FDI in foreign production facilities, supply chains, and distribution networks. Entering a new country often requires large-scale commitments, such as establishing manufacturing plants (e.g. in the automotive sector), opening retail stores or restaurants (e.g. in consumer goods and food services), or setting up foreign subsidiaries and offices. This mode of expansion is gradual, resource-intensive, and risk-laden. As a result, traditional firms typically exhibit much higher ratios of foreign assets and foreign employees compared to digital MNEs. Toyota, for instance, expands its global capacity by building assembly plants across Europe, North America, and Asia, employing tens of thousands of workers abroad. This deep market integration ensures control but slows down the internationalization process compared to digital firms.

In summary, digital MNEs achieve scale through rapid user acquisition across borders with minimal tangible assets (low FDI intensity), whereas traditional MNEs achieve scale through accumulated foreign investments (high FDI intensity). UNCTAD analysis confirms that, although digital MNEs' foreign sales have grown significantly, their foreign asset base has remained small or even declined (Trentini et al., 2022; WIR, 2022). In contrast, traditional MNEs continue to dominate in terms of foreign asset ownership and FDI flows.

The Transnationality Index (TNI), which calculates the average share of a firm's foreign sales, foreign assets, and foreign employees in relation to its total sales, assets, and employees, tends to be lower for digital MNEs, reflecting their comparatively lighter foreign asset footprint (Puhr et al., 2023). See Figure 1 below for different foreign sales to foreign asset ratios for different types of MNEs. A high ratio indicates high index value indicates asset lightness.

Figure 1: Foreign Sales to Assets Ratios for Different Types of MNEs



Source: ©UNCTAD, based on UNCTAD's FDI/MNE database, company reports and data from Orbis BvD and Thomson ONE.
Note: Positioning on the internet matrix is indicative and based on a qualitative assessment. The categories "Internet platforms", "Digital solutions", "E-commerce" and "Digital content" include 86 companies (of which 10 internet platforms, 22 digital solutions, 14 e-commerce and 40 digital content) from UNCTAD's ranking of the top 100 digital MNEs. The categories "IT" and "Telecom" include 96 companies (of which 69 IT and 27 telecom) from UNCTAD's ranking of the top 100 ICT MNEs. The category "Other" includes 81 companies operating in non-ICT industries, from UNCTAD's overall list of the top 100 MNEs. More details on the calculation of foreign assets and sales, their shares of the total and the related foreign asset lightness ratio are discussed in the annex to this chapter.

Source: WIR (2017)

While pure digitals, such as internet platforms, tend to be foreign asset light MNEs, these firms often appear more internationally scaled when measured by market-side measures of outreach, such as the number of countries served, the distribution of users, or global brand visibility (as we show below rather than scale we consider this as a reflection of market scope). As Puhr et al. (2023, p.147) conclude, *"while traditional MNEs are two times more international in assets, digital MNEs can appear more international when assessed through market-side measures of outreach".*

Scope of Internationalization: The scope of internationalization refers to the breadth and diversity of a firm's foreign operations, including both its geographic reach (number and distribution of markets served) and range of business activities (extent of product and service offerings across markets). Digital and traditional MNEs differ significantly in how they expand their international scope, shaped by their business models, cost structures, and industry dynamics.

Digital MNEs achieve a broad geographic scope quickly, often launching their services in multiple countries simultaneously. Because digital services are not constrained by physical infrastructure, they can scale globally from inception. Many digital platforms are effectively global by default – Airbnb operates in over 220 countries and regions within just a decade of launch, while Facebook expanded its user base to nearly every country within a few years.

Unlike traditional MNEs, which expand incrementally by region and are often regionally focussed (Rugman & Verbeke, 2004), digital MNEs often target the entire connected world as their market, making geographic dispersion instant and widespread (Puhr et al., 2023). The concept of “psychic distance” (Johanson & Vahlne, 1977), which traditionally affects international expansion due to cultural and geographic barriers, has diminished for digital firms (Nambisan & Luo, 2022), as online services transcend national boundaries with little localization effort. In practice, this allows digital start-ups to access millions of users across far-flung countries in a short time, a process that took traditional firms decades to achieve.

However, while digital MNEs have an extensive geographic reach, their scope of business activities is typically narrower when compared to traditional MNEs. Instead, Digital MNEs tend to focus on their core digital offerings, ensuring global scalability rather than diversifying into multiple industries. They often provide standardized, platform-based services across markets, requiring only minimal adaptation for language, compliance, or payment systems. As Birkinshaw (2022) puts it:

> *Putting these points together, digital technology enables a shift away from vertical integration (one firm controlling its entire value chain) toward horizontal specialization, with so-called platforms like Airbnb and Shopify as examples of firms doing one very specific thing on a global scale and enabling other parties to engage in the actual work of delivering services to consumers […]. (Birkinshaw, 2022, p.622)*

For example, Spotify operates in over 180 markets while offering a largely uniform platform experience globally. Similarly, Zoom delivers its full video conferencing service worldwide without local customization of its core offering. Digital MNEs rarely enter unrelated industries when expanding internationally; rather, they replicate their digital platforms across markets. Even when digital MNEs expand into adjacent services (e.g., Uber adding food delivery to its ride-sharing model), these remain closely linked to their core platform rather than diversifying across unrelated industries.

Traditional MNEs often display a broad scope, diversifying across multiple industries and product categories as they globalize. Siemens, for example, operates across industrial automation, smart infrastructure, mobility services, digital industries, and healthcare through entities such as Siemens Healthineers. These firms have typically expanded their geographic footprint gradually, reflecting the resource-intensive nature of their internationalization.

Unlike digital MNEs that can scale remotely and serve peripheral markets at minimal marginal cost, traditional MNEs require compelling justifications for costly entries – such as a sufficient revenue base, production efficiencies, or favorable trade conditions. Even the largest MNEs maintain gaps in their footprint where entry costs outweigh expected returns. In consumer industries, firms like Coca-Cola (operating in over 200 countries) and McDonald’s (over 100 countries) illustrate near-global presence, but both only achieved this status after decades of incremental expansion and local market adaptation.

In summary, while digital MNEs often exhibit a "broad but shallow" model, rapidly penetrating many countries within a narrowly focused service domain, traditional MNEs tend to follow a "narrow but deep" approach, expanding more slowly and restricting in geographic scope, but with greater diversification of offerings and deeper embeddedness (asset commitment) in local markets. Still, these boundaries are increasingly blurring. Digital players such as Amazon are investing heavily in physical infrastructure (Reuters, 2025), while traditional MNEs are refocusing on core competencies.

At the risk of oversimplification, the contrast between traditional and digital MNEs can be stylized as follows: traditional MNEs internationalize incrementally, reaching a comparatively higher scale of internationalization through high FDI intensity and deep local embeddedness, while pursuing broad business diversification within a relatively narrower geographic scope. By contrast, digital MNEs internationalize instantaneously, achieving a comparatively lower scale of internationalization based on low FDI intensity and shallow embeddedness, while operating with narrower business models across a relatively wider geographic scope (see Table 3).

