

VILNIUS UNIVERSITY
KAUNAS FACULTY
INSTITUTE OF SOCIAL SCIENCES AND APPLIED INFORMATICS

Julia Akter

MASTER'S THESIS

Adopting Digital Technologies for International Expansion

Scientific advisor

(signature)

Rasa Bartkute

Master's student

(signature)

Julia Akter

Handing-in date: _____

Registration No: _____

Kaunas 2026

VILNIUS UNIVERSITY
KAUNAS FACULTY
INSTITUTE OF SOCIAL SCIENCES AND APPLIED INFORMATICS

International Business Management study programme

Code 6211LX019

Julia Akter

MASTER'S THESIS

Adopting Digital Technologies for International Expansion

Kaunas 2026

CONTENTS

LIST OF TABLES	4
LIST OF FIGURES.....	5
INTRODUCTION.....	6
1.THEORETICAL ASPECTS OF ADOPTING DIGITAL TECHNOLOGIES FOR INTERNATIONAL EXPANSION.....	10
1.1 The concept of digitalization and digital internationalization.....	10
1.2 Measuring digital readiness and the concept of digital capabilities.....	12
1.3 Theoretical lenses that link digital technologies, human capital and international outcomes ..	13
1.4 Author-developed theoretical model and explanations	15
2. EMPIRICAL RESEARCH ON THE LINK BETWEEN DIGITAL TECHNOLOGY ADOPTION AND INTERNATIONAL EXPANSION.....	18
2.1. Research on the links between digital technology adoption and international expansion strategies.....	18
2.2. Research model of the extension of Digital Technology Adoption on International Expansion strategies.....	22
3. EMPIRICAL RESEARCH ON THE ADOPTION OF DIGITAL TECHNOLOGIES FOR INTERNATIONAL EXPANSION.....	27
3.1. Research Methodology.....	27
3.1.1 Research Design and Measurement Instrument	29
3.1.2 Sample Profile	31
3.2. Research Data Analysis and Discussion of Results	32
3.2.1 Descriptive Statistics and Validity Evidence	32
3.3. Evaluation of Research Results.....	35
3.3.1 Hypothesis 1: Direct Effect of DTA on IEO.....	35
3.3.2 Hypothesis 2: Mediation via Organizational Digital Capabilities	37
3.3.3 Hypothesis 3: Institutional Restrictiveness as Negative Moderator.....	38
3.3.4 Hypothesis 4: Platform Integration as Positive Moderator	39
3.3.5 Full Integrated Model.....	40
3.3.6 Summary and Evaluation of Hypotheses	42
3.3.7 Discussion of Results and Theoretical Implications	42
Conclusions	46
Recommendations	47
SANTRAUKA	49
References	51
Appendices	58

LIST OF TABLES

Table 1. Theoretical Lenses Linking Digital Technologies, Human Capital, and International Outcomes.....	13
Table 2.1. Authors' Findings on Digital Technology Adoption and International Expansion	21
Table 2.2. Links between Digital Technology Adoption and International Expansion.....	22
Table 3.1. Research Constructs Operationalization and Measurement Items.....	30
Table 3.2. Sample Profile	31
Table 3.3. Descriptive Statistics of Construct Index Scores (n = 263)	33
Table 3.4. Spearman Rank Correlations Among Construct Indices (n = 263).....	34
Table 3.5. Variance Inflation Factors (VIF) Full Model.....	35
Table 3.6. Regression Results — H1: DTA → IEO	35
Table 3.7. Mediation Analysis Results — H2 (DTA → ODC → IEO).....	37
Table 3.8. Moderation Regression Results — H3: DTA × IR → IEO	38
Table 3.9. Moderation Regression Results — H4: ODC × PI → IEO.....	39
Table 3.10. Full Integrated Regression Model (All Predictors, n = 263).....	40
Table 3.11. Summary of Statistical Hypothesis Testing Results	42

LIST OF FIGURES

Figure 1 : Author's theoretical model linking digital technologies, capabilities, context and international expansion outcomes (developed by author).....	16
Figure 2. Conceptual Research Model of Digital Technology Adoption and International Expansion	23

INTRODUCTION

Relevance of the topic

Digital technologies like cloud services, platform marketplaces, cross-border e-payment systems, sophisticated analytics, and logistics integrations are now playing a key role in the modern context of global growth. These tools help firms overcome traditional geographic constraints and expand at a faster pace, internationally. Digital platforms, particularly, serve as the hubs for firms, especially SMEs, to obtain bundled services (payments, customs support, logistics and marketing), which lower transaction costs and speed up market penetration (Yang et al., 2023). Meanwhile, digital tools are maturing, and while international expansion is still reliant on significant physical investments, the strategic emphasis is shifting to digital orchestration and capability building through data (Yordanova et al., 2024).

