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Platform Business Models in Motion: Leveraging Data Network Effects to Balance International Expansion and User Retention

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Dissertation submitted in partial fulfilment of requirements for the
MSc in Management with specialization in Strategy,
Entrepreneurship and Impact, at the Universidade Católica
Portuguesa, 02/06/2025.

Abstract

The rapid international growth of digital platforms has transformed how companies scale and retain users, yet it remains unclear how these businesses adapt across markets while maintaining user engagement. Existing research emphasizes platform internationalization and data strategies, but little is known about how business model adjustments and retention mechanisms interact globally. This thesis explores how platform business models evolve during international expansion and how data network effects support user retention. It draws on a qualitative approach combining nine expert interviews and 111 user survey responses, capturing both company and user perspectives. The findings reveal three key insights. First, successful internationalization combines modular technical infrastructure with local adaptation and partnerships. Second, data enables platforms to personalize experiences and anticipate user behavior, strengthening engagement and reducing churn. Third, business model-specific advantages (BMSAs), such as modularity, centralized analytics, and unified data systems, support growth that is scalable and responsive to local needs. The study proposes a cyclical framework that links internationalization strategies, data-driven personalization, and retention mechanisms as mutually reinforcing processes. This challenges traditional linear models of expansion and contributes to emerging theories of digital scalability and adaptation. In practical terms, this thesis offers platform managers actionable guidance on building adaptive business models and leveraging user data for sustained global competitiveness.

Keywords: internationalization, platform business models, data network effects, user retention

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Resumo

O rápido crescimento internacional das plataformas digitais transformou a forma como as empresas escalam e retêm utilizadores, mas continua pouco claro como estes negócios se adaptam a diferentes mercados mantendo o envolvimento dos utilizadores. A investigação existente dá ênfase à internacionalização das plataformas e às estratégias baseadas em dados, mas pouco se sabe sobre como ajustamentos ao modelo de negócio interagem com mecanismos de retenção a nível global. Esta tese explora como os modelos de negócio das plataformas evoluem durante a expansão internacional e como efeitos de rede baseados em dados sustentam a retenção de utilizadores. Recorre a uma abordagem qualitativa que combina nove entrevistas a especialistas e 111 respostas a inquéritos de utilizadores, captando a perspetiva empresarial e do utilizador. Os resultados revelam três conclusões. Primeiro, uma internacionalização bem-sucedida combina infraestrutura técnica modular com adaptação local e parcerias. Segundo, dados permitem às plataformas personalizar experiências e antecipar comportamentos, reforçando o envolvimento e reduzindo a taxa de abandono. Terceiro, vantagens do modelo de negócio (BMSAs), como modularidade, análise centralizada e sistemas de dados unificados, suportam crescimento escalável e adaptado a nível local. O estudo propõe um modelo cíclico que liga estratégias de internacionalização, personalização orientada por dados e mecanismos de retenção como processos interdependentes e reforçadores. Esta abordagem desafia modelos lineares tradicionais de expansão e contribui para teorias sobre escalabilidade digital e adaptação. Em termos práticos, a tese oferece orientações para gestores sobre como construir modelos adaptativos e tirar partido dos dados para manter competitividade global sustentada.

Palavras-chave: internacionalização, modelos de negócios de plataforma, efeitos de rede de dados, retenção de usuários

Título: Modelos de Negócios de Plataforma em Movimento: Aproveitando os Efeitos de Rede de Dados para Equilibrar a Expansão Internacional e a Retenção de Usuários

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Acknowledgments

First and foremost, I would like to express my sincere gratitude to Professor René Bohnsack and Cláudia Antunes Marante for their supervision and valuable input throughout the course of this thesis. In particular, I am especially thankful to Cláudia Antunes Marante for her thoughtful feedback, ongoing encouragement, and steady guidance, which played a vital role in shaping the direction and quality of this research.

I am also deeply appreciative of the nine experts who generously agreed to participate in interviews for this study. Their willingness to share their insights and experiences provided essential perspectives that greatly enriched this work. The time and knowledge they contributed have been indispensable, and I am grateful for their openness and support.

Finally, I would like to extend my heartfelt thanks to my family and friends for their unwavering support throughout this journey. Their encouragement and belief in me have been a constant source of motivation and strength, enabling me to overcome challenges and complete this thesis.

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List of Abbreviations

PBM	Platform Business Model(s)
FSA	Firm-Specific Advantage(s)
API	Application Programming Interface
AI	Artificial Intelligence
BMSA	Business Model-Specific Advantage(s)
DNEs	Data Network Effects
GDPR	General Data Protection Regulation
SaaS	Software as a Service
UX	User Experience
N/A	Not Applicable / Not Available

1. Introduction

The rapid rise of digital platforms has reshaped how value is created, captured, and delivered across industries. Firms such as Amazon, Spotify, and Airbnb have expanded globally by building digital infrastructures that facilitate interactions among different types of users while continuously gathering and analyzing large volumes of data (Cusumano, Gawer, & Yoffie, 2019; Bohnsack, Ciulli, & Kolk, 2021). These platforms operate through business models that differ fundamentally from traditional pipeline firms, especially in how they scale, adapt, and engage users. Yet, despite their prominent role in the global economy, it remains unclear how digital platforms successfully navigate the tension between global scalability and local responsiveness, particularly when entering diverse international markets with distinct cultural, regulatory, and user behavior patterns (Stallkamp & Schotter, 2021; Tippmann, Monaghan, & Reuber, 2023).

Existing literature has provided useful insights into internationalization, user engagement, and the role of data in digital business models. However, these streams of research often remain fragmented, focusing on one dimension at a time. International business studies have long analyzed the processes through which companies expand abroad, drawing attention to firm-specific advantages (FSAs), institutional differences, and entry modes (Rugman & Verbeke, 2008; Vahlne & Johanson, 2017). The Uppsala model, for instance, emphasizes gradual expansion and experiential learning (Johanson & Vahlne, 2015; Vahlne & Johanson, 2017), while other approaches consider how firms leverage proprietary assets to overcome the liabilities of foreignness (Rugman & Verbeke, 2008). These theories offer valuable foundations, but tend to be grounded in assumptions of linearity, asset-based competitive advantage, and sequential growth, which may not fully apply to platform-based firms that grow rapidly and rely heavily on digital and data-intensive resources (Gregory, Henfridsson, Kaganer, & Kyriakou, 2021).

At the same time, research on digital platforms has focused on their architecture, network effects, and monetization mechanisms (Van Alstyne, Parker, & Choudary, 2016). These studies underline how platforms use data to match users, optimize interactions, and personalize services (Hagiu & Wright, 2023). Platforms are understood as complex socio-technical systems that require continuous balancing of openness and control, coordination of multiple actors, and alignment of technical and strategic layers (Gawer & Cusumano, 2014). However, many of these studies remain focused on either technical configurations or domestic strategies, offering limited insight into how platforms reconfigure their models when expanding abroad. Furthermore, the international dimension of platform scalability, how

digital infrastructures are deployed and adjusted across countries, has received comparatively less attention (Bonina, Koskinen, Eaton, & Gawer, 2021; Evers, Ojala, Sousa, & Criado-Rialp, 2023).

Retention, as another core challenge in platform businesses, has also been addressed in the literature, particularly from marketing and behavioral perspectives. Several studies have examined the use of algorithmic personalization, gamification, feedback loops, and user experience optimization to reduce churn and build long-term engagement (Farhan, Asadullah, Kommineni, Gade, & Venkata, 2023). However, retention is often treated as a downstream effect, rather than as an integrated component of the business model that interacts with broader strategic choices, including international expansion. This separation limits our understanding of how firms retain users when they move into culturally and institutionally distinct contexts.

Another critical area is the role of data in enabling platforms to adapt across markets. Platforms are inherently data-driven. They gather behavioral data, analyze preferences, test new features, and optimize offerings based on real-time insights (Gregory et al., 2021). In theory, this should allow them to localize services while preserving a centralized infrastructure. But how data is leveraged across locations, especially in environments with different legal, technological, or consumer constraints, remains a complex challenge. Moreover, while data network effects (DNEs) are widely recognized as a source of competitive advantage (Hagiu & Wright, 2023), we still know relatively little about how they operate in cross-border settings or how they interact with business model adjustments.

To address these gaps, this thesis explores how platform business models evolve during international expansion and how data supports user retention in that process. It aims to bring together multiple strands of research, internationalization, platform strategy, user engagement, and data-enabled personalization, into a more integrated view of platform growth. The focus is on the dynamic relationship between adaptation and scalability, and on how companies manage this relationship through both architectural and behavioral mechanisms.

Specifically, the thesis investigates two central research questions: *how do platform business models adapt when expanding internationally?*, and *how do platforms use data network effects to enhance user retention?*

The thesis draws on a mixed-method approach to answer these questions. It combines qualitative data from nine semi-structured interviews with experts, including platform managers, researchers, and strategy professionals, with survey data from 111 users of digital platforms across different countries. The interview data sheds light on organizational strategies, while the user survey captures behavioral patterns, perceptions, and levels of engagement. This

dual perspective enables a deeper understanding of how strategic intentions and user experiences intersect in the international expansion process.

The findings of the thesis suggest that internationalization in platform firms is not a linear process driven solely by asset transfer or market size considerations. Rather, it involves continuous adaptation informed by user data and contextual feedback. Successful platforms rely on business model-specific advantages (BMSAs), such as modular architecture, centralized data systems, and scalable analytics, to balance the demands of local responsiveness and global efficiency. These BMSAs allow firms to iterate faster, test features across markets, and deliver localized value without fragmenting their core operations (Gregory et al., 2021; Bohnsack et al., 2021).

Moreover, the study finds that user retention is not merely a product of engagement tools or loyalty programs, but is also closely linked to how platforms adapt and personalize their services in different cultural settings. Data network effects play a critical role by allowing platforms to learn from user interactions, improve matchmaking quality, and reinforce the value of the platform over time (Hagiu & Wright, 2023). However, this requires not only technical capability but also organizational alignment and sensitivity to local market dynamics (Hung, Chung, & Lien, 2007).

As a result, the thesis proposes a cyclical framework that brings together internationalization strategies, data-enabled personalization, and retention mechanisms into a mutually reinforcing loop. This challenges the traditional assumption of unidirectional growth paths and highlights the importance of feedback, experimentation, and cross-functional coordination. The proposed framework contributes to a more nuanced understanding of how platforms grow, adapt, and sustain engagement across borders.

By integrating these dimensions, the thesis contributes to both academic theory and managerial practice. For researchers, it offers a model that connects platform architecture with international strategy and user behavior. For practitioners, it provides insights into how to build adaptive, scalable business models that are capable of learning from data and adjusting to local environments. Ultimately, it shows that platform success in international markets depends not only on technical scalability but also on the capacity to personalize, retain, and evolve through ongoing learning.

2. Theoretical Background

2.1 Platform Business Models

2.1.1 Fundamentals and defining characteristics

Platform business models (PBMs) play a central role in the digital economy by connecting different groups, such as consumers and producers, and enabling them to interact through a common digital space (Parker, Van Alstyne, & Choudary, 2016). Scholars offer different views on PBMs: Rochet and Tirole (2003) describe platforms as intermediaries in two-sided markets, while Eisenmann, Parker, and Van Alstyne (2006) emphasize the importance of the rules and structures that guide user interactions. Gawer and Cusumano (2014) see platforms as technological foundations that allow other parties to create new products or services, and Constantinides, Henfridsson, and Parker (2018) highlight the flexibility of digital platforms to support new ideas. More recently, research has drawn attention to the use of data and automated systems to personalize services and build stronger connections with users (Ramdani et al., 2019)

Figure 1 below summarizes how key scholars define platform business models, highlighting differences in focus, including pricing, governance, technology, data, and innovation.