Table 3: Contrasting Traditional and Digital MNEs in Terms of Internationalization Process

Process dimension	Traditional MNEs	Digital MNEs
Speed	Expand incrementally, often starting in nearby or culturally similar markets and then gradually entering more distant ones (stepwise learning, Uppsala model).	Expand instantaneously, often from inception ("born digital"), reaching global users online with little need for gradual learning or physical presence.
Scale	Achieve scale through high FDI intensity – large investments in factories, offices, supply chains, and employees abroad; growth requires significant resources.	Achieve scale with low FDI intensity – expand via platforms, apps, and cloud services, adding users globally at near-zero marginal cost.
Local Embeddedness	Deep – relying on physical presence, local employees, and adaptation to host-country institutions, regulations, and consumer preferences.	Shallow – relying on standardized global platforms; minimal local adaptation, though some local presence may be needed for regulation or complementors.
Market Scope	Narrower geographic reach, often regional focus (e.g., Rugman's "regional MNEs"); expansion is gradual and resource-dependent.	Wide geographic reach, often global by default; platforms like Airbnb or Facebook operate in 150+ countries within a decade.
Business Scope	Broad and diversified, often active across multiple industries and product lines (e.g., Siemens, Nestlé, Toyota).	Narrow and focused, typically centered on one digital core offering replicated globally (e.g., Spotify, Zoom, TikTok).

Source: Author summary

3.2 Strategies of Internationalization

***Global Integration and local responsiveness*:** One of the principal concepts for understanding MNEs strategic choices at the overall level is the global integration–local responsiveness framework (Dörrenbächer & Geppert, 2016). It essentially asks whether MNE internationalization is based on global integration, coordination, and standardization of business activities, or on local differentiation and responsiveness (Prahalad & Doz, 1987; Bartlett & Ghoshal, 1989).

A core aspect of cross-border integration and coordination is the ability to exploit specific advantages across nations by integrating (e.g., establishing a central production plant for multiple markets) and coordinating (e.g., aligning R&D projects or setting and transferring standards/targets across MNE units) business activities. Conversely, a core aspect of local responsiveness is decentralization and differentiation through local adaptation (e.g., products and services tailored to local preferences; business processes adjusted to national regulations) and local presence (Dörrenbächer & Geppert, 2016).

Examining digital MNEs, strong evidence suggests that, compared to traditional MNEs, they build their internationalization strategies more on global integration, coordination, and standardization of business activities. Birkinshaw (2022) has summarized this as follows:

> *Specifically, they have prioritized global integration (a single platform available worldwide), given some attention to worldwide learning (for example, tapping into pockets of expertise in key cities), and downplayed local responsiveness as much as possible. Consider, for example, Uber's international growth strategy, which involved imposing its preferred business model wherever it could and adapting only marginally when required by law. (Birkinshaw, 2022, p.623)*

Core business activities of digital MNEs are centrally coordinated and concentrated in a limited number of countries. Furthermore, their product offerings often show little to no local adaptation. Part of the reason for the high degree of global integration and coordination of value chain activities lies in the virtual, asset-light nature of digital business models, which do not require extensive physical presence and thus reduce the need for broad local footprints. As Puhr et al. (2023) have noted:

> *DMNEs are centralized organizations. Their digital business models allow them to internationalize from a central location with little investment in their host countries. Thanks to their digital business models, DMNEs do not require substantial assets in any foreign market. Rather, they are thin on assets, serving users and advertisers through digital distribution channels*. *(Puhr et al., 2023, p.137)*

The limited need for physical presence means that any remaining business activities requiring it can be concentrated in countries offering specific advantages, such as technological infrastructure, favorable regulatory environments, access to skilled talent, and financial and tax incentives. For instance, Google concentrates its global cloud and data-centre infrastructure in a select number of strategically chosen regions, such as Iowa, Frankfurt, Dublin, and Singapore, that combine advanced digital infrastructure, favorable regulatory environments, abundant renewable energy, and access to skilled talent.

Another reason why digital MNEs can afford minimal local adaptation is that they often target global markets within specific, narrow segments rather than individual national markets. Relatedly, strategies of global integration and standardization allow for rapid scalability, which in turn facilitates achieving economies of scale and cost reductions. For instance, platforms like Facebook and Google provide uniform services worldwide, enabling them to streamline operations and maintain cost efficiency.

Additionally, while the core business models of digital MNEs are highly standardized with little regional adjustment, they offer a substantial degree of customization at the individual user level. For example, Spotify uses AI-generated playlists tailored to individual preferences, which may or may not have a regional or national flavor.

However, while local responsiveness and adaptation are less pronounced in digital MNEs compared to traditional MNEs, this requires some qualification. First, *traditional MNEs* also vary significantly in the degree to which they emphasize global integration, local responsiveness, or a balance of both. This variation occurs not only across traditional MNEs but also within them, as different product lines may be subject to distinct integration and responsiveness pressures. Second, *digital MNEs* themselves differ in their need for and approach to local responsiveness (Stallkamp & Schotter, 2021; Bruche, 2022; Nambisan & Luo, 2022). Netflix, for example, has significantly adapted its content strategy to local markets by investing in region-specific productions, such as Squid Game (South Korea), Money Heist (Spain), and Sacred Games (India) (see also Labato, 2019). The company also adjusts its pricing structures based on local economic conditions, such as offering mobile-only subscriptions in emerging markets like India. In contrast, Google Search maintains a highly standardized global search algorithm with only minimal local adaptation. While it offers country-specific domains (e.g., Google.de for Germany) and some language settings, the core search experience remains largely uniform across markets. Google has often exited markets where adaptation pressures were too high, such as China, where it withdrew rather than comply with censorship laws. Third, there is increasing recognition that digital MNEs, too, must *balance global integration with local responsiveness* (Luo & Nambisan, 2022). Divergent consumer preferences and regulatory requirements create pressures for adaptation. For example, while Airbnb initially emphasized a globally integrated platform model, it has progressively localized its services by adjusting offerings and policies in response to national regulations and customer expectations (Chen, 2025). Likewise, regulatory regimes are compelling digital MNEs to differentiate across jurisdictions. The European Union's General Data Protection Regulation (GDPR), for instance, has forced companies such as Google and Meta to revise data policies, strengthen compliance mechanisms, and, in some cases, pay substantial fines for violations (Stupp, 2023; European Data Protection Board, 2023).

Still while pressure for local responsiveness and overall a need to balance integration and differentiation are also present for digital MNE it is probably fair to say that the nature of their business models, products or services – virtual, asset light and standardized – tilts these MNEs value chains and market strategies more towards global integration than to local responsiveness. After all this is the basis of their internationalization speed, scale and scope.

Market entry modes: Entry mode refers to the strategic approaches MNEs adopt to enter foreign markets. Entry modes can broadly be classified into non-equity modes (e.g., exports, contracts, licensing, franchising, alliances) and equity modes (foreign ownership of assets through wholly or partially owned subsidiaries such as joint ventures).

Digital MNEs differ from traditional MNEs in that their business models are often *virtual* and *asset-light*, with advantages frequently embedded outside the firm. Consequently, they rely less on transferring and integrating physical assets across borders, which has major implications for entry mode choices. Eden (2016) notes:

> *The delivery of digital products over the Internet through e-commerce is a growing form of exporting, which can be done without setting up a local permanent establishment in the host country. Digitalisation also means increased mobility of services that are now tradable without needing a host country FDI presence. Thus, the trade-off between exporting and market-seeking FDI as market entry modes for delivering products to host countries may be shifting toward exporting. (Eden, 2016, p.6).*

In a similar vein, Brouthers et al. (2022) identify virtual presence as a non-traditional entry mode especially prevalent among digital service firms. They define it as "*foreign entries in which no physical entry is undertaken for customer/user acquisition, although the firm appears to be in the country from the perspective of its buyers and users*" (Brouthers et al., 2022, p. 2095).