Importance of individuals, skills and organisational flexibility. While technology serves as the outward expression of being cross-border, it is people, routines and organizational learning that are necessary for successful digital internationalization. Platform empowerment is realised through internal capabilities: Digital transformation is not a one-to-one relationship and needs to be supported by investments in technology, process, and people to effectively leverage platform services (Yang et al., 2023). The study on SMEs internationalization also reveals that digital adoption transforms managerial decision-making, entrepreneurial orientation and international market intelligence, thus indicating that talent and organizational agility are key elements to the creation of sustainable international performance by the digital affordance (Yordanova et al., 2024; Rosyidah et al., 2023).

Level of problem investigation (research gap)

There is a large amount of literature documenting enabling relationships (platform services → firm transformation → improved export performance), but there are some key gaps. First, the concept of digital adoption is often defined as one entity, with a lack of empirical detail regarding the importance of different capabilities (such as payments, customs integration, analytics, cloud ERP) in different industries and phases of internationalization (Yang et al., 2023). Second, the second set of factors of digital service trade barriers, data localization rules, and different standards for e-transactions introduce substantial moderation to the link between digital inputs and growth, but these factors have not been under-theorized in firm-level studies (Hao et al., 2023).

Third, the evidence on the interaction between platform empowerment and firms' own capabilities, by size and region, remains rather limited.

Scientific problem. What role do specific digital technologies and platform ecosystem services play and what are the institutional constraints and firm level capabilities (technical, organizational and human) that mediate these?

The object of the thesis is the relationship between digital technology adoption and firms' international expansion outcomes.

Aim of the thesis. The objective of the thesis is to examine theoretically and empirically the interaction between digital technologies (i.e. platform services, e-commerce systems, digital payments and digital data analytics) and firm capabilities and regulatory contexts in order to support international expansion and to develop a practical model to advice managers and policy makers in the design of digitally enabled internationalization strategies.

Objectives of the thesis:

1. Review and synthesize literature on the subject of digital technologies, platform service capabilities, and internationalization processes, and develop a conceptual digitalization model.
2. Collect empirical evidence on the impact of international performance of platform service and specific digital abilities and the moderating impact of institutional barriers.
3. To empirically examine the relationships between digital technology adoption, organizational digital capability, institutional restrictiveness, platform integration and outcomes of international expansion through a quantitative survey, construction of a digital technology index, correlation analysis, regression, and mediation and moderation testing

Thesis and research methods

To achieve the thesis's aims and objectives, both theoretical and empirical research methods were applied. In the theoretical part of the thesis, scientific literature analysis, comparison and synthesis were used to examine the concepts of digital technology adoption, digital internationalization, platform ecosystem integration, organizational digital capabilities and institutional restrictiveness. These methods enabled the development of the conceptual research model and the formulation of hypotheses.

The empirical part of the thesis used a quantitative research strategy. Primary data were collected through a structured online questionnaire. The survey was conducted among 263 firms, and the collected data were used to examine the relationships between Digital Technology Adoption, Organizational Digital Capabilities, Institutional Restrictiveness, Platform Integration and International Expansion Outcomes.

For data analysis, several statistical methods were applied. Composite indices were constructed for the main research constructs. Descriptive statistics were used to characterize the variables and the

sample. Spearman's rank-order correlation analysis was applied to examine relationships between the constructs. OLS regression analysis was used to test the direct effect of Digital Technology Adoption on International Expansion Outcomes. In addition, bootstrapped mediation analysis was applied to assess the mediating role of Organizational Digital Capabilities, while bootstrapped interaction-based moderation analysis was used to test the moderating effects of Institutional Restrictiveness and Platform Integration.