Author(s)	Main Focus	Definition
Rochet & Tirole (2003)	Two-sided markets	"A platform is a market with two sides, each of which benefits from the presence of the other side." (Rochet & Tirole, 2003, p. 990)
Parker, Van Alstyne & Choudary (2016)	Value creation through exchange	"Platforms create value by facilitating exchanges between two or more interdependent groups, usually consumers and producers." (Parker, Van Alstyne, & Choudary, 2016, p. 5)
Eisenmann, Parker & Van Alstyne (2006)	Governance and coordination	"Platforms are products, services, or technologies that serve as foundations upon which other parties can build complementary products, services, or technologies." (Eisenmann, Parker, & Van Alstyne, 2006, p. 2)
Gawer & Cusumano (2014)	Technological foundations	"Platforms are building blocks that provide an essential function to a technological system - and they act as a foundation upon which other firms can develop complementary products or services." (Gawer & Cusumano, 2014, p. 417)
Constantinides, Henfridsson & Parker (2018)	Software infrastructure	"Digital platforms are extensible codebases to which complementary third-party modules can be added." (Constantinides, Henfridsson, & Parker, 2018, p. 381)
Agarwal, Xue & Yu (2023)	Data and personalization	"Digital platforms harness data, algorithms, and user interactions to generate network effects and deliver personalized services." (Agarwal, Xue, & Yu, 2023, p. 52)
Jia, Li & Wang (2023)	Decentralized innovation	"Platform-based business models are dynamic configurations that leverage digital infrastructure to orchestrate decentralized contributions and continuous innovation." (Jia, Li, & Wang, 2023, p. 119)

Figure 1. Summary of Definitions of Platform Business Models

Traditional business models, create value using internal resources and step-by-step processes (Teece, 2010; Zott, Amit, & Massa, 2011). Platforms focus on making it easier for different users to interact and exchange value with each other (Rochet & Tirole, 2003; Van Alstyne et al., 2016). Rather than owning factories or service operations, platforms provide the tools and systems that allow many different groups to connect and work together (Cusumano, 2008; Evans & Schmalensee, 2016). This approach shifts the focus from what a business can produce on its own to what can be achieved by bringing together a wide range of participants.

One of the main strengths of platform business models is their ability to bring together different groups in a way that builds trust and encourages participation (Gawer & Cusumano, 2014). Successful platforms often rely on design choices, matching processes, and feedback systems to help people interact and work together. The way platforms are run-including how they manage data, decide who can take part, and set rules-also shapes who joins and how value is created (Van Alstyne et al., 2016). Figure 2 shows these important features and gives real-world examples.

Feature	Description	Example
Multi-sided market coordination	Facilitates interactions among distinct user groups (e.g., buyers and sellers)	Airbnb connects hosts with travelers
User-centric design	Prioritizes seamless UX and trust-building features	Uber's one-tap booking and ratings
Algorithmic matching	Uses data to pair users efficiently based on preferences or needs	Spotify's algorithmic music curation
Reputation systems	Builds trust through peer reviews and ratings	Amazon's verified customer reviews
Governance via data control	Controls access, standards, and pricing through data and platform rules	Apple's App Store policies and curation
External value creation	Relies on third-party contributions or user-generated content	YouTube's creator-driven content model

Figure 2. Key features of platform business models

This platform-based logic introduces a fundamentally different framework for understanding innovation, competition, and growth-one that emphasizes the coordination of external actors and scalable interaction rather than internal production and ownership (Jacobides, Cennamo, & Gawer, 2018; Gawer, 2021). By structuring participation through digital infrastructure and governance mechanisms, platform business models establish the

foundations for distinct value creation and capture dynamics (Teece, 2017; McIntyre & Srinivasan, 2017).

2.1.2 Value Creation, Delivery and Capture Mechanisms

Platform business models create value differently from traditional firms, which usually rely on internal production and tightly controlled supply chains (Gawer & Cusumano, 2014; Rochet & Tirole, 2003). Instead, platforms generate value by enabling exchanges between independent users. Examples include buyers and sellers on eBay, drivers and riders on Uber, or creators and audiences on YouTube (Parker et al., 2016). The main contribution of a platform is to organize and support these user interactions, rather than producing goods or services itself (Eisenmann, Parker, & Van Alstyne, 2006; Boudreau & Hagiu, 2009; Van Alstyne et al., 2016).

A key strength of this model is the presence of network effects: as more users join, the platform becomes more valuable, which encourages further participation and growth (Katz & Shapiro, 1985; McIntyre & Srinivasan, 2017; Costa-Climent, Haftor, & Staniewski, 2024). To maintain and build on these effects, platforms use tools like matching systems and personalized recommendations that connect participants and support ongoing engagement (Gregory et al., 2021).

Delivering value in this context depends on effective rules and standards that shape how users behave. For example, Airbnb uses trust mechanisms such as verified profiles, reviews, and a structured booking process to ensure a consistent and reliable experience for all participants (Van Alstyne et al., 2016; Parker et al., 2016).

When it comes to capturing value, platforms often rely on indirect forms of monetization, such as transaction fees (Uber), advertising (Google, Facebook), or subscriptions (Netflix, Spotify) rather than direct sales (Evans & Schmalensee, 2016; Hagiu & Wright, 2015). This approach allows platforms to earn revenue without interrupting the core user exchange. However, if monetization strategies are seen as overly aggressive, they can damage user trust and reduce participation, which may weaken the very network effects that drive the platform's success (Parker et al., 2016; Täuscher & Laudien, 2018).

As platforms grow, maintaining this balance becomes increasingly challenging. They must continuously enhance user motivation, manage participation effectively, and update their systems. This ensures that both the user experience and business objectives are met (Tiwana, 2013; Boudreau & Hagiu, 2009).

Figure 3 provides an overview of key value capture mechanisms and shows how various platforms use indirect revenue models while keeping user interactions smooth and accessible.

Mechanism	Description	Example	Key References
Transaction Fees	Charging a fee for facilitating transactions between users	Uber, Airbnb, Etsy	Evans & Schmalensee (2016); Hagiu & Wright (2015)
Advertising	Monetizing user attention and data through targeted ads	Google, Facebook, TikTok	Parker & Van Alstyne (2018); Eisenmann et al. (2006)
Subscription Models	Charging users for access to premium content or services	Netflix, Spotify, LinkedIn	Täuscher & Laudien (2018); McIntyre & Srinivasan (2017)
Freemium	Offering a free basic tier while charging for advanced features	Dropbox, Zoom, Duolingo	Choudary (2015); Tiwana (2014)
Data Monetization	Using aggregated user data for insights, partnerships, or resale	Amazon Web Services, Google Cloud	Gregory et al. (2020); Hagiu & Wright (2020)
Platform Access Fees	Charging third-party developers or sellers to join or operate on the platform	Apple App Store, Shopify	Boudreau & Hagiu (2009); Van Alstyne et al. (2016)

Figure 3. Value Capture Mechanisms in Platform Business Models

2.2 Platform Internationalization

2.2.1 Theoretical foundations

Platform internationalization differs from traditional international expansion. Classical theories, such as the Uppsala model and internalization theory, describe international growth as a gradual, step-by-step process, often beginning with nearby markets and based on learning and firm-specific advantages (FSAs) that are considered fixed within the firm (Vahlne & Johanson, 2017; Rugman & Verbeke, 2008; Autio & Zander, 2016). In these models, market knowledge is acquired incrementally through local presence, and growth is typically tied to geographical proximity and internal resources.

In contrast, digital platform companies use flexible systems and global technologies to expand rapidly, sometimes entering multiple countries at once (Autio & Zander, 2016). Their online services allow for low-cost market entry and rapid adaptation to local needs by drawing on real-time data feedback (Gregory et al., 2021). This digital approach challenges traditional assumptions, as platforms can bypass incremental learning and geographical constraints, as illustrated by companies like Alibaba, which grows internationally through cloud infrastructure, predictive algorithms, and centralized coordination (Yoo, Henfridsson, Kallinikos, Gregory, Burtch, Chatterjee, & Sarker, 2024).

The role of FSAs has also shifted. Digitalization makes FSAs more flexible and open, as value can be created with external partners, developers, or users via open interfaces (Banalieva & Dhanaraj, 2019). This blurs the line between firm-owned and ecosystem-based resources, so platform success often depends more on managing distributed value creation

across many actors than on internal control (Henfridsson, Nandhakumar, Scarbrough, & Panourgias, 2018).

Artificial intelligence adds a further layer of complexity. Rather than learning about markets only at the national level, platforms use AI to collect data from individual users, enabling a “individualized” approach to service personalization (dos Santos & Williamson, 2024). For instance, TikTok’s international growth is fuelled by learning from global user behavior, while tailoring content for each individual rather than a typical national profile.

Despite these digital advantages, platform scaling is not without limits. Regulatory requirements, such as the European Union’s GDPR or China’s cybersecurity laws, may require local data storage, infrastructure investments, or local partnerships (Gregory et al., 2021). As a result, platforms often adopt hybrid internationalization models, combining digital scalability with adaptation to local legal and institutional conditions (dos Santos & Williamson, 2024; Rugman & Verbeke, 2004). Companies may need to build parallel data architectures, work with local cloud providers, or adjust platform design to comply with national rules (Baldwin & Woodard, 2009).

In summary, the scalability of platform firms relies not only on technological infrastructure but also on their capacity to navigate regulatory frictions, combine digital and local capabilities, and configure operations flexibly (Haftor, Costa-Climent, & Ribeiro-Navarrete, 2024; Evers et al., 2023). This evolving logic challenges the explanatory power of traditional theories and highlights the need for integrated frameworks that address real-time data, platform governance, and algorithmic value creation.

2.2.2 Adapting Platform Business Models for International Markets

Digital platform firms grow differently from traditional multinationals by using digital infrastructure to reach users worldwide quickly and flexibly, rather than expanding through physical resources (Autio & Zander, 2016; Evers et al., 2023). What makes these platforms distinctive is their ability to reconfigure their models dynamically, adapting offerings in real-time using data and AI. This flexibility allows them to avoid extensive market-by-market localization (dos Santos & Williamson, 2024). Still, despite their digital agility, platforms cannot ignore institutional restrictions, cultural particularities, or infrastructure demands like payment systems and local partnerships. Central to understanding this model is the concept of Business Model-Specific Advantages (BMSAs). Unlike Firm-Specific Advantages (FSAs), which are rooted in internal assets like intellectual property or proprietary knowledge (Rugman & Verbeke, 1992), BMSAs refer to the platform’s ability to create, deliver, and capture value

through specific configurations of value proposition, value network, and revenue architecture (Bohnsack, Ciulli, & Kolk, 2021). These advantages stem from how platforms architect their systems-through user interaction design, data utilization, and globally scalable infrastructure-rather than from physical resources (Evers et al., 2023). Companies such as Uber, Airbnb, and Netflix exemplify this, building competitive advantage not from tangible assets, but from code, algorithms, and digital networks (Gregory et al., 2021).

The transferability of BMSAs varies significantly. While digital capabilities like recommendation systems may be globally scalable, elements such as payment integration and trust mechanisms often require local adaptation (Rugman & Verbeke, 2004; Bohnsack et al., 2021). This challenge is evident in sectors like e-commerce or mobility services, where offline execution remains crucial. For example, Amazon’s global logistics capabilities must still be tailored to national delivery systems, and Uber’s struggles in India and China reveal how strong local competitors, better integrated with payment systems and regulations, can outpace even digitally advanced entrants (Evers et al., 2023).

Figure 4 categorizes the core components of platform business models-value proposition, value network, and revenue-cost model-based on their level of location-boundedness. It illustrates which elements tend to be globally scalable and which require adaptation to local contexts, reflecting the transferability challenges discussed by Bohnsack et al. (2021).