Virtual presence highlights how firms can enter foreign markets with minimal or no physical presence. Enabled by digital technologies, it allows companies to acquire customers directly and deliver products (e.g., via 3D printing) or services (e.g., downloads) without establishing subsidiaries or export channels (Brouthers et al., 2022). For example, Google reaches consumers worldwide through its online services without setting up local subsidiaries. Unlike traditional exports involving logistics and distribution, *digital exports* are highly scalable and involve minimal marginal costs. As Brouthers et al. (2022) explain:

> *Virtual presence entry modes differ from traditional modes like exporting, licensing or franchising in two ways. First, virtual presence entry modes do not require the firm to set up operations of any kind (including cooperative modes like export agents, distributors, or export sales subsidiaries) in the foreign market, instead relying on digital technologies to reach customers/users. Second, through these digital channels, firms can leverage their advantages reaching large groups of potential customers/users and retain all the financial benefits of foreign entry (instead of sharing with others), because virtual presence entry modes provide firms with the ability to enter foreign markets and directly control the operation while minimizing investment in the foreign market. (Brouthers et al., 2022, p. 2095).*

Alongside *virtual presence*, Brouthers et al. (2022) identify *managed ecosystems*, *innovation outposts*, and *capital access* as non-traditional entry modes that often involve foreign engagement with little asset ownership. In the following, we will restrict the discussion to Innovation outposts and Managed ecosystems, as *capital access*, defined as "*foreign market entries for seeking and gaining access to new financial resources while at the same time undertaking little, if any, other activities in the foreign market*" (Brouthers et al. 2022: 2092) – is not specifically relevant to digital MNEs.

Managed ecosystems describe these as "*foreign entries of multi-sided platforms in which platform firms leverage their firm-specific digital infrastructure while also cultivating localized operations*" (Brouthers et al., 2022, p.2096). Building on Altman, et al., (2022), they further specify them as "*unique ways in which firms engage external parties for value creation and capture such that the locus of activity resides outside the focal firm's organizational boundaries while the locus of control remains within the firm*" (Brouthers et al., 2022, p.2096).

While similar to virtual presence in leveraging digital assets, managed ecosystems differ by requiring some degree of local presence or embeddedness. This may be needed to comply with regulations, build local legitimacy, attract complementors, and enhance value creation. Crucially, the complementary resources in such ecosystems are provided by local actors who are independent contributors, not employees or equity partners. Thus, managed ecosystems cannot easily be classified as equity-based entry modes such as alliances or joint ventures. A case in point is Uber. When the company expands into a new city, it does not purchase cars or employ drivers directly. Instead, it builds and manages a local network of independent drivers who use their own vehicles. While Uber is a case where substantial local complementing is crucial for realizing the business model, Brouthers et al. (2022) clarify that Managed ecosystems vary in their degree of local presence and embeddedness. They note:

> *We recognize substantial variations in the extent to which multi-sided platforms extensively rely on local complementors to create value (e.g., Just Eat, Airbnb, Uber,*

> *Groupon) or combine a mix of local and international complementors (e.g., TikTok, YouTube, App Store, etc.). (Brouthers et al. 2022, p.2096)*

Yet, while the level of local complementing may vary across managed ecosystems, their common denominator is that "*the value generated by these firms continuously evolve due to not only the design and configuration of the digital infrastructure provided by the focal platform firm, but also the contributions of complementors*" (Brouthers et al. 2022, p.2097). Hence, Managed ecosystems represent *"a combination of globally accessible digital infrastructures and network of independent complementors [that] provides digital platform firms an entry mode for exploiting their firm-specific advantages in foreign markets*" (Brouthers et al., 2022, p. 2097).

Similar to Managed ecosystems, *innovation outposts* represent a non-traditional, non-equity entry mode that entails substantial foreign engagement and embeddedness without relying on significant, if any, foreign asset ownership. Brouthers et al. (2022, p.2093) *define innovation outposts as* "*foreign entries for exploring resources and capabilities in foreign countries by setting up a listening post and earning an insider status in networks of foreign firms*".

The primary goal of this entry mode is to access technologies, business models, and managerial know-how that are unavailable within the firm or its existing networks, thereby enhancing innovation in products, processes, and capabilities (Brouthers et al., 2022). More akin to non-equity alliances, these entry modes differ from traditional equity-based foreign investments in that:

> *Searching for and accessing such knowledge and resources may not necessarily require traditional arrangements like subsidiaries, sales offices or formal contractual relationships with suppliers or distributors. Instead, firms may get access to such networks by locating internal teams in foreign countries (i.e., innovation outposts), which may cultivate relationships with foreign business networks to access their unique knowledge and resources (Decreton et al., 2021). Unlike signing a one-time contract for alliances or joint ventures, building these relationships is a continuous process that gradually enhances firm embeddedness in a foreign network through reciprocal and informal commitments. […] Such networks are based on mutual interests and ongoing relationships that differ from the explicit contracts in alliances and joint ventures or establishment of subsidiaries, reflecting the transition from earlier worldwide hierarchies to devolved, network-like organizational systems in which not only top management but also middle management is heavily […]. (Brouthers et al., 2022, p. 2093)*

Innovation outpostsare thus primarily designed to explore knowledge and resources in foreign locations through local network insider-ship. For digital MNEs**,** whose competitiveness depends heavily on continual innovation in platforms, algorithms, and business models, innovation outposts are particularly critical. Enabled by digital connectivity, they allow digital firms to leverage international partner networks and channel new ideas into global operations without substantial foreign asset ownership. An example is Meta's (formerly Facebook) India Innovation Hub Accelerator, launched in partnership with T-Hub in Hyderabad. The program provided mentorship, technical guidance, and access to developer tools for Indian AI and AR/VR startups, but involved no equity investment or ownership stakes on Meta's part. Instead, the initiative allowed Meta to embed into the local innovation ecosystem and access frontier technology insights through collaboration rather than asset ownership (T-Hub, 2019).

Lastly, while virtual presence, managed ecosystems, and innovation outposts illustrate how digital MNEs are pioneering new non-traditional entry modes, these do not fully replace established approaches to internationalization. Rather, they coexist alongside more traditional entry modes. Importantly, even though digital MNEs are at the forefront of applying non-traditional entry modes, they also continue to rely on traditional ones. They may acquire technology firms, establish data centers, or meet regulatory requirements that entail substantial foreign asset ownership in certain locations (Verbeke & Hutzschenreuter, 2022). In contexts with underdeveloped digital infrastructure, asset-heavy investments may also be unavoidable. Moreover, firms often deepen their presence over time, evolving from initial non-equity entry toward more traditional equity forms such as corporate offices (Brouthers et al., 2022; Trigeorgis & Miller, 2025).

In sum, compared to traditional MNEs, digital MNEs tend to favor non-equity over equity modes, and within the non-equity spectrum, they increasingly rely on new non-traditional forms rather than traditional ones. Modes such as Managed ecosystems and Innovation outpostsreflect a broader shift from internalization to externalization as the basis for internationalization. Nevertheless, the classical equity vs. non-equity distinction remains relevant, as digital MNEs continue to combine both traditional and non-traditional strategies in practice (see Table 4 for a summary).

Table 4: Contrasting Traditional and Digital MNE in Terms of Internationalization Strategy

Dimension	Traditional MNEs	Digital MNEs
Internationalization strategy	Balance global integration (centralized production, R&D coordination, global standards) with local responsiveness (adapted products, marketing, compliance with host-country institutions). Varies by industry and product line.	Tilt strongly toward global integration and standardization (e.g., single platforms, uniform services, centralized coordination). Local responsiveness limited, but adaptation sometimes required (e.g., Netflix local content, Airbnb regulatory adjustments).
Entry modes – equity	Heavy reliance on equity modes such as wholly owned subsidiaries, joint ventures, and acquisitions to secure control over production, distribution, and supply chains.	Lower reliance on equity modes; used selectively for strategic purposes (e.g., acquisitions of tech firms, compliance with regulations, data center investments).
Entry modes – non-equity	Rely mainly on traditional non-equity modes such as exporting, licensing, and franchising.	Favour non-traditional non-equity modes enabled by digitalization: virtual presence (serving users without local assets), managed ecosystems (local complementors, e.g., Uber, Airbnb), and innovation outposts (knowledge-seeking hubs, e.g., Meta India).

Source: Author summary

4. Consequences of Internationalization

4.1 Firm Level Consequences

The consequences of digital firm internationalization, especially when compared to traditional MNEs, can be analyzed at two levels: the firm level (internal perspective) and the environmental level (external perspective). From a firm perspective, internationalization through digital channels has often been celebrated as an opportunity. It is viewed as a way to reduce traditional risks and barriers, lower resource requirements, and enhance profitability. Nambisan & Luo (2022) identify four specific opportunities arising from leveraging digitization in internationalization:

- **Global customer effects** – easy access to worldwide customer, consumer, or user pools.
- **Transaction cost effects** – reduced transaction costs, especially for digital goods and services.
- **Open innovation effects** – greater access to international talent, knowledge pools, and external partners.
- **Managerial efficiency effects** – enhanced ability to distribute, coordinate, and monitor activities globally.

Digital MNEs typically achieve high operational efficiency by streamlining value chains through technologies such as cloud computing, big data analytics, and artificial intelligence. Their asset-light nature enhances scalability, lowers operational and transaction costs, and allows for tax optimization and flexible financial structures. Particularly for smaller firms (see also discussion on micro MNEs), digital internationalization provides a new pathway to global suppliers and markets that helps bypass traditional liabilities of foreignness and resource constraints.

Recent scholarship also highlights the "dark side" of digital internationalization (Verbeke and Hutzschenreuter 2021). Verbeke and Hutzschenreuter (2021) caution against overestimating the nonlocation-boundedness of digital firm-specific advantages (FSAs). Many digital assets still require recombination with localized, complementary resources abroad, meaning that "asset-light" internationalization often entails hidden costs and tangible local footprints. Governing digital networks across borders is far from frictionless: firms must internalize or closely control at least some critical assets and acquire local knowledge, which creates substantial local gravity and governance complexity (Verbeke & Hutzschenreuter 2021; Meyer et al. 2023).

Moreover, digital firm internationalization presents distinct challenges in a global landscape marked by deglobalization, geopolitical tensions, and a rise in nationalism and protectionism (Nambisan and Luo 2022). Relatedly, the very characteristics that enable digital MNEs to succeed, their asset-light structure and market dominance, also make them subject to scrutiny. Because they lack significant physical presence, these companies often face backlash from host-country governments and domestic groups concerning taxation, competition, national security and local economic contributions. This scrutiny often leads to new regulations and restrictions that make it harder for digital MNEs to enter or operate in local or regional markets. As Verbeke and Hutzschenreuter (2021) summarize it:

> *MNE attempts at digital globalization typically generate nonnegligible crowding-out effects and negative externalities in host environments, which in turn lead to protective countermeasures from nonmarket forces; these measures, in some cases motivated*

> *by digital nationalism, can jeopardize digital MNEs' social license to operate in host environments. (Verbeke & Hutzschenreuter, 2021, p.614)*

A key example is the European Union's regulatory action against Facebook and Google over digital taxation and antitrust issues. Similarly, Netflix has disrupted national media industries without proportional local job creation or infrastructure investment, prompting regulatory responses. These instances highlight how the advantages of a digital business model can trigger non-market risks, complicating global expansion.

Beyond these general challenges to all digital MNEs, small digital MNEs face unique risks stemming from their overreliance on dominant platforms and ecosystem partners (Cutolo & Kenney, 2021; Asadullah et al., 2023). The dominance of "digital superhubs" like Amazon, for instance, can increase dependencies and reduce the autonomy of smaller MNEs internationalizing through these platforms (Verbeke & Hutzschenreuter 2021). Thus, while digital internationalization offers significant opportunities, it also introduces new constraints, costs, and dependencies for smaller firms in particular.

Nambisan and Luo (2022) compile a comprehensive set of intra- and extra-country risks that digital MNEs face.

Intra-country risks (host-country related):

- **Regulatory risks** – uncertainties arising from shifting policies on digital connectivity and commerce, including rules on data privacy and security, intellectual property, taxation, and restrictions on foreign firms' access to infrastructure.
- **Infrastructure risks** – weaknesses in local digital infrastructure, such as broadband capacity, data centers, cloud services, or IoT systems.
- **Economic risks** – risks tied to the overall economy and, in particular, the maturity of the host country's digital economy, including demand conditions, openness to digital offerings, and internet penetration.
- **Social risks** – risks stemming from the social environment (e.g., stability, crime, demographics) and from consumer/user norms, attitudes, and behaviors toward digital offerings.

Extra-country risks (cross-border):

- **Home–host country risks** – political or regulatory tensions between home and host governments affecting investment and operations.
- **International events** – disruptions from global crises such as pandemics, geopolitical conflicts, cyber incidents, natural disasters, or terrorism.
- **Digital global business connectivity risks** – vulnerabilities arising from the hyperconnected nature of digital markets:
    - *Interdependence risk* – exposure to cascading shocks due to the interconnectedness of digital ecosystems.
    - *Information security risks* – cross-border exposure to hacking, cyberattacks, and data breaches.
    - *International reputation fragility* – rapid global diffusion of reputational crises through social media.
    - *New global rivals* – sudden emergence of competitors from diverse regions.
    - *Institutional and infrastructural risks* – fragmentation of digital governance and infrastructure ("splinternet") as well as policy shifts that restrict access or usage across borders.

Compared with traditional "brick-and-mortar" MNEs, the digital global business connectivity risks are particularly acute for digital MNEs because of their dependence on cross-border data flows, digital infrastructures, and platform interconnections. While regulatory and infrastructure risks are not new, in is argued that the hyperconnected character of digital business models amplifies their impact: minor disruptions can cascade globally, reputational crises spread instantly, and new rivals can emerge unexpectedly. To respond to these risks Nambisan and Luo (2022) suggest a range of risk management strategies including risk monitoring, digital infrastructure engagement, adapting data architectures as well as specific organizational arrangement and ecosystem governance (see Box 3 below for details). Ecosystem governance is especially critical. Rather than relying primarily on ownership and control, digital internationalization requires orchestrating complex, globally dispersed ecosystems. Building competencies in ecosystem governance, data analytics, and cross-border digital regulation thus becomes central not only to risk mitigation but also to the long-term viability of global digital business models.