BMSA Component	Non-Location-Bound Examples	Location-Bound Examples
<i>Value Proposition</i>	Personalization algorithms, content delivery	Language, local trust signals, UX design norms
<i>Value Network</i>	Global API integration, cloud infrastructure	Local partnerships, regulatory approvals
<i>Revenue-Cost Model</i>	Subscription pricing logic, freemium tiers	Local taxes, payment integration, pricing norms

Figure 4. Core Components of Platform Business Models Categorized by Location-Boundedness

Another strategic distinction lies in the type of network effects platforms experience. Cross-country network effects, as seen in platforms like Facebook and TikTok, allow for seamless global scaling since value creation spans borders (Van Alstyne et al., 2016; Stallkamp & Schotter, 2021). In contrast, platforms offering location-sensitive services-such as food delivery or fintech-rely on within-country network effects, where user value depends heavily on local ecosystems, regulations, and even linguistic segmentation (Stallkamp & Schotter,

2021). These differences demand deliberate strategic differentiation between standardized global rollouts and deeply localized operations.

Adaptation, then, goes far beyond surface-level changes. Platforms use localized pricing (e.g., Spotify's region-specific plans), interface tweaks (e.g., integrating with local payment platforms like WeChat Pay), and strategic alliances (e.g., fintech firms partnering with regional banks) to navigate national environments (Nguyen & Ha, 2022)). Furthermore, the success of global platforms often depends on the configuration of their developer and partner environments. Firms like Apple and Shopify empower regional developers through modular integration tools, enabling innovation that's context-aware without disrupting core architecture (Yoo et al., 2024).

This combination of non-location-bound scalability with strategic localization forms the essence of the hybrid model employed by global platforms. BMSAs, in this light, should be seen as evolving, higher-order capabilities-responsive to user data, feedback from local operations, and changing regulatory landscapes (Bohnsack et al., 2021). Rather than being replicated wholesale, these advantages must often be recombined with host-country resources to maintain functionality and competitiveness in new markets (Grøgaard, Colman, & Stensaker, 2022; Bohnsack et al., 2021). Strategic adaptation isn't a one-time effort but a continuous process, essential for maintaining relevance and competitive edge across diverse international markets (Gupta & Govindarajan, 2017).

2.2.3 Regulatory and Cultural Challenges

The international expansion of platform businesses is shaped not only by technical and operational demands, but also by the complexities of regulation and cultural diversity across markets (Evers et al., 2023; Yoo et al., 2024). Unlike traditional firms, platforms face a patchwork of local rules and expectations. These directly affect how they operate, manage data, and deliver user experiences (Gregory et al., 2021).

A major regulatory challenge is data governance. Strict laws like the European Union's GDPR require platforms to redesign systems for user consent, privacy, and data storage, prompting firms like Airbnb and Amazon to localize data handling and introduce new compliance features (Paul, 2023). In China, severe restrictions on data and content led LinkedIn to develop a localized version before eventually withdrawing from the market (Li, 2016). Other markets, such as Vietnam, Nigeria, and Brazil, have looser regulations, allowing faster adaptation and the use of local payment systems or alternative features, as seen with Jumia and Grab (Evers et al., 2023). Platforms often adjust by developing parallel data architectures,

working with local partners, or restructuring operations. These approaches that support both compliance and long-term growth (Grøgaard, et al., 2022).

Cultural expectations further complicate scaling. User preferences for interface design, trust mechanisms, and payment systems differ widely, requiring platforms to tailor their offerings. WeChat's regional success, Grab's and Paytm's adaptations in onboarding, and TikTok's regional content moderation all reflect the need for cultural alignment (Ferrante, 2023; Tippmann et al., 2023). Governments are also asserting greater control, with countries like India and Indonesia enforcing data localization or content rules that shape investment and operations (dos Santos & Williamson, 2024).

Platforms that succeed internationally are those that embed regulatory compliance and cultural sensitivity into their business models. For example, Airbnb integrates tax modules and local ID systems to operate in highly regulated markets, while TikTok adapts algorithms and moderation to suit different legal and cultural environments (Hanelt, Bohnsack, Marz, & Antunes Marante, 2021).

In sum, effective internationalization for platforms requires combining digital scale with flexibility to local laws and cultural norms, supported by agile organizations and strong cross-market coordination (Gregory et al., 2021; Evers et al., 2023). The next section builds on this by exploring how network effects and data-driven strategies support platform growth and user retention across borders.

Before discussing these effects, it is important to consider how platform companies shape their international strategies based on two factors: how well their business model scales across markets and the complexity of local institutions. These elements influence whether firms replicate their model, adapt to local needs, or pursue a blend of both when expanding abroad. This framework clarifies the balance between maintaining a consistent global approach and responding to local conditions, offering guidance for platform adaptation in diverse markets.

Institutional Complexity	High (e.g., stringent data laws, fragmented infrastructure, cultural heterogeneity)	<p>Hybrid Recombination Strategy Examples: Uber in India, Airbnb in France Approach: Adapt key BMSAs (e.g., trust, payments, UX) while maintaining core logic. Use local alliances, compliance APIs, adaptive UX Risk: High transaction costs and governance complexity.</p>	<p>Compliance-Driven Replication Examples: Netflix in the EU, Amazon in Germany Approach: Deploy scalable architecture with minimal adaptation; embed legal compliance (e.g., GDPR), content moderation, modular infrastructure Risk: Over-standardization may reduce user engagement or trust.</p>
	Low (e.g., digitally open markets, weak enforcement, culturally proximate)	<p>Contextual Deep Embedding Examples: Gojek in Southeast Asia, Jumia in Africa Approach: Redesign UX, payments, logistics for local fit. Build trust and infra from scratch Risk: Slow scaling, costly local infrastructure investment.</p>	<p>Global Standardization Strategy Examples: TikTok, Facebook, Spotify Approach: Replicate core BMSAs (e.g., algorithms, network orchestration) with minimal adaptation. Adjust interface-level features Risk: Institutional shocks, cultural backlash, or compliance blind spots.</p>
	Low (Tightly coupled BMSAs, low modularity)	Scalability of Platform Architecture	High (Modular architecture, high replicability)

Figure 5. Strategic Matrix for Platform Internationalization Based on Institutional Complexity and Platform Scalability

Key Insights

When platform architecture is highly scalable, it becomes easier for firms to transfer their core business model-specific advantages (BMSAs) to new markets, though this can also expose them to greater regulatory challenges. At the same time, complex local regulations and cultural differences demand more tailored governance and infrastructure to build trust. Success depends on a platform’s ability to combine globally scalable BMSAs with the capacity to adapt these strengths to fit the unique requirements of each market.

2.3 Network Effects and Data Network Effects

2.3.1 Direct and Indirect Network Effects

A central distinction in the literature on platform growth mechanisms is between traditional network effects and data network effects (DNEs) (Gregory et al., 2021; Tucker, 2018). Both rely on user activity to increase value, but their logic differs. Traditional network effects are driven mainly by user numbers: the more people who use a platform, the greater the value for each participant. In contrast, DNEs generate value from the data created by users, which platforms use to personalize services and improve performance (Gregory et al., 2021). Understanding this difference is important for analyzing how platforms manage user retention and personalization.

Network effects are fundamental to platform business models, creating increasing returns as participation grows (Katz & Shapiro, 1985). With direct network effects, each new user increases value for others within the same group—for example, every additional person on WhatsApp or Facebook enhances the experience for current users (Gregory et al., 2021). Indirect network effects occur when growth in one user group attracts another, as seen in app ecosystems like Apple’s iOS, where more users draw more developers, and vice versa (Rochet & Tirole, 2003; Van Alstyne et al., 2016). As developers add new applications, users benefit from more choices, further reinforcing growth (Parker et al., 2016). These dynamics help platforms expand by encouraging complementary offerings and deepening interactions (Varga, Cholakova, Jansen, Mom, & Kok, 2023).

Although these effects can drive rapid early growth, reaching scale alone does not guarantee long-term advantage. Maintaining quality, trust, and coordination among different participants is critical, especially as platforms become more complex (McIntyre & Srinivasan, 2017). Without active governance, platforms may lose control over user experience or alignment among stakeholders.

Furthermore, a large user base does not always ensure profitability. Some platforms struggle to convert engagement into sustainable revenue, particularly in highly regulated markets or when relying on advertising and data monetization (Ramdani et al., 2019). This gap between growth and value capture is especially relevant as platforms operate across diverse regions.

To clarify these distinctions, Figure 6 below summarizes key differences between traditional and data network effects in terms of mechanisms, outcomes, and strategic priorities.

Dimension	Traditional Network Effects	Data Network Effects (DNEs)
Source of Value	Number of users increases value for others	User data improves personalization and relevance
Primary Mechanism	Direct or indirect user interactions	Algorithmic learning from behavioral data
Goal	User growth and scale	User retention and personalization
Examples	WhatsApp, Facebook, Apple App Store	Spotify, Netflix, Amazon
Scalability Driver	User base expansion	Data feedback loops and AI models

Figure 6. Key Differences Between Traditional and Data Network Effects

2.3.2 Data Network Effects: Theory and Foundations

Data network effects (DNEs) represent an evolution of traditional network effects by turning user activity into valuable feedback loops. These loops allow platforms to enhance services

continuously through personalization, prediction, and improvements in user experience (Gregory et al., 2021). Unlike classic network effects that depend mainly on user numbers, DNEs draw value from the quality, frequency, and detail of the data collected across different touchpoints. For example, Tesla refines its autonomous driving features using real-time data collected from its vehicles (Gregory et al., 2021).

To benefit from DNEs, platforms need to meet three key conditions. First, they require ongoing access to high-quality, diverse data. Second, this information must be meaningfully analyzed using appropriate tools. Third, the resulting insights should be used in ways that users find valuable (Gregory et al., 2021). If platforms collect data without clear purpose or application, it can become a burden rather than a benefit. Additionally, ethical and transparent handling of user data is essential for maintaining trust and ongoing participation (Gregory et al., 2021).

To measure DNE performance, platforms rely on behavioral and predictive indicators. These include time spent on the platform, frequency of sessions, user retention, and the success of personalized recommendations (Begkos & Antonopoulou, 2020).

While DNEs are widely seen as beneficial, some scholars note limits to their effectiveness. As more data is gathered, its value may decrease if it becomes repetitive or does not improve user experience (Hagiu & Wright, 2023).

In addition, if platforms do not consider local context, their insights may not translate into useful services (Punathambekar & Mohan, 2019). Regulations like the GDPR can restrict data access and tracking, especially across different countries (dos Santos & Williamson, 2024). Further challenges include differences in infrastructure, fragmented markets, and varying digital skills, all of which affect data quality and value (Haftor et al., 2024; Costa-Climent, Haftor, & Staniewski, 2024).

2.3.3 Applications of Data Network Effects

DNEs play a key role in supporting user retention by allowing platforms to offer more personalized and relevant experiences (Gregory et al., 2021). For example, Netflix reports that more than 80% of its viewing time comes from personalized recommendations, helping reduce user turnover (Netflix, 2022). Similarly, Amazon's recommendation engine is responsible for about 35% of total sales, showing the impact of behavioral data on engagement and repeat purchases (Amazon, 2021).

Zalando adapts its fashion suggestions using browsing data from different European countries. Spotify adjusts playlists to reflect local musical preferences (Costa-Climent et al., 2024; Gregory et al., 2021).

To put DNEs into practice, platforms often use advanced analytics to predict when users are likely to disengage. These tools can trigger targeted notifications or subtle changes to the user interface to maintain interest. For instance, Duolingo adapts learning paths based on signs of potential dropout, while mobility and gaming platforms launch reactivation campaigns when they detect declining activity (Tuncay, 2020).