Box 3: Nambisan & Luo's (2022) Risk Management Strategies for Digital MNEs

*According to Nambisan & Luo (2022) managing the risks of digital internationalization requires digital MNEs to develop **new managerial capabilities, governance practices, and risk management approaches.** These include:*

- ***Risk monitoring** – building qualitative and quantitative risk-assessment systems that provide early warning and early learning across global markets.*
- ***Digital Infrastructure engagement** – collaborating with governments, regulators, and industry peers to strengthen digital infrastructure, thereby creating positive externalities and improving legitimacy.*
- ***Data architectures** – developing digital and data systems that enable the integration of both local intelligence (on specific host-country risks) and global intelligence (on systemic events) to capture the scope and pattern of risks.*
- ***Organizational arrangements** – adopting flexible structures such as semi-autonomous microenterprises, training risk-management staff, and creating cross-national, cross-functional risk teams.*
- ***Ecosystem governance** – designing governance frameworks that define accountability for data and processes spanning multiple partners, subsidiaries, and countries.*

4.2 External Environment Consequences

Turning to the external level, the internationalization of digital MNEs also entails both opportunities and challenges for countries hosting digital MNEs and their investments (see also (Srinivasan & Eden, 2021). These can be located at the economic, environmental and socio-political level.

Economic Impacts: Countries that host digital MNE headquarters or the critical nodes of their value chains (such as R&D centers or data infrastructure) may derive substantial benefits and even monopolize the presence of these successful firms. Moreover:

> *International investment in the digital economy has considerable developmental effects, such as providing investment and finance, enhancing productivity and creating jobs. In host developing countries, it can play an essential role in the development of digital infrastructure, such as telecommunications networks, broadband access ports and data centres, and the provision of critical services to underserved populations. In addition, international investment in digital industries can help enhance human*

> *resources, foreign market access and digital transformation in the host economy. (WIR, 2025, p.208)*

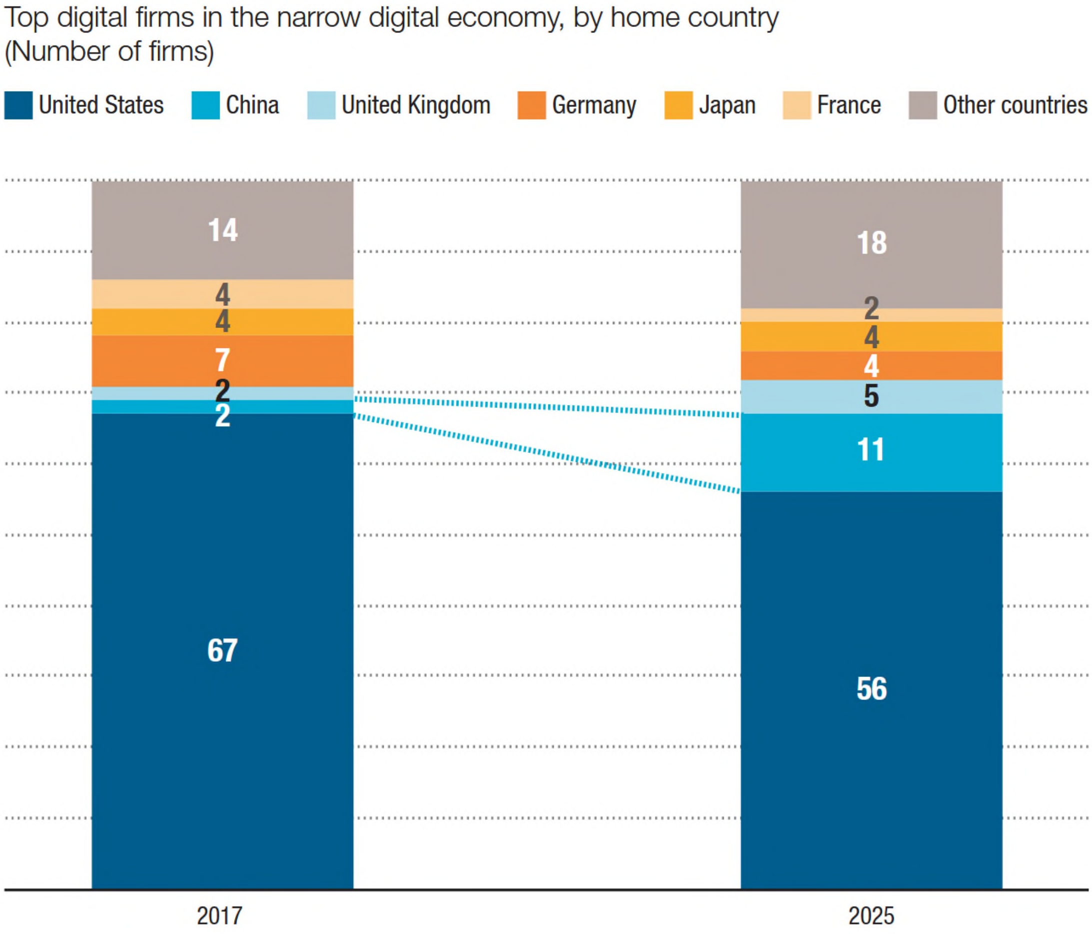
However, many host countries, particularly those that only experience a virtual presence, struggle to capture meaningful economic gains. As the *World Investment Report 2017* succinctly highlights:

> *Their international footprint, however, is fundamentally different than that of other MNEs: they can reach foreign markets with fewer assets and fewer employees overseas. Their economic impact on host countries is thus less directly visible in terms of physical investment and job creation. Their international operations also differ from those of other MNEs in a number of areas: they tend to hold more liquid assets, and they have more opportunities to exploit tax-efficient corporate structures. In addition, unlike other MNEs, most digital MNEs are headquartered in only a few countries, with a heavy concentration in the United States. (WIR, 2017, p.164)*

Other negative effects of digital FDI discussed in the literature include increased market concentration and the marginalization of domestic firms in host economies. Relatedly, the market dominance of "digital superhubs" may not only crowd out local competitors and ultimately reduce customer choice, but also hinder new market entry and stifle local innovation (Verbeke & Hutzschenreuter, 2021).

The *World Investment Report 2025* (WIR, 2025) reaffirms many of these observations and identifies market dominance, environmental impacts, and regulatory challenges as key issues for host countries. It emphasizes that the ability to leverage opportunities depends on a country's digital maturity, institutional setting, and regulatory frameworks. Moreover, FDI in the digital economy remains highly unevenly distributed. Developed economies continue to be both the main sources and primary recipients of FDI in core sectors of the digital economy. The top 100 digital MNEs are still dominated by firms from developed economies, particularly the United States (see Figure 2).

Figure 2: MNE by Country of Origin Leading Top 100 Digital Ranking



Source: UNCTAD, FDI/MNEs database.

Note: The narrow digital economy builds on the core economy by including platform-based activities, the sharing economy, e-commerce, fintech, artificial intelligence and automation. The core digital economy consists of digital infrastructure and digital services such as telecommunications, Internet and data services, cloud services and cybersecurity protocols.

Source: WIR (2025)

Despite the growing strength of Asian countries in the digital economy, most notably China, FDI in the digital economy continues to reinforce a core–periphery structure, with a small number of countries and firms capturing the bulk of value creation. For instance, Amazon and Alibaba together captured 34% of revenues and 17% of assets of the top 100 digital MNEs in 2021 (UNCTAD Investment Monitor, 2022).

Environmental Impacts: An often-overlooked dimension concerns the environmental footprint of digital MNEs. Although digital services may appear “clean” and can contribute to improved water, energy, resource, and recycling management, they depend on infrastructures with substantial ecological costs. The production of digital technologies and infrastructure is highly energy-, water-, and waste-intensive. For instance, data centres consume nearly 200 billion litres of water annually for cooling (WIR, 2025). The ICT sector as a whole accounted in 2020 for an estimated 1.5 to 3.2 per cent of global greenhouse gas emissions. In addition, e-waste from small IT equipment increased by 30 per cent between 2010 and 2022, reaching 10.5 million tons (WIR, 2025).

Developing and least developed economies are disproportionately affected by the adverse effects of digitalization, facing what the *Digital Economy Report 2024* describes as a “double bind”:

> *On the one hand, they are often the most vulnerable to potential negative environmental and social effects arising from digitalization, relating to raw material extraction, carbon emissions, water consumption and waste from digitalization. On the other hand, they are less equipped to harness digital technologies to mitigate risks from climate change and other environmental crises.* (*UNCTAD/DER, 2024, p. 22)*

In particular, raw material extraction and e-waste recycling (e.g., material recovery) in developing countries are often associated with severe environmental, health, and social impacts. These include water, soil, and air pollution, deforestation, broader ecosystem degradation, and related risks to human health. Such impacts are further exacerbated by poor working conditions, exploitative labor practices, and human rights violations, including child labor (UNCTAD/DER 2024).

Tables 5 and 6 below summarize the wide range of direct and indirect sustainability challenges (and opportunities) connected to digital devices, technology, and infrastructure.

Table 5: Direct Environmental Effects of Digital Devices and Infrastructure

Life cycle phase	Type of environmental impact	Digital device example: Smartphone
Production ▲	**Raw materials extraction.** Impacts on GHG emissions and the local environment from extracting and processing raw materials to make digital devices and infrastructure.	Materials, fossil fuels and water needed for transport and processing of raw materials for smartphone production.
	Production and transportation. Impacts on GHG emissions and water use from manufacturing and transporting digital devices and infrastructure.	Energy and water to produce and ship a smartphone to market.
Use ▲	Impacts on GHG emissions and water use from operating digital devices and infrastructure.	Energy needed to use a phone; energy and water needed to power the underlying digital infrastructure such as data centres, mobile or fixed broadband.
End-of-life ▲▼	Impacts on GHG emissions, pollution of water and soil from reuse, recycling and end-of-life treatment of digital devices and infrastructure.	*Negative:* Energy to dispose of the smartphone; impacts on water and soil from recycling and disposal of components. *Positive:* Proper reuse and recycling of devices and components reduces future negative impacts from raw material extraction.

Source: UNCTAD, adapted from Bremer et al. (2023); Pohl et al. (2019); Horner et al. (2016).

Notes: A red upward pointing arrow indicates a negative effect (increasing environmental impact); a green downward pointing arrow indicates a beneficial effect (avoided impact). A red upward pointing arrow next to a green downward pointing arrow means that the net effect can be either positive or negative.

Source: UNCTAD/DER 2024

Table 6: Indirect Environmental Effects from the Use of Digital Devices and Infrastructure

Type of indirect effect	Potential environmental impact	Digital device example: Use of maps on a smartphone
Substitution ▲▼	Products are replaced by their digital equivalents (with lower or higher environmental impacts).	Replacement of paper-based maps and dedicated GPS-only devices.
Optimization ▼	Adoption of digital technologies leads to efficiency improvements.	Enhanced traffic and energy efficiency through real-time routing, reducing travel due to optimized routes.
Rebound ▲▼	Time and income effects. Optimization gains from digital technologies enable cost reductions (in terms of money or time), boosting the consumption of the good or service or of other goods or services.	***Same good or service:*** additional use of device compared to traditional paper-based maps, increased data consumption. ***Other good or service:*** energy consumed during time/with resources saved by more efficient travel.
Induced consumption ▲	Digital technologies induce an increase in the consumption or use of a product, process or service.	Increased travel as smartphone-enabled routing eases and aids driving in unfamiliar areas.
Transformational (societal) rebound ▲▼	Introduction of digital technologies causes macroeconomic adjustments across sectors.	Growth in location-based services and advertising; GPS technology in smartphones boosts autonomous vehicles and expands intelligent transportation system manufacturing.
Sustainable lifestyle and practices ▼	Digital technologies enable or encourage more sustainable lifestyles and practices.	Smartphone maps and routing promote sustainable travel methods, such as walking or biking in unfamiliar areas.
Systemic transformation and structural economic change ▲▼	Digital technologies generate systemic society-wide transformations.	Digital maps change transportation consumption boosting demand for car-sharing and ride-sharing such as Uber; long-term, GPS-enabled autonomous vehicles shift living and working location choices. Improved navigation efficiency may enable more private vehicle use over public transportation, and delay structural changes needed to reduce carbon emissions and traffic congestion.

Source: UNCTAD, adapted from Bremer et al. (2023); Pohl et al. (2019); Horner et al. (2016).

Notes: A red upward pointing arrow indicates a negative effect (increasing environmental impact); a green downward pointing arrow indicates a beneficial effect (avoided impact). A red upward pointing arrow next to a green downward pointing one means that the net effect can be either positive or negative.

Source: UNCTAD/DER 2024

Socio-Political Impacts: The internationalization of digital MNEs, and particularly of powerful superhub platforms, carries both opportunities and risks. Its effects extend beyond economics, shaping political and social conditions in host countries.

On the positive side, governments and societies may harness digital platforms for economic modernization, digital government, and service provision (e.g., in education and healthcare), as well as new opportunities for civic engagement, inclusion, and the strengthening of democratic processes. Platform MNEs may facilitate freedom of opinion, access to diverse information sources, and new forms of political mobilization, thereby contributing to transparency, accountability, and citizen empowerment.

On the negative side, their operations can generate profound risks. Especially in weakly institutionalized contexts, digital platforms may serve as channels for disinformation, discrimination, and political polarization, undermining social cohesion and trust in institutions. Concerns have also been raised over “data sovereignty”, personal privacy, and data protection, undermining the rights of citizens (UNCTAD/DER 2021). Large-scale scandals such as *Cambridge Analytica* have demonstrated how platform data can be exploited for electoral manipulation, raising questions about the integrity of democratic processes (Kleinman, 2018). Furthermore, authoritarian regimes may deliberately co-opt or pressure digital MNEs into enabling surveillance, censorship, or propaganda, thus transforming them into vehicles of control rather than emancipation (Aslama Horowitz et al., 2024). For example, Google has faced criticism for cooperating with authoritarian regimes by removing politically unfavorable content (Boyle, 2025).

Geopolitical Implications: Beyond domestic effects, the dominance of a handful of digital superhubs also challenges national security and autonomy. A case in point is the controversy surrounding Huawei and 5G infrastructures, which triggered widespread debates in Europe, North America, and Asia over the risks of dependence on foreign-controlled networks and the potential for espionage or political leverage (Berman et al., 2023). Reliance on foreign-owned digital infrastructures, cloud services, and data flows can create strategic vulnerabilities, as states may lose control over critical information assets and communication networks (von Thun, 2025).