Strong user retention achieved through DNEs directly benefits business outcomes, including increased customer lifetime value, lower acquisition costs, and stronger monetization, particularly in subscription or advertising-based models (Gregory et al., 2021).

However, DNE performance depends on external factors such as regulations and digital infrastructure. In markets with limited data, regulatory restrictions, or less developed infrastructure, DNEs may be less effective. Additionally, platforms with exclusive access to large datasets can personalize at a greater scale, which may create imbalances in competition and market power (Henfridsson et al., 2018).

In sum, DNEs are foundational for data-driven retention strategies, enabling platforms to adapt and strengthen user relationships in real time. Their success relies on data quality, regulatory compliance, and the ability to understand local context. These factors influence competitiveness in digital markets.

2.4 User Retention Strategies in Platform Businesses

2.4.1 Retention Strategies

User retention in platform businesses hinges on four key dimensions: novelty, efficiency, complementarity, and lock-in (Climent & Haftor, 2021). Novelty refers to a platform's ability to consistently introduce fresh features or content that maintain user interest over time (Climent & Haftor, 2021). TikTok's dynamic "For You" feed and Netflix's regularly updated library of original programming are clear examples of how constant innovation can combat user fatigue and sustain engagement across diverse user segments (TikTok, 2023; Netflix, 2022).

Efficiency focuses on minimizing friction in the user experience. Amazon exemplifies this through features like one-click ordering and its highly optimized logistics network, which streamline interactions and reinforce habitual use (Amazon, 2021). These efficiencies not only enhance convenience but also reduce the likelihood of users seeking alternatives.

Complementarity involves bundling related services to increase platform utility and embed users more deeply into the ecosystem. Grab's integration of ride-hailing, food delivery, and e-wallet services demonstrates how complementary offerings can expand user touchpoints and enhance platform stickiness (Cusumano, 2008; Cheah & Koay, 2024).

Of the four dimensions, lock-in is especially important for keeping users over time. It increases the emotional, practical, and social costs of switching to competitors (Climent & Haftor, 2021). This is often achieved through features like personalized interfaces, persistent social networks, and saved preferences, as seen with Facebook (Gregory et al., 2021).

Personalization, supported by data-driven feedback loops, plays a central role in strengthening lock-in and overall engagement. Platforms report that features like YouTube's algorithmic recommendations (accounting for 70% of watch time) and Spotify's Discover Weekly (linked to a 60% increase in user engagement) are effective at deepening involvement and habit formation (YouTube, 2023; Spotify, 2022; Climent & Haftor, 2021; Gregory et al., 2021).

Retention strategies are not uniform across markets. Platforms adapt their approach to local cultural, infrastructural, and regulatory differences to maximize effectiveness (Gregory et al., 2021). For example, Shopee builds loyalty in Southeast Asia with localized payment and content, while Jumia in Africa tailors communications and incentives for users with limited connectivity (Gregory et al., 2021; Tian, 2022). These cases highlight that what constitutes novelty or efficiency in one market may not apply elsewhere, making localization a crucial component of retention (dos Santos & Williamson, 2024).

This ongoing cycle-where user activity enables better personalization, which in turn deepens engagement and lock-in-ensures platforms remain relevant and competitive. Retention strategies thus serve both to sustain engagement and to support adaptation across markets, providing a foundation for international growth (Henfridsson et al., 2018; Gregory et al., 2021; Evers et al., 2023; Yoo et al., 2024).

2.4.2 Leveraging data network effects for user retention

As discussed in section 2.3, data network effects allow platforms to use user activity to personalize and improve services, which encourages further engagement and supports retention (Henfridsson et al., 2018; Katz & Shapiro, 1985). Rather than depending mainly on economies of scale, platforms benefit from cycles where user behavior produces information that guides service adaptation (Hagiu & Wright, 2023; Gregory et al., 2021).

Examples such as Netflix and Amazon highlight the power of these effects. Netflix attributes over 80% of viewing time to personalized recommendations, with a notable impact on reducing user churn (Netflix, 2022). Amazon's recommendations drive more than a third of sales, showing how behavioral data increases both engagement and repeat purchases (Amazon, 2021).

These successes are not universal, however, in markets with less data, such as emerging economies or specialized sectors, platforms may struggle to gather enough information for effective personalization (Haftor et al., 2024; Climent et al., 2024).

DNEs also support localization, which is especially important in international contexts where content and utility need to fit local preferences. Zalando and Spotify, for example, tailor their recommendations by analyzing data from different regions, aligning suggestions with local trends and tastes (Haftor et al., 2024; Gregory et al., 2021).

The effectiveness of DNEs depends on factors such as data analysis, regulatory rules, digital infrastructure, and cultural compatibility (Gregory et al., 2021). Therefore, DNEs are valuable for keeping users engaged and adapting to local markets, but their impact varies. Platform success relies on the balance between data use, analysis, trust, and regulatory compliance. Understanding these factors is key to seeing how DNEs help platforms grow and compete internationally (Gregory et al., 2021; Climent et al., 2024).

2.4.3 AI and personalization in user retention

Artificial intelligence (AI) further strengthens user retention by allowing platforms to move beyond broad personalization to offer highly targeted and timely interventions. Using AI, platforms can analyze detailed patterns in user activity, predict preferences, and adapt content or incentives to individual needs (Gregory et al., 2021; Hagi & Wright, 2023). For example, TikTok's recommendation system learns continuously from user interactions to keep viewers engaged for extended periods (TikTok, 2023), while Uber uses predictive tools to identify users at risk of disengagement and respond with targeted offers (Sthapit & Björk, 2019).

A major advantage of AI in this context is the shift from reacting to user loss to preventing it. Platforms can monitor early signs of declining engagement and deliver tailored reactivation campaigns or personalized content before users fully disengage (dos Santos & Williamson, 2024). This proactive approach is increasingly common in industries such as mobility and gaming, where anticipating user needs helps maintain long-term participation (Kazhamiakin, Marconi, Martinelli, Pistore, & Valetto, 2016).

However, the move toward advanced personalization is not without challenges. Over-personalization can lead to repetitive experiences, contributing to user fatigue or the formation of filter bubbles, which may ultimately undermine satisfaction and loyalty (Climent et al., 2024). Concerns about fairness, transparency, and the lack of transparency in algorithmic decision-making also arise, as users and regulators seek greater clarity on how content and recommendations are determined.

Effective AI-driven retention also depends on the ability to adapt to local norms and regulations. Personalization strategies that succeed in one region may be less effective elsewhere if they do not account for cultural preferences, language, or legal standards (Gregory et al., 2021).

For instance, Spotify adjusts its algorithms to accommodate regional musical tastes, while fintech applications tailor their user prompts to local habits.

While AI makes it possible for platforms to deliver more relevant and timely experiences, its successful application in user retention depends on balancing innovation with transparency, user trust, and cultural awareness. The following section outlines the key research gaps that motivate this thesis and frame its central research questions.

Research Gaps and Implications

Although the literature on digital platforms has expanded significantly, important gaps remain in understanding how platform business models adapt during international expansion. Much of the existing research focuses on a narrow range of major platforms and often treats internationalization, business model adaptation, and user engagement as separate issues, while overlooking how global strategy, local adaptation, and user engagement interact in practice (McIntyre & Srinivasan, 2017; Henfridsson et al., 2018; Grøgaard et al., 2022). Traditional theories often fail to account for the rapid scalability, data-driven adaptation, and hybrid strategies now central to platform growth in varied institutional and regulatory settings (Jabłoński, 2016; Rugman & Verbeke, 2008; Bohnsack et al., 2021). To address these gaps, the first research question of this thesis examines how platform business models evolve and adjust as they expand into new markets.

Furthermore, while data network effects and personalization are widely recognized as drivers of user retention, most studies analyze these mechanisms in isolation and rarely consider how regulatory, cultural, and infrastructural differences affect their effectiveness (Hagiu & Wright, 2023). Empirical evidence is limited on whether these strategies succeed across a range of industries or market environments, or on how their interaction shapes lasting

user relationships (Climent et al., 2024). The second research question addresses this gap by investigating how platforms use data network effects and personalization to retain users across diverse international settings.

To synthesize the findings of this literature review, Figure 7 illustrates the interdependence between platform internationalization, data network effects, and user retention. It visualizes the strategic logic that has emerged across sections—showing how the global expansion of platform business models is supported by data-driven adaptability and user engagement mechanisms. By aligning international scalability with localized personalization, platforms cultivate adaptable capabilities that both respond to diverse market contexts and reinforce long-term competitive positioning.

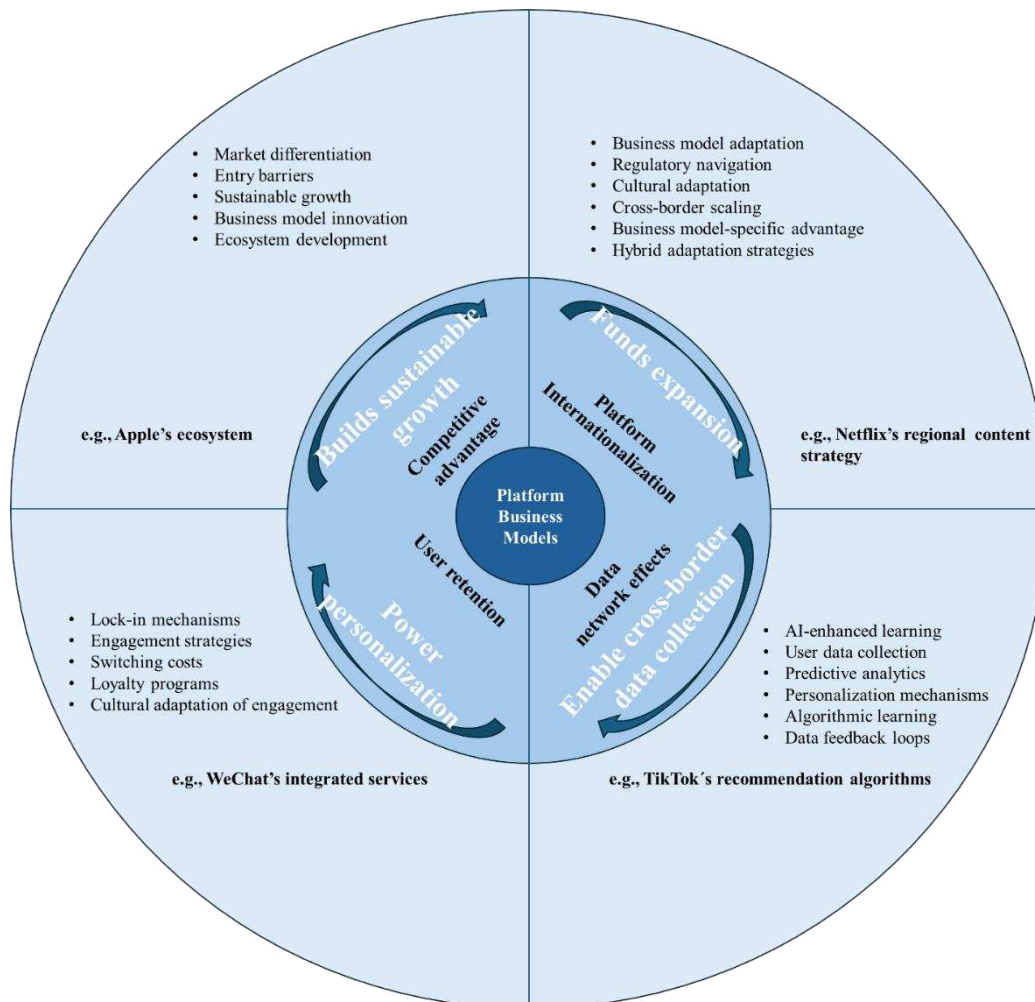


Figure 7. Linking Platform Internationalization, DNEs, and Retention for Competitive Advantage

Figure 7 summarizes the central insight of this literature review: platform internationalization, data network effects, and user retention are deeply interconnected. The

global expansion of platforms depends on building business models that are both scalable and adaptable to local contexts, requiring flexibility to meet diverse regulatory and cultural conditions. Data network effects, especially those enhanced by AI, enable platforms to personalize experiences, foster engagement, and develop effective retention strategies across different markets (Gregory et al., 2021).

The interplay between internationalization and data-driven adaptability produces strong retention mechanisms—such as personalization, switching costs, and lock-in features—that reduce churn and continuously improve service quality. When platforms align international growth, data network effects, and user retention in a cohesive strategy, they achieve greater market differentiation, higher barriers to entry, and sustained competitive advantage. Ultimately, platform success in the global digital economy relies on integrating these capabilities to respond dynamically to changing environments.

3. Methodology

Given the linked challenges of platform internationalization and user retention highlighted in the literature, this study adopts a methodological approach suited to capturing both strategic intentions and user behaviors. This transition from theory to empirical inquiry involves combining expert interviews and user survey data to explore how platform companies adapt while maintaining engagement through data network effects.

To explore how platform business models adapt during international expansion and how data network effects are leveraged to support user retention, this study follows a qualitative approach rooted in inductive research methods. Gioia, Corley, and Hamilton (2013) argue that, the goal is to build theory grounded in informants' experiences and interpretations, rather than testing predefined hypotheses. The focus is on identifying recurring patterns that reflect practical challenges and strategies in platform internationalization and data-driven user engagement, linking theoretical assumptions to real-world platform operations (Gioia, 2021; Strauss & Corbin, 1998).

3.1 Sample and Data Collection

The research draws on two complementary perspectives: the company side, captured through expert interviews, and the user side, explored through a structured survey. Interviews are planned with individuals who either hold strategic roles within platform companies or possess academic expertise in digital platform research. Interview participants are selected to ensure a mix of corporate and scholarly insights, including profiles such as founders, CEOs, directors,

and specialists in data, IT, AI, or international strategy. The selected firms operate across various industries, though all are mature platforms with cross-border activity. This combination of roles and backgrounds supports the exploration of both organizational decision-making and data-driven user engagement, as advocated in earlier studies on digital platforms (Evans & Schmalensee, 2016; Parker et al., 2016).

All 9 interviews were conducted remotely using Microsoft Teams, with sessions scheduled between April and May 2025. Each interview lasts approximately 45 to 60 minutes and follows a semi-structured guide, allowing for flexibility while ensuring consistency across themes. Interviewees are introduced to a visual framework synthesizing insights from the literature review, which includes identified internationalization strategies, user retention mechanisms, and typologies of data use. They are then asked to reflect on the framework and assess its relevance to their firm or research, offering both agreement and critique. This method supports the validation and extension of theoretical models through empirical reflection, as suggested by Gioia et al. (2013). Following qualitative research principles, the focus was on achieving depth and richness of data rather than statistical representativeness. The interview process continued until theoretical saturation was achieved, meaning no new themes or insights emerged from additional interviews. While the sample size of nine interviews is limited, the diversity of roles (corporate executives, academics) and geographic spread across multiple countries provides sufficient variation to explore the research questions. This approach aligns with the inductive nature of the study, prioritizing the quality and theoretical relevance of insights over sample size.

Table 1. Overview of interviewees and their background

Interviewee (Pseudonym)	Background	Country	Position	Platform Type/Main Focus
A	Corporate	Spain	Global Strategy Senior	Value creation through exchange
B	Corporate	France	CEO	Technological foundations
C	Corporate/Academic	United Kingdom	Researcher/Executive Director	N/A
D	Corporate/Academic	Netherlands	Visiting professor/Coach & Counsellor	Data and personalization

Interviewee (Pseudonym)	Background	Country	Position	Platform Type/Main Focus
E	Academic	Sweden	Full-time professor/Researcher	N/A
F	Corporate	Spain	Strategic Partnerships Manager	Two-sided market
G	Corporate	Spain	Senior Business Analyst	Two-sided market
H	Academic	Portugal	Full time professor/Researcher	N/A
I	Corporate	Portugal	Executive director/Project Manager	Software infrastructure

The user survey complements the expert interviews by offering insight into the behavioral side of data network effects. One hundred and eleven platform users are surveyed anonymously to understand how they perceive value, personalization, retention features, and platform satisfaction. Users from various platform types, ranging from mobility and accommodation to streaming and education, were recruited through academic networks, online communities, and social media groups. The inclusion of open-ended questions ensures that both quantitative patterns and qualitative interpretations can be extracted, a strategy encouraged for capturing complex user-level dynamics.

Table 2. Demographic Characteristics of the Survey Respondents

Demographic Variable	Category	Frequency	Percentage
Age Group	25-34	47	43.9%
	18-24	32	29.9%
	35-44	13	12.1%
	45-54	11	10.3%
Country of Residence	Greece	56	56.6%
	Portugal	18	18.2%
	Germany	6	6.1%
	United Kingdom	6	6.1%
	France	3	3.0%
	Spain	3	3.0%
	Cyprus	2	2.0%
	Belgium	2	2.0%
	India	2	2.0%
	South Korea	2	2.0%

Demographic Variable	Category	Frequency	Percentage
Gender	Female	63	57.1%
	Male	48	42.9%

3.2 Data Analysis

The data collected from the interviews is analyzed using the inductive framework developed by Gioia et al. (2013), with the aim of identifying emerging themes and building conceptual clarity from informant narratives. The process begins with first-order coding, which involves highlighting informants' key quotes that relate to the core concepts of the intersection between internationalization, business model adaptation, data usage, and user retention. This stage emphasizes the preservation of interviewees' original language and framing, allowing their interpretations to guide the early analytical structure (Gioia, 2021; Strauss & Corbin, 1998).

In the subsequent second-order analysis, these initial codes are grouped into broader theoretical themes, revealing connections between practical experiences and scholarly constructs. This step moves from surface-level descriptions to explanatory categories, seeking to clarify how platform firms balance localization and standardization during global growth, and how data-enabled feedback loops influence user behavior over time (Kenney, Bearson, & Zysman, 2021; McIntyre & Srinivasan, 2017).

Survey data is analyzed in parallel. Quantitative responses are summarized descriptively, while open-ended answers are coded using the same inductive approach to identify overlaps with the themes extracted from the interviews. This comparative analysis supports triangulation between user experience and organizational practice, enhancing the reliability and depth of the findings (Bansal & Corley, 2011; Tracy, 2010). The insights are then integrated into a structured data model illustrating the relationships between internationalization strategies, platform adaptations, data strategies, and user retention mechanisms.

The resulting framework aims to extend existing theories by anchoring them in the lived realities of platform managers and users, thus responding to earlier calls for research that bridges organizational intent and user behavior in platform contexts (Gioia et al., 2013; Corley & Gioia, 2011).

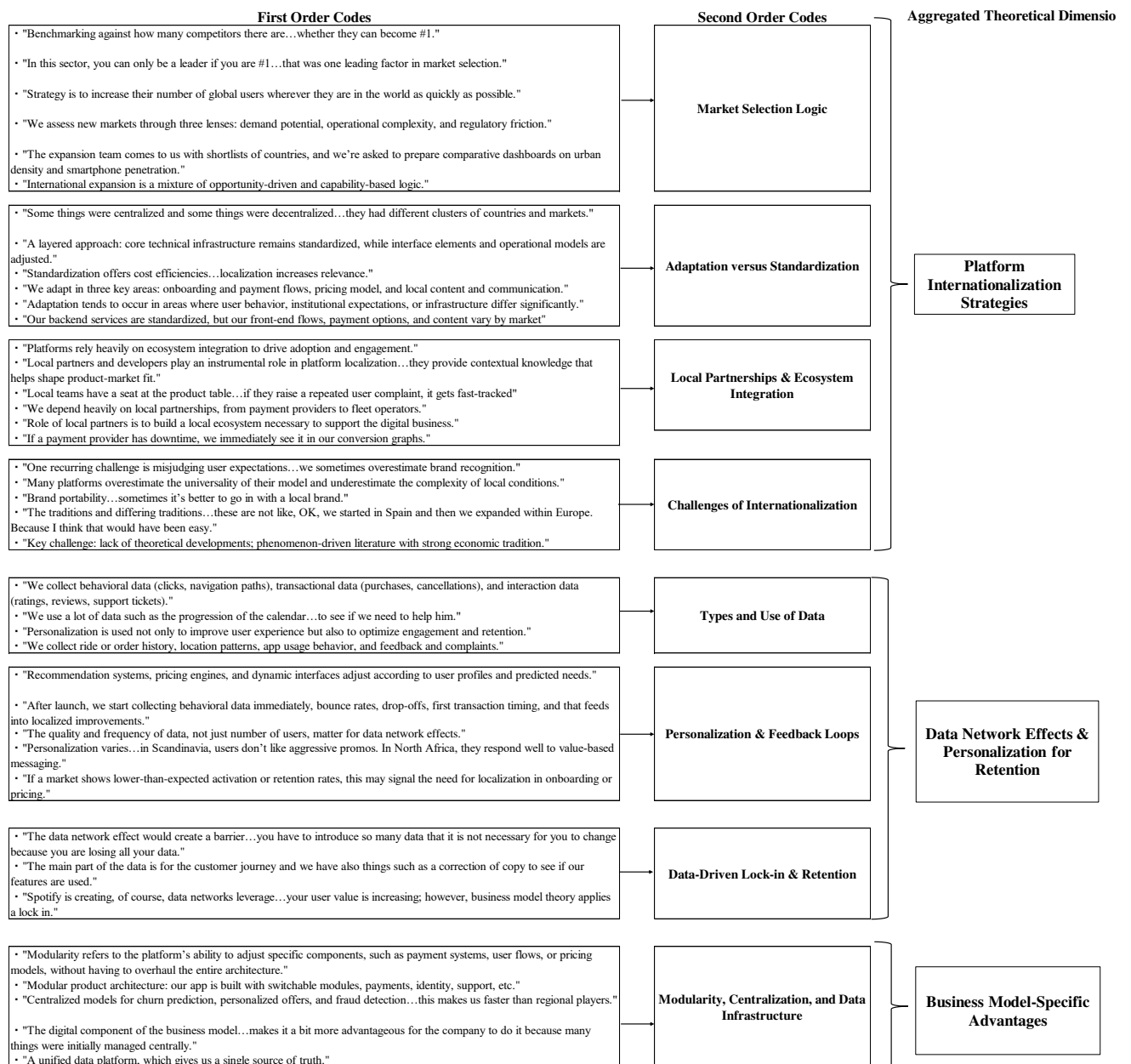


Figure 8. Data structure

4. Results

The findings reveal how platform companies leverage strategic, operational, and data-driven mechanisms to scale their business models across international markets. Through systematic coding of expert interviews, a set of first-order and second-order themes were developed and organized into three aggregate theoretical dimensions: (1) Platform Internationalization Strategies, comprising market selection logic, adaptation versus standardization, ecosystem integration, and internationalization challenges; (2) Data Network Effects and Personalization for Retention, encompassing data usage, personalization feedback loops, and mechanisms of

data-driven lock-in; and (3) Business Model-Specific Advantages, referring to modularity, centralization, and the development of unified data infrastructures. Together with the interview analysis, insights from user surveys are also analyzed, providing a complementary view into platform usage and perception from the user perspective.

Platform Internationalization Strategies

Platform internationalization strategies reflect how companies evaluate, structure, and implement their geographic expansion. The findings highlight that successful platform internationalization is not a linear rollout, but a layered process involving data-informed market selection, hybrid adaptation models, strong local partnerships, and careful navigation of local challenges. These mechanisms are essential to achieving global reach while ensuring local relevance.