This dependence has spurred growing concerns over "digital sovereignty" and "strategic autonomy," prompting policy responses such as data localization, stricter competition regimes, and efforts to develop indigenous digital ecosystems (UNCTAD/DER 2021; UNCTAD/DER 2024). At the international level, these tensions feed into broader geopolitical rivalries — most notably between the United States and China — where the global expansion of digital MNEs intertwines with national security agendas, trade conflicts, and competing models of digital governance (Bateman, 2022; Zhan, 2024).

In this sense, the internationalization of digital MNEs transcends economic logics: it is deeply entangled with democracy, authoritarianism, national security, and the geopolitics of information flows. Their dual potential — as enablers of openness and as instruments of control — underscores the contested and ambivalent political role of digital globalization.

In summary: The consequences of digital MNEs internationalization manifest at both the firm and external levels, offering opportunities but also significant risks. At the firm level, digital channels open new pathways for global reach, efficiency, and innovation, while at the same time exposing companies to hidden costs, regulatory pressures, and dependencies on dominant platforms. At the external level, host countries may gain from investments in digital infrastructure, improved productivity, and broader access to services. At the same time, these benefits are often uneven, as countries can face limited local value capture, environmental costs, social and political challenges, and new vulnerabilities in national security. Taken together, digital MNEs highlight the dual nature of globalization in the digital age — simultaneously enabling openness and connectivity while amplifying risks of concentration, inequality, and geopolitical contestation.

Comparing consequences: Both digital and traditional MNEs create opportunities and risks at the firm, economic, environmental, socio-political, and geopolitical levels. They share common challenges such as legitimacy pressures, sovereignty concerns, and uneven local value capture. Yet, there are also some pronounced differences: digital MNEs rely often on asset-light internationalization with limited local footprints, while traditional MNEs are asset-heavy and more visibly embedded in host economies. Economically, brick-and-mortar firms often generate clearer spillovers in jobs and suppliers, whereas digital firms often provide services without deep local investment. Environmentally, traditional firms are linked to production and logistics emissions, while digital firms environmental impact is often more indirect and hidden. Socio-politically, digital MNEs shape information flows directly, offering opportunities for democratic participation but also risks of disinformation, polarization, and surveillance. By contrast, traditional MNEs tend to affect societies and politics more indirectly, primarily through employment relations, corporate social responsibility, and conventional forms of corporate political activity. Finally, both types of firms raise geopolitical issues, but digital MNEs are currently particularly entangled in debates over data governance, sovereignty, and US–China rivalry (see Table 7 for a summary).

Table 7: Contrasting Traditional and Digital MNE in Terms of Internal and External Impacts

Dimension of impact	Traditional MNEs	Digital MNEs
Firm level	Asset-heavy with large sunk costs in factories, supply chains, and subsidiaries; legitimacy tied to visible contributions such as jobs, taxes, and local presence.	Asset-light, scalable, with low entry barriers; relying on data, platforms, and ecosystems; face scrutiny over taxation, competition, data practices, and broader questions of legitimacy, while smaller firms risk heavy dependence on dominant platforms
Economic impacts	Create clearer local spill overs through employment, supplier linkages, and physical investment; value capture more tangible at host-country level.	Provide infrastructure, services, and market access (esp. in underserved regions); but virtual presence often limits local value capture, job creation, and supplier development.
Environmental impacts	Visible footprint from manufacturing, logistics, and resource use; impacts include emissions, pollution, and industrial waste.	Less visible but significant footprint from data centres, rare-earth mining, and e-waste; infrastructures are energy- and water-intensive.
Socio-political impacts	Influence societies mainly through employment relations, labour standards, CSR, and corporate political activity.	Directly shape information flows and public discourse; can enable civic participation but also spread disinformation, undermine privacy, and be co-opted by authoritarian regimes.
Geopolitical impacts	Raise sovereignty concerns in strategic sectors (e.g., resources, critical industries) but less directly linked to information governance.	Closely tied to digital sovereignty, data governance, and national security debates; heavily entangled in US–China rivalry and wider geopolitical contestation.

Source: Author summary

5. Conclusion and Theoretical Implications

Our stylized comparison has shown that the internationalization behavior of digital MNEs differs in many ways from that of traditional, brick-and-mortar firms. In particular, we highlighted how digital MNEs diverge in terms of the antecedents, processes, strategies, and consequences of their international expansion. These differences raise important questions about the continued applicability of established theories and frameworks in IB. While many traditional concepts remain useful, the asset-light, platform-based, and ecosystem-oriented nature of digital firms suggests that some theories may need refinement, extension, or even rethinking. Below we summarize the extent to which existing IB theories remain relevant for understanding digital MNEs.

5.1 Relevance of the Motive Framework for Digital MNEs

A growing body of scholarship highlights that digital and traditional MNEs diverge significantly in their internationalization motives (e.g., Gestrin & Staudt, 2018; Eden, 2016; WIR, 2017). Traditional MNEs expand abroad to access markets (market seeking), cut costs by relocating production (efficiency seeking), or secure raw materials (resource seeking). In Digital MNEs, however, these motives are seen to assume less importance: they can reach global consumers online without physical market entry, and technology-based efficiencies reduce presence in many location or dependence on low-cost locations. In this sense, market- and efficiency-seeking motives lose some of their explanatory power for firm internationalization. Instead, digital MNEs place greater weight on knowledge- and asset-seeking motives. They pursue strategic digital assets (e.g., AI start-ups), locate in knowledge hubs to access talent and innovation, and leverage ecosystem- or tax-related advantages in favorable jurisdictions. Resource seeking increasingly centers on data, digital infrastructure, and human capital rather than raw materials. It is important to note, however, that this divergence does not make the classical motive framework (Dunning 1993) redundant. Rather, it shows that while the balance of motives shifts, the classical motive categories remain useful heuristics: they continue to apply, but with altered importance and meanings in the digital economy.

5.2 Liability of Foreignness (LoF) and Lliability of Outsidership (LoO)

The concept of liability of foreignness (Zaheer,1995), the extra costs firms incur when operating abroad, appears less pronounced for many digital MNEs (Stephens et al., 2024; Nambisan & Luo, 2022; Chen et al., 2018; Verbeke & Hutzschenreuter, 2021). Virtual entry, asset-light models, and standardized digital offerings reduce exposure to cultural, institutional, and geographic barriers. Moreover, global market access and standardized business models can reduce the relevance of national borders, differences and adaptation requirements. At the same time, digital connectivity enables firms to acquire market knowledge without a physical presence (Nambisan & Luo, 2022). Nonetheless, LoF does not disappear entirely. Digital firms often require local complementary resource and assets such as data centers or a delivery infrastructure (Verbeke & Hutzschenreuter, 2021). They may also need proximity for customer trust, product adaptation, or reliable service delivery. In such cases, foreignness costs re-emerge through institutional hurdles, legal compliance, and the need to build local legitimacy (Meyer et al.,2023). At the same time, scholars argue that digital MNEs are particularly exposed to LoO, the disadvantage of being excluded from host-country networks and ecosystems (Chen et al., 2018; Meyer et al., 2023; Nambisan & Luo, 2022). Without network “insidership”, digital firms may struggle to access partners, complementary assets, or institutional support that enable successful internationalization. In short, while LoF may weigh less heavily on digital business models, LoO often becomes more critical. The balance thus shifts from foreignness to outsidership, yet both frameworks remain essential for understanding the barriers and constraints facing digital MNEs.