Market Selection Logic

Platform companies adopt a structured approach to identifying international markets. They often combine demand-side analytics, internal capabilities, and competitive benchmarking. Market selection decisions are not purely opportunistic but are supported by scenario modeling, risk analysis, and ecosystem maturity assessments.

"We assess new markets through three lenses: demand potential, operational complexity, and regulatory friction." (Interviewee F)

"The expansion team comes to us with shortlists of countries, and we're asked to prepare comparative dashboards on urban density and smartphone penetration." (Interviewee G)

"International expansion is a mixture of opportunity-driven and capability-based logic."
(Interviewee H)

"Strategy is to increase their number of global users wherever they are in the world as quickly as possible." (Interviewee C)

"In this sector, you can only be a leader if you are #1... that was one leading factor in market selection." (Interviewee A)

"Benchmarking against how many competitors there are... whether they can become #1."
(Interviewee D)

“Portuguese startups often target Brazil or Spain first due to linguistic or cultural ties.”

(Interviewee I)

“We don’t go to markets like USA, UK, where the sector is already developed... that’s why we are present in quite random countries...” (Interviewee A)

These statements reveal that platform companies weigh both macro-level indicators (e.g., population, device penetration, infrastructure readiness) and internal strategic imperatives such as speed to scale, first-mover advantage, or leadership status. Analytical support is critical in this phase, particularly from business intelligence teams, who develop predictive models to simulate first-month retention, risk of user loss, or customer acquisition costs based on past regional launches.

Adaptation versus Standardization

One of the most consistent findings relates to how platforms negotiate the balance between global standardization and local adaptation. Firms adopt a layered strategy: back-end systems remain centralized, while user-facing elements, such as onboarding, pricing, and content, are localized to align with user behavior and regulatory expectations.

"We adapt in three key areas: onboarding and payment flows, pricing model, and local content and communication." (Interviewee F)

"Adaptation tends to occur in areas where user behavior, institutional expectations, or infrastructure differ significantly." (Interviewee H)

"Our backend services are standardized, but our front-end flows, payment options, and content vary by market." (Interviewee F)

"Standardization offers cost efficiencies... localization increases relevance." (Interviewee G)

"A layered approach: core technical infrastructure remains standardized, while interface elements and operational models are adjusted." (Interviewee H)

“One LegalTech startup changed its monetization model from SaaS to success-fee in new markets." (Interviewee I)

"Some things were centralized and some things were decentralized... they had different clusters of countries and markets." (Interviewee D)

"There were certain requirements logistically speaking... in some countries, they could deliver by bicycles, in others, they needed to introduce other means of transportation."
(Interviewee A)

This approach enables platforms to maintain efficiency while still responding to local differences. Modularization and market clustering further support this hybrid strategy, with some countries requiring more intensive adaptation and others managed through a regionalized standard. Survey responses confirm that users in adapted markets perceive greater platform relevance, aligning with the logic expressed by internal experts.

Local Partnerships & Ecosystem Integration

Strategic ecosystem integration is essential for platforms to establish trust, deliver services, and scale operations in new countries. Local partners, such as developers, payment providers, or service operators, are not only enablers but also inform product-market fit through ongoing feedback loops.

"Platforms rely heavily on ecosystem integration to drive adoption and engagement."
(Interviewee H)

"Local partners and developers play an instrumental role in platform localization... they provide contextual knowledge that helps shape product-market fit." (Interviewee H)

"Local teams have a seat at the product table... if they raise a repeated user complaint, it gets fast-tracked." (Interviewee F)

"Role of local partners is to build a local ecosystem necessary to support the digital business."
(Interviewee C)

"We depend heavily on local partnerships, from payment providers to fleet operators."
(Interviewee F)

"If a payment provider has downtime, we immediately see it in our conversion graphs."
(Interviewee G)

These findings point to a dynamic partnership model in which local actors are not simply execution partners, but contributors to design, policy alignment, and user satisfaction. By embedding local teams and systems into platform operations, firms benefit from faster iteration, reduced localization errors, and stronger ecosystem credibility.

Challenges of Internationalization

Despite structured strategies and partnerships, firms face substantial uncertainty when entering new markets. One of the most common pitfalls is the assumption that successful models will transfer seamlessly between countries.

"One recurring challenge is misjudging user expectations... we sometimes overestimate brand recognition." (Interviewee F)

"Many platforms overestimate the universality of their model and underestimate the complexity of local conditions." (Interviewee H)

"Brand portability... sometimes it's better to go in with a local brand." (Interviewee F)

"The traditions and differing traditions... these are not like, OK, we started in Spain and then we expanded within Europe. Because I think that would have been easy." (Interviewee A)

"Key challenge: lack of theoretical developments, phenomenon-driven literature with strong economic tradition." (Interviewee D)

"The biggest challenge is understanding different traditions... even within the same region, markets are super different." (Interviewee D)

These quotes highlight the dual nature of the challenge, both empirical and conceptual. Platforms must not only deal with unpredictable user behavior or unfamiliar regulatory constraints but also with the lack of a strategic playbook grounded in robust theory. This limitation contributes to underperformance or failed launches when local complexity is underestimated.

Data Network Effects and Personalization for Retention

The second aggregate dimension focuses on how platform companies leverage user data to personalize experiences, reinforce engagement, and create mechanisms of user retention

through data network effects (DNEs). Data is not merely a backend resource; it is central to shaping dynamic user journeys, refining platform algorithms, and creating switching costs. The findings are organized into three second-order themes: types and use of data, personalization and feedback loops, and data-driven lock-in and retention.

Types and Use of Data

Experts agreed that data forms the foundation for personalization, experimentation, and localized improvement. The types of data collected span behavioral, transactional, and experiential dimensions, providing a multifaceted view of user interactions.

"We collect behavioral data (clicks, navigation paths), transactional data (purchases, cancellations), and interaction data (ratings, reviews, support tickets)." (Interviewee H)

"We use a lot of data such as the progression of the calendar... to see if we need to help him."
(Interviewee B)

"If the user is giving up, the customer success team can call in to see what's wrong, to try to motivate him to try again the training." (Interviewee B)

"We collect ride or order history, location patterns, app usage behavior, and feedback and complaints." (Interviewee F)

These insights show that the collection of user data is systematic and multifactorial. Behavioral data (e.g., time spent in the app, navigation paths), transactional data (e.g., purchases, cancellations), and context-aware metrics (e.g., seasonality, location) are integrated into real-time dashboards and used to fuel decision-making. These datasets are not only descriptive but predictive, informing churn models, retention strategies, and product feature adjustments. For example, in one case, user inactivity patterns informed the introduction of reminder flows and simplified onboarding.

The centrality of data is further reinforced by the role of analytics teams in aggregating and structuring this data across global and local levels. This infrastructure enables not just descriptive metrics but also the tailoring of feature rollouts by region or user segment.

Personalization and Feedback Loops

Personalization is not viewed as a static product feature but as a dynamic and evolving process. Platforms invest heavily in feedback loops that continuously refine recommendations, pricing, and onboarding based on real-time user behavior and contextual variables.

"Recommendation systems, pricing engines, and dynamic interfaces adjust according to user profiles and predicted needs." (Interviewee H)

"Personalization is used not only to improve user experience but also to optimize engagement and retention." (Interviewee H)

"After launch, we start collecting behavioral data immediately, bounce rates, drop-offs, first transaction timing, and that feeds into localized improvements." (Interviewee G)

"The quality and frequency of data, not just number of users, matter for data network effects." (Interviewee E)

"Personalization varies... in Scandinavia, users don't like aggressive promos. In North Africa, they respond well to value-based messaging." (Interviewee F)

"If a market shows lower, than, expected activation or retention rates, this may signal the need for localization in onboarding or pricing." (Interviewee H)

The findings reveal that platforms operate continuous testing environments, where elements such as pricing sensitivity, onboarding complexity, and promotional messaging are constantly evaluated against local benchmarks. For instance, while one market may respond positively to loyalty rewards, another may favor urgency-driven limited offers. These patterns are monitored via real-time dashboards, and changes are deployed rapidly.

From a strategic standpoint, personalization serves both user experience and business goals. It enhances perceived value, increases engagement, and supports algorithmic recommendations. It also allows firms to tailor interventions at a micro-segment level, thereby increasing efficiency in conversion and retention efforts.

Survey responses from users confirm this dynamic personalization: nearly 80% of respondents indicated that content on the platform felt personalized, and over half agreed that the platform improves over time based on their behavior. These findings reinforce the expert narrative that personalization is core to long-term platform-user relationships.

Data-Driven Lock-in and Retention

One of the most strategic uses of data lies in its ability to reinforce retention through what experts referred to as “hidden switching costs.” These mechanisms are enabled by cumulative user interaction history, personalized recommendations, and predictive feature configurations that evolve over time.

"The data network effect would create a barrier... you have to introduce so many data that it is not necessary for you to change because you are losing all your data." (Interviewee E)

"Spotify is creating, of course, data networks leverage... your user value is increasing; however, business model theory applies a lock in." (Interviewee E)

"Personalized recommendations... send targeted promos... optimize UX." (Interviewee F)

"You don't want to lose your four years down the stream, music on your playlist."
(Interviewee E)

These quotes demonstrate that user-generated data accumulates over time, creating not only better service quality but also higher perceived costs of leaving the platform. When user histories, preferences, saved items, or personalized feeds are tightly coupled with platform functionality, switching becomes less attractive. This effect is especially strong in subscription-based or high-frequency platforms, where habit and data depth compound the friction of migration.

Importantly, these mechanisms are not explicitly visible to users. Instead, they are embedded in the design of the platform, making each interaction a building block in the user's personalized experience. Survey data reflects this as well: approximately 50% of users agreed that it would be difficult to switch to another platform due to accumulated preferences or personalized features.

In this way, data-based personalization does not merely serve experience enhancement, it actively contributes to retention by embedding users in a progressively tailored ecosystem that is difficult to replicate elsewhere.

Business Model-Specific Advantages

The third aggregate dimension captures how structural and architectural features of platform business models, such as modularity, centralized intelligence, and unified data infrastructures, enable firms to expand internationally while maintaining operational coherence. These

capabilities function as internal strategic enablers, allowing platforms to scale, personalize, and localize without sacrificing efficiency. The findings indicate that such advantages are not simply technical choices but strategic configurations that shape how platforms compete across geographies.

Modularity, Centralization, and Data Infrastructure

Interviewees consistently emphasized the importance of modular design and centralized control systems as critical features of scalable business models. These design choices make it possible to introduce market-specific adaptations without redesigning the entire platform architecture.

"Modularity refers to the platform's ability to adjust specific components, such as payment systems, user flows, or pricing models, without having to overhaul the entire architecture."

(Interviewee H)

"Modular product architecture: our app is built with switchable modules, payments, identity, support, etc." (Interviewee F)

"Centralized models for churn prediction, personalized offers, and fraud detection... this makes us faster than regional players." (Interviewee F)

"The digital component of the business model... makes it a bit more advantageous for the company to do it because many things were initially managed centrally." (Interviewee D)

"A unified data platform, which gives us a single source of truth." (Interviewee G)

These quotes underscore three interrelated structural enablers. First, modularity provides the technical flexibility to adapt platform components, such as payment options or user onboarding flows, to local requirements without disrupting core infrastructure. This modularity is especially valuable in fragmented markets, where payment regulations or consumer habits vary substantially.

Second, centralization plays a key role in predictive modeling and intelligence-driven automation. Functions such as churn detection, fraud prevention, and offer personalization are managed centrally, allowing for quicker deployment, cross-market benchmarking, and performance consistency.