5.3 Digital MNEs Challenge the OLI Paradigm and the CSA–FSA Framework.

The OLI and CSA–FSA frameworks and underlying theories – notable internalization theory – have been challenged by the internationalization behavior of digital MNEs.

First, the nature of *ownership advantages* is shifting. Digital MNEs derive competitiveness primarily from intangible assets such as algorithms, platforms, data, and analytics. Unlike traditional FSAs, many of these advantages are non-location-bound and, in some cases, not owned at all — for instance, large user networks. Scholars have thus proposed extending O advantages to capture *network-specific* (NSAs) and *ecosystem-specific advantages* (ESAs), which rest on orchestration of external resources rather than on asset ownership (Li et al., 2019; Banalieva & Dhanaraj, 2019). This reflects a broader shift from *resource ownership* to *resource orchestration*. Second, the relevance of *locational advantages* also labeled *country-specific advantages* has been questioned. Because digital models are asset-light and globally scalable, they rely less on natural resources, low-cost labour, or traditional distribution channels (Nachum & Zaheer, 2002; WIR, 2017). Where locational advantages remain relevant, they take new forms, including digital infrastructure, regulatory frameworks, skilled human capital, and innovation ecosystems (Li et al., 2020; dos Santos & Williamson, 2024; WIR, 2025). Some therefore argue for the broader notion of *context advantages* (Nambisan et al., 2019), reflecting conditions that transcend national borders, such as standardized digital infrastructures or global user networks. Third, *internalization advantages* are weakened by the virtual and asset-light nature of digital business models. Transaction costs are often reduced by digital technologies (Birkinshaw, 2022), and competitive advantages increasingly rest on external networks and ecosystems (Banalieva & Dhanaraj, 2019). As a result, digital MNEs often expand via external, digital modes rather than through hierarchical FDI. This has led scholars to argue that a shift toward an *externalization theory* is warranted, one that explains how firms internationalize by orchestrating platforms, ecosystems, and digital infrastructures rather than by internalizing assets (Li et al., 2019; Brouthers et al., 2022). Still, internalization as a strategy and internalization theory retains relevance. Many digital MNEs continue to acquire strategic assets abroad, such as data centres, AI start-ups, or software firms, following a clear internalization logic (Verbeke & Hutzschenreuter, 2021; Meyer et al., 2023). The challenge is thus not to discard OLI or internalization theory, but to extend them with externalization perspectives that better capture the orchestration-driven internationalization of digital MNEs. In sum, digital MNEs challenge the traditional OLI paradigm by shifting the balance: ownership advantages are less about tangible assets and more about networks and ecosystems, location advantages are less tied to physical presence and more to digital contexts, and internalization is increasingly complemented by externalization.

5.4 Relevance of the Uppsala Model for Digital MNEs

The original Uppsala model (Johanson & Vahlne,1977), with its emphasis on gradual internationalization and experiential learning, is fundamentally challenged by digital MNEs. Much like born globals, these firms often bypass stage-based expansion and achieve rapid international reach through digital platforms (Birkinshaw, 2022). For them, geographic distance and LoF appear less constraining, as international learning can be derived from digital data and algorithms that adapt to individual user preferences rather than national cultures. This undermines the assumption that market knowledge must be acquired incrementally through local presence. Nonetheless, some digital firms, particularly those requiring physical operations, still confront traditional challenges (Meyer et al., 2023). Establishing a local presence entails engagement with host-country institutions and gradual learning, thereby slowing internationalization. The revised Uppsala model (Johanson & Vahlne, 2015), however, is particularly relevant for digital MNEs. By integrating network theory and introducing the LoO, it shifts the focus from psychic distance and incremental commitments to the importance of network embeddedness. In this view, digital MNEs succeed not primarily by overcoming psychic distance, but by securing insider positions within global and local networks of users, platforms, partners/suppliers, and regulators (Chen et al., 2019; Meyer et al., 2023). Outsidership, that is exclusion from such ecosystems, represents a critical liability for firms attempting to scale across borders. In sum, while the original model's gradualism is less applicable, the revised Uppsala model offers a valuable lens for understanding digital MNEs. Their internationalization hinges less on stepwise market entry and more on entering, integrating and orchestrating relevant networks.

5.5 Integration–Responsiveness Framework

The integration–responsiveness framework (Prahalad & Doz, 1987; Bartlett & Ghoshal, 1989) remains relevant but digital MNEs shift its balance. Specifically, digital MNEs – while differences exist as with traditional MNE – appear to lean more heavily toward integration: standardized platforms, centralized data architectures, and global network effects favor uniform offerings and coordinated operations (Birkinshaw, 2022; Puhr et al., 2023). Their asset-light models allow core activities to be concentrated in a few locations, reducing the need for broad local footprints and enabling rapid scalability. That said, responsiveness has not disappeared. Pressures stem from regulation, infrastructure, and consumer needs. Compliance with data protection and competition policies requires local adjustment, while infrastructure differences in payments or logistics demand adaptation. Consumer needs are often met less through national tailoring and more through personalization at the individual level ("segments of one") enabled by data and algorithms (dos Santos & Williamson, 2024). In sum, the integration–responsiveness framework still applies but requires recalibration. For digital MNEs, integration pressures are amplified by platform scalability and asset-light models, while responsiveness pressures stem mainly from regulation, infrastructure, and both cultural and individual-level needs. Their internationalization strategies therefore tilt more toward integration, underpinning the speed, scale, and scope of their global expansion.

5.6 Form Traditional to Non-traditional Entry Mode Choices

The rise of digital MNEs raises the question of whether established entry mode frameworks, particularly internalization theory, still adequately capture their choices. Classical research distinguishes between equity and non-equity modes, with firms traditionally choosing equity when the benefits of internalizing operations outweighed the costs (Buckley & Casson, 1976). Digital MNEs, however, more often rely on non-equity modes. Their asset-light models reduce the need or incentive to own or transfer physical assets, shifting the balance toward digital exports, that is, non-equity forms of market entry (Eden, 2016). This reflects weaker internalization advantages, as digital value creation typically does not require asset ownership.

Recent work questions whether the equity–non-equity distinction, and internalization theory itself, remain sufficient. Scholars highlight non-traditional modes: virtual presence (serving customers digitally without physical operations), managed ecosystems (orchestrating complementors without ownership), and innovation outposts (small foreign teams building network insidership) (Brouthers et al., 2022). These illustrate how digital firms achieve market engagement without equity commitments. However, such modes are not adequately captured by the traditional equity–non-equity logic, because they involve deep foreign engagement and orchestration without ownership or formal contracts. Their essence lies less in asset control and more in leveraging *externalization advantages,* that is, digital infrastructures, networks, and ecosystems (Brouthers et al., 2022). Some suggest that digital MNEs are therefore better explained by externalization advantages than by internalization advantages (Brouthers et al., 2022). Still, digital firms also invest in equity-based modes where regulation, infrastructure, or legitimacy require it (Verbeke & Hutzschenreuter, 2021). In sum, while the equity–non-equity distinction and internalization theory remain useful starting points for understanding digital MNEs market entry choices, the discussion of non-traditional entry modes and externalization perspectives significantly enhances this understanding

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