Third, unified data infrastructure ensures data integrity and strategic alignment. A centralized data platform allows companies to ingest local user data and benchmark it against global norms, which accelerates learning and improves cross-market comparisons. It also ensures that privacy, compliance, and analytics standards are upheld consistently across regions.

Together, these three elements create a layered architecture that balances global efficiency with local responsiveness. Platforms can iterate and adapt at the edge, local flows, content, or pricing, while maintaining control and consistency at the core. This duality is a key source of competitive advantage, enabling international expansion without exponential complexity.

Summary of Results

Across the three aggregate dimensions, the findings reveal a coherent yet adaptive model of international platform growth. Firms adopt a data-informed and capability-driven approach to market selection, apply a layered strategy that balances global standardization with local adaptation, and rely on local ecosystem partnerships to ensure contextual fit. In parallel, they leverage personalization and real-time feedback loops to enhance user engagement, while data network effects contribute to retention through hidden switching costs. These mechanisms are underpinned by a modular platform architecture, centralized data intelligence, and unified infrastructures that support scalability without sacrificing responsiveness.

Importantly, these mechanisms do not operate in isolation but interact dynamically. Modular design enables targeted experimentation, data infrastructures support increasingly precise personalization, and local partnerships channel feedback into product evolution. To validate and enrich the expert insights, user survey data was also analyzed, offering a complementary lens into how users perceive platform personalization, adaptation, and stickiness. Figure 9 below summarizes the degree of alignment between expert perspectives and user-reported experiences across the key second-order themes.

Expert Interview Insight	Survey Insight	Degree of Alignment
Personalization is dynamic, localized, and refined through behavioral data and testing	80% of users agree content feels personalized; ~58% say platform improves with use.	Strong confirmation
Accumulated data increases switching costs by embedding users in the platform.	~50% of users report difficulty in switching platforms due to personalization and history.	Moderate confirmation
Firms adapt onboarding, payment, and content flows to local norms and behaviors.	~60% of users feel the platform adapts to their local context.	Good alignment
Market choice is guided by dashboards on demand, infrastructure, and competitive potential.	Not addressed in survey.	No data from users
Local partners inform adaptation and support platform functionality and user engagement.	Not addressed in survey.	No data from users
Universal platform assumptions often fail; user expectations differ widely.	Open-ended responses occasionally mention cultural mismatch, but no targeted question.	Weak or indirect confirmation
Firms collect behavioral, transactional, and experiential data for refinement and decision-making.	Users are aware of data use (~70% indicate awareness), but the detail of data types is not captured.	Partial alignment
Modular architecture and centralized analytics enable scalable yet localized expansion.	Users indirectly acknowledge smooth experience; not directly captured in survey questions.	Implied but not confirmed

Figure 9. Triangulation of Interviews and User Insights

5. Discussion

This section critically interprets the findings in light of the two central research questions: (1) *How do platform business models adapt when expanding internationally?* and (2) *How do platforms leverage data network effects to enhance user retention?* The analysis reveals that existing theoretical frameworks, while foundational, do not fully capture the dynamic, interconnected nature of platform internationalization and retention strategies. The discussion integrates insights from expert interviews and user surveys to advance theoretical understanding and propose a new cyclical model of platform growth.

5.1 Platform Internationalization Strategies: Beyond Linear Expansion Models

The findings challenge the sequential logic embedded in traditional internationalization theories. The Uppsala model suggests firms expand gradually through staged learning and progressive commitment (Johanson & Vahlne, 2015; Vahlne & Johanson, 2017), while internalization theory emphasizes the exploitation of firm-specific advantages (Rugman & Verbeke, 2008). However, the evidence reveals that platforms employ layered adaptation strategies that simultaneously pursue global standardization and local responsiveness, a capability that existing theories struggle to explain.

The concept of Business Model-Specific Advantages (BMSAs) proves central to understanding this process (Bohnsack et al., 2021). The findings extend this concept by demonstrating that BMSAs are not merely transferable assets but flexible and adaptable capabilities. The evidence shows platforms achieve international success not by replicating standardized models, but by developing modular architectures that enable rapid, context-specific adaptation while maintaining operational coherence (Evers et al., 2023; Gregory et al., 2021). This challenges Rugman and Verbeke's (2008) traditional view of FSAs as location-bound capabilities. It aligns with recent work suggesting that digital platforms create value through architectural flexibility rather than asset ownership (Autio & Zander, 2016).

The findings reveal that successful platform internationalization requires dual-level adaptation, both cultural and personal. While existing literature focuses primarily on country-level institutional differences (Yoo et al., 2024), the results show that platforms must simultaneously address macro-cultural norms and micro-level user preferences. This extends current understanding by suggesting that platform internationalization operates at multiple levels of granularity simultaneously, building on Parker et al.'s (2016) emphasis on multi-sided interactions but adding the complexity of cultural variation.

Ecosystem orchestration emerges as another critical finding that extends current understanding. Unlike traditional firms that rely primarily on internal capabilities (Teece, 2010), platforms depend heavily on local partnerships for market entry and adaptation. Local partners function not merely as execution agents but as co-creators of value propositions, providing contextual knowledge that shapes product-market fit. This echoes Gawer and Cusumano's (2014) emphasis on external innovation and Van Alstynne et al.'s (2016) work on coordinating ecosystem partners, but demonstrates that this coordination is particularly crucial during international expansion, where platforms lack local market knowledge.

The study also documents challenges that existing theory underestimates. The assumption that digital platforms can easily overcome geographic and cultural barriers through technological scalability (Autio & Zander, 2016; Gregory et al., 2021) proves overly optimistic. Multiple interviewees described failures resulting from overestimating model universality and underestimating local complexity. This suggests that even digitally-enabled firms remain subject to liability of foreignness, contrary to some recent claims about reduced geographic constraints in digital markets (dos Santos & Williamson, 2024).

5.2 Data Network Effects and Personalization for Retention: Dynamic and Context-Dependent Mechanisms

The analysis of data network effects (DNEs) reveals mechanisms more nuanced and context-dependent than current literature suggests. While Gregory et al. (2021) emphasize the universally positive effects of data-driven personalization, the findings indicate that DNEs operate within structural and institutional constraints that limit their applicability and effectiveness.

The evidence confirms that platforms leverage multiple data types, behavioral, transactional, and experiential, to create personalized experiences that enhance retention (Ramdani et al., 2019). However, the study reveals an important distinction overlooked in existing literature: the effectiveness of DNEs depends critically on data quality and contextual relevance rather than merely data volume. This challenges assumptions about the automatic benefits of big data and aligns with recent work questioning the linear relationship between data accumulation and value creation (Hagiu & Wright, 2023).

The findings demonstrate that personalization operates differently across international markets, requiring localized algorithmic tuning. The evidence shows that personalization strategies effective in one region fail in others, contradicting the notion that algorithmic personalization can transcend cultural boundaries (dos Santos & Williamson, 2024). This builds on work by Abada, (2024) highlighting cultural adaptation requirements but provides specific evidence of how DNEs must be culturally calibrated rather than universally applied.

The finding on "hidden switching costs" created through data accumulation extends current understanding of lock-in mechanisms. While the literature acknowledges that personalization can create lock-in effects (Climent & Haftor, 2021), the results reveal how these mechanisms operate below user consciousness. Platforms embed switching costs in the design of personalized experiences, making each interaction a building block in the user's personalized experience. The survey data supports this, with approximately 50% of users reporting difficulty switching platforms due to accumulated preferences, evidence of DNEs creating retention through progressive user investment rather than explicit loyalty programs. This extends work by Täuscher and Laudien (2018) on platform lock-in by showing how data accumulation creates hidden barriers to switching.

The study also identifies important limitations of DNEs that current theory underexplores. Regulatory constraints (particularly GDPR), infrastructure limitations in emerging markets, and user fatigue with over personalization create boundaries on DNE

effectiveness (Haftor et al., 2024). This suggests that while DNEs represent powerful retention mechanisms, their impact is bounded by institutional, technological, and behavioral factors, a nuance missing from much of the existing literature (Climent et al., 2024).

The finding that successful retention requires multidimensional strategies beyond personalization also challenges the current focus on data-driven approaches. Interviewees emphasized that retention depends equally on operational reliability, trust and safety systems, and emotional engagement. This suggests that DNEs complement rather than replace traditional retention mechanisms, building on McIntyre and Srinivasan's (2017) work on platform governance but showing how retention strategies must integrate data-driven and operational elements.

5.3 Business Model-Specific Advantages: Modularity as the Foundation for Dynamic Capabilities

The analysis reveals that modular architecture functions as the fundamental enabler of both international adaptation and data-driven personalization. While existing literature treats modularity primarily as a technical design choice (Gawer & Cusumano, 2014; Constantinides et al., 2018), the findings demonstrate that modular business model architecture creates strategic flexibility that enables platforms to navigate tensions between global efficiency and local responsiveness.

The evidence shows that successful platforms employ three interconnected architectural elements: modularity for localization, centralization for intelligence, and unified data infrastructure for learning. This extends current BMSA theory (Bohnsack et al., 2021) by showing how these elements work together to create adaptive capabilities that enable both international scaling and continuous adaptation. The findings build on Teece's (2017) work on business model innovation but show how platforms achieve adaptability through architectural design rather than just organizational learning processes.

The finding that centralized data intelligence provides competitive advantage over local competitors extends current understanding of platform capabilities. This suggests that global platforms can achieve superior performance not through local market knowledge but through superior analytical capabilities derived from cross-market data aggregation, a mechanism underexplored in current internationalization literature (Rugman & Verbeke, 2008; Johanson & Vahlne, 2015). This aligns with recent work by Adewusi, Okoli, Adaga, Olorunsogo, Asuzu, and Daraojimba (2024) on platform intelligence but provides empirical evidence of how centralized analytics create competitive advantage in international markets.

The unified data infrastructure emerges as the critical capability that enables platforms to learn across markets while maintaining consistency (Gregory et al., 2021; Henfridsson et al., 2018). This infrastructure supports both global benchmarking and local adaptation, allowing platforms to identify patterns across diverse markets while tailoring experiences to local contexts. This finding extends current understanding of platform capabilities by showing how data infrastructure functions as a strategic asset that enables both standardization and localization simultaneously, building on work by Evans and Schmalensee (2016) on platform economics and Jacobides et al. (2018) on ecosystem orchestration.

5.4 Theoretical Integration: A Cyclical Model of Platform Growth

The most important theoretical contribution of this study is the identification of interdependencies between internationalization strategies, data network effects, and business model advantages. Existing literature treats these as separate phenomena (Parker et al., 2016; Henfridsson et al., 2018; Bohnsack et al., 2021), but the evidence reveals them as mutually reinforcing elements of a cyclical growth model.

The findings demonstrate that international expansion generates diverse user data that enhances personalization capabilities, which in turn strengthens user retention and creates resources for further expansion. This cycle is enabled by modular business model architecture and powered by AI and data analytics as cross-cutting capabilities. This creates a reinforcing loop where success in one area amplifies capabilities in others, extending work by Van Alstyne et al. (2016) on platform dynamics and Gawer (2021) on platform evolution.

This cyclical model challenges the linear thinking that dominates current platform literature. Rather than sequential processes suggested by traditional theories (Johanson & Vahlne, 2015; Teece, 2010), platforms must develop simultaneous capabilities across all dimensions. The evidence shows that platforms achieving sustainable competitive advantage master this cyclical logic, continuously adapting their international strategies based on user data while using global insights to enhance local personalization. This builds on recent work by Stallkamp and Schotter (2021) on platform scaling but adds the crucial insight that scaling and personalization are mutually reinforcing rather than sequential activities.

The role of AI and data as cross-cutting enablers represents another key insight. Rather than functioning as separate capabilities, AI and data analytics permeate all aspects of platform operations, from market selection and cultural adaptation to personalization and retention (Ramdani et al., 2019). This suggests that platform competitive advantage increasingly depends on the ability to integrate AI and data capabilities across all business model components, rather

than applying them to isolated functions. This extends work by Gregory et al. (2021) on algorithmic management and Begkos and Antonopoulou (2020) on predictive analytics by showing how these capabilities must be integrated rather than siloed.

5.5 Emerging Theoretical Framework

Based on these findings, the study proposes a new theoretical framework that captures the cyclical, reinforcing nature of platform growth. The framework advances theoretical understanding by showing how platforms achieve adaptive capabilities through architectural design rather than just learning processes (Teece, 2017; Eisenmann et al., 2006). It also demonstrates how AI and data function as cross-cutting enablers that amplify capabilities across all phases of the cycle.

As illustrated in Figure 10, successful platform business models operate through four interconnected phases: Rapid Expansion leverages modular architecture and data-driven market selection to enter new markets efficiently. Data Network Effects generate user insights that enable culturally-sensitive personalization across diverse markets. User Retention & Personalization creates sustainable engagement through hidden switching costs and continuous improvement. Sustainable Growth & Competitive Advantage provides resources and capabilities for further expansion, completing the cycle.

This framework provides a more accurate representation of platform strategy than existing linear models (Rochet & Tirole, 2003; Zott et al., 2011), capturing the simultaneous, reinforcing nature of internationalization, personalization, and retention activities. It offers both theoretical advancement and practical guidance for platform managers seeking to build sustainable competitive advantage in global digital markets, addressing calls for more integrated approaches to platform strategy (Gawer & Cusumano, 2014; McIntyre & Srinivasan, 2017).

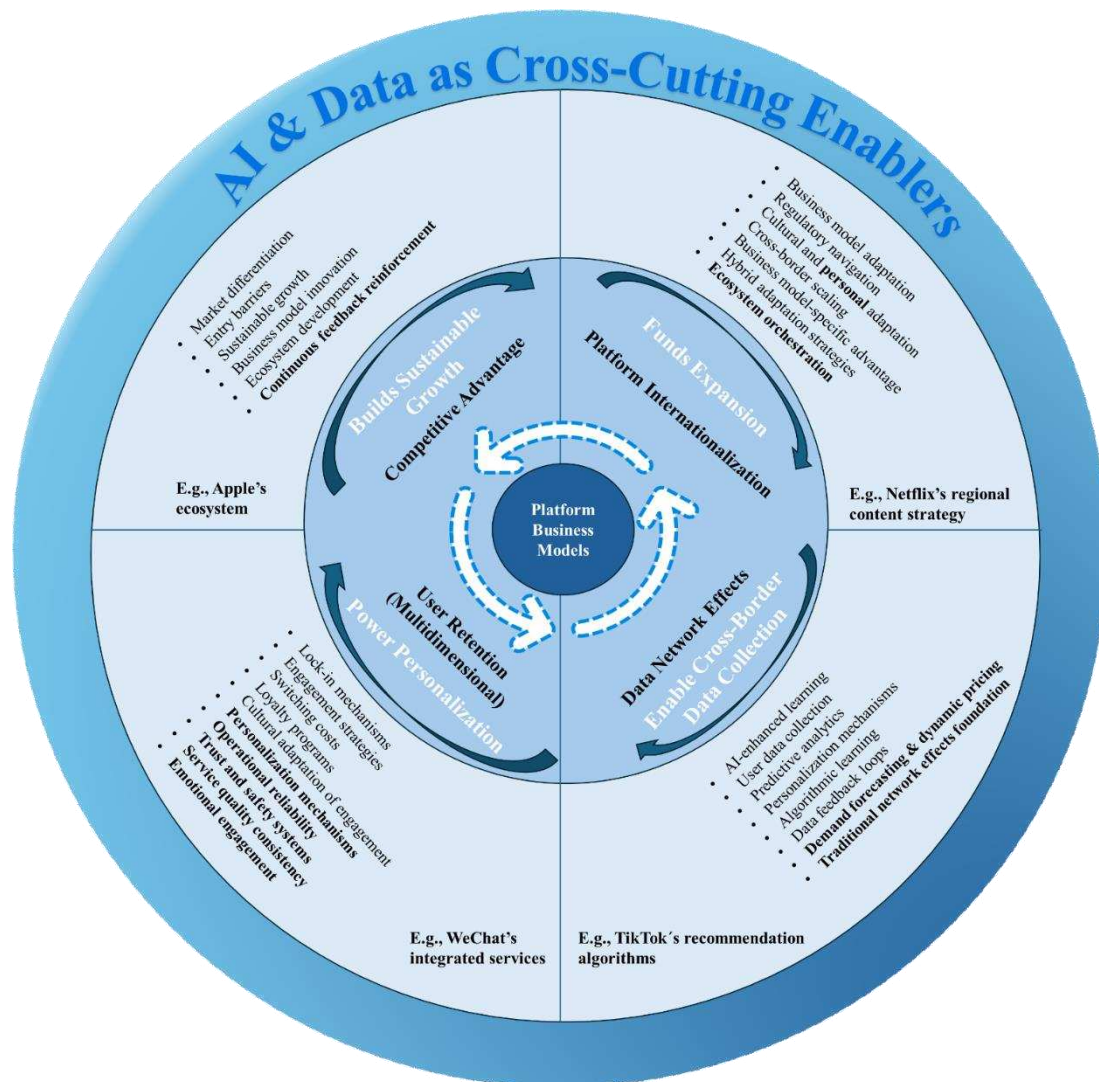


Figure 10. Cyclical Model of Platform Growth showing the four phases connected by arrows, with AI & Data as Cross-Cutting Enablers surrounding the entire cycle.

6. Conclusion

This thesis set out to answer two fundamental questions about platform business models: (1) How do platform business models adapt their business models when expanding internationally? and (2) How do platforms leverage data network effects to enhance user retention? Through systematic analysis of expert interviews and user survey data, this research has uncovered a fundamentally different understanding of platform growth that challenges existing theoretical frameworks and provides new insights for both scholars and practitioners.

Theoretical Contribution

The primary theoretical contribution of this thesis is the identification and articulation of a cyclical model of platform growth that challenges the linear assumptions underlying current

platform and internationalization literature. While traditional theories treat internationalization, data network effects, and user retention as separate sequential processes (Johanson & Vahlne, 2015; Vahlne & Johanson, 2017; Henfridsson et al., 2018; Bohnsack et al., 2021), this research demonstrates that these mechanisms operate as mutually reinforcing, simultaneous processes that create sustainable competitive advantage through interdependence.

The study advances theoretical understanding in several critical ways. First, it extends the concept of Business Model-Specific Advantages (BMSAs) beyond static transferable assets to flexible and adaptable capabilities that enable simultaneous standardization and localization (Bohnsack et al., 2021). This challenges traditional FSA theory (Rugman & Verbeke, 2008) by showing how digital platforms create value through architectural flexibility rather than asset ownership.

Second, the research reveals that successful platform internationalization requires dual-level adaptation, both cultural and personal, a finding that extends current understanding beyond the country-level focus of existing literature (Yoo et al., 2024). This demonstrates that platform internationalization operates at multiple levels of granularity simultaneously, challenging the assumptions of traditional internationalization models (Autio & Zander, 2016).

Third, the study provides new insights into data network effects by demonstrating their context-dependent and culturally-bounded nature. Contrary to current literature suggesting universal applicability of data-driven personalization (Gregory et al., 2021; Henfridsson et al., 2018), the findings show that DNEs must be culturally calibrated and operate within significant institutional constraints. The discovery of "invisible switching costs" created through progressive data accumulation extends current understanding of lock-in mechanisms beyond explicit loyalty programs.

Most importantly, the research identifies AI and data as cross-cutting enablers that permeate all aspects of platform operations rather than functioning as isolated capabilities. This insight challenges the siloed approach prevalent in current literature and demonstrates how platform competitive advantage depends on integrated rather than compartmentalized data capabilities (Gregory et al., 2021).

Practical Implications

The cyclical model provides platform managers with a new strategic framework for building sustainable competitive advantage. Rather than pursuing sequential strategies suggested by traditional approaches, platform leaders must develop simultaneous capabilities across

internationalization, personalization, and retention dimensions. This requires fundamental changes in how platforms approach global expansion and user engagement.

Specifically, the research suggests that platform success depends on mastering three architectural elements: modular design for localization, centralized intelligence for competitive advantage, and unified data infrastructure for cross-market learning. Platforms must invest in architectural flexibility that enables rapid adaptation without sacrificing operational efficiency, contradicting the efficiency-responsiveness trade-offs assumed in traditional international business literature (Rugman & Verbeke, 2008).

The findings also demonstrate that ecosystem orchestration is not optional but essential for international platform success. Platforms must develop capabilities for managing complex local partnerships that function as co-creators rather than mere execution agents. This requires new organizational capabilities for coordination across diverse institutional environments (Gawer & Cusumano, 2014; Van Alstyne et al., 2016).

For retention strategies, the research shows that while data network effects are powerful, they must be culturally calibrated and institutionally adapted. Platforms cannot assume universal applicability of personalization algorithms but must develop capabilities for local algorithmic tuning while maintaining global intelligence advantage.

The cyclical model also provides insights for understanding platform competition and market dynamics. It suggests that platform competitive advantage is increasingly architectural rather than operational, depending on the ability to integrate capabilities across the cycle rather than excel in individual components. This shows how platforms achieve advantage through systemic integration rather than market dominance in specific areas.

The research contributes to understanding digital transformation strategies in traditional industries. These findings support the view that successful digital transformation requires both technological and organizational adaptation, as noted by Hanelt, Bohnsack, Marz, & Antunes Marante, 2021. The cyclical model provides a framework for understanding how digital capabilities must be integrated across business model components rather than added incrementally to existing operations (Teece, 2017; Constantinides et al., 2018).

Limitations and Future Research Directions

While this study provides new theoretical insights, several limitations suggest opportunities for future research. The focus on established, internationally active platforms may not fully capture the experiences of emerging platforms or those operating in specific regional contexts. Future

research could explore how the cyclical model applies to platforms in different stages of development or operating under different institutional constraints.

The study's European and expert-focused perspective, while providing deep insights, could be complemented by research in other geographic contexts, particularly emerging markets where platform operations may differ significantly. Cross-cultural studies could further explore how the dual-level adaptation requirements vary across different institutional environments.

Future research could also investigate the temporal aspects of the cyclical model. Longitudinal studies could examine how platforms transition between cycle phases and how external shocks (regulatory changes, technological disruptions) affect cycle operations. This could provide insights into platform resilience and adaptability over time.

The role of AI and data as cross-cutting enablers deserves deeper investigation. Future research could examine how different AI capabilities (predictive analytics, natural language processing, computer vision) contribute to different phases of the cycle and how platforms can optimize their AI investments across the entire growth model.

Finally, the study opens questions about ecosystem governance in international contexts. Future research could explore how platforms manage complex multi-stakeholder relationships across diverse institutional environments and how governance mechanisms evolve as platforms scale globally.

This thesis contributes to platform literature by demonstrating that sustainable platform growth operates through cyclical processes rather than the linear, sequential approaches suggested by existing theories. The identification of AI and data as cross-cutting enablers provides new insights into how platforms achieve competitive advantage through systemic integration rather than isolated capabilities.

The research advances both theoretical understanding and practical knowledge by showing how platforms must master simultaneous rather than sequential capabilities to succeed in global digital markets. The cyclical model provides a more accurate representation of platform strategy that captures the complex, reinforcing relationships between internationalization, personalization, and retention activities.

As platform business models continue to transform global markets, understanding these cyclical processes becomes increasingly critical for both academic research and managerial practice. This thesis provides a foundation for future research and practical application that recognizes the sophisticated, integrated nature of platform competitive advantage in the digital economy.

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