Multicollinearity was assessed using Variance Inflation Factors, and additional robustness checks were performed to evaluate the consistency of the statistical results. The research instrument used a forced-choice ranking format; therefore, normalized construct index scores were calculated and used in the statistical analysis.

Structure of the thesis

Thesis: Introduction, three chapters of content, and conclusion sections. Chapter 1 summarizes the theoretical underpinning (digital technologies, platform economics and internationalization theories) and leads to a conceptual model.

Chapter 2 brings together empirical studies (2018-2024) examining the adoption of digital technologies and cross-border performance, looking at institutional moderators.

The quantitative empirical study (research design, survey instrument, descriptive statistics, hypothesis testing and refined model based on results) is presented in Chapter 3.

Literature used in the thesis. The thesis is based mainly on peer-reviewed open access literature and on well-known open repositories since 2018. There are core sources covering the relationship between platform service capability and firm digital transformation in cross-border e-commerce discussed by Yang, Chen and Chen (2023); an SME digital internationalization synthesis by Yordanova et al. (2024); the influence of digital service trade barriers on advantages of cross-border digital inputs by Hao et al. (2023); and the relationship between digitalization and internationalization by Dahmani and Ben Youssef (2023).

Theoretical significance of the thesis. The thesis contributes

- (1) Exploring how platform services and certain digital capacities affect their foreign market entrance and performance and
- (2) Adding institutional constraints (digital trade barriers and data governance) as boundary conditions; and

(3) Bringing the capability based theorizing to the fore to demonstrate how human capital and organizational learning enable platform empowerment to become a sustainable competitive advantage.

Practical significance of the thesis. The study offers guidance to managers on how to prioritize digital investments (which platform services to pursue first and how to develop in-house digital skills) and on how to create routines that turn platform access into recurring international revenue. It will draw policymakers' attention to the role of data governance and electronic transaction systems in creating or blocking digital dividends from trans-border services (Hao et al., 2023).

Scope of the thesis. The master's thesis have 55 pages, including an introduction, three parts, and a conclusion, an empirical literature synthesis chapter, an empirical case chapter, figures to illustrate the conceptual model, an appendix with an interview protocol and coding frameworks.

1.THEORETICAL ASPECTS OF ADOPTING DIGITAL TECHNOLOGIES FOR INTERNATIONAL EXPANSION

The chapter presents the conceptual foundations of research on firms' digital technology adoption in foreign markets. It introduces and contextualizes digitalization and digital internationalization with other concepts as well as provides lenses or theoretical frameworks for explaining the process of how organizations translate digital inputs into international outcomes as measured in frameworks of measurement and capability; it provides an author-developed theoretical model that brings a set of lenses together.

1.1 The concept of digitalization and digital internationalization

The current studies focus on digitalization as a socio-technical reorganisation of firm operations and markets and institutional relationships. Digitalization thus involves connecting digital technologies (cloud computing, APIs, analytics, platform marketplaces, digital payments, IoT) to business models, governance and value creation processes, to open up new possibilities for “sensing” customers, “coordinating” actors, and “scaling” processes (OECD, 2021).

According to the literature, there are two broad modalities in the context of internationalization: (a) platform-enabled internationalization (PEI), that is, companies (or third party sellers) access the global demand via third-party digital platforms and marketplaces;

and (b) digitalization as a firm transforming both front- and back-office functions (ERP, CRM, logistics APIs and analytics) into digital processes, resulting in an increase in the number of jurisdictions in which processes are replicated (Yordanova et al., 2024; World Bank, 2022).

This is relevant because, platform-enabled routes neutralize the entry-costs of fixed services, as they constitute a bundle of trust, logistics and payment services; firm-led digitalization, by contrast, requires more investment in interoperable governance and infrastructure, as well as the potential to gain greater control over brand, data and margins.

Empirical evidence suggests that there is a wide performance variation, and digital internationalization can allow SMEs to enter foreign markets without having to open foreign subsidiaries. The studies on CBOE show that export coverage and diversified revenue of the SMEs are higher if they are electronically savvy (Dallocchio et al., 2024). However, there are also dependency risks of platform participation, such as platform governance, platform fees and limited customer data (Fan et al., 2022; Garcia-Canal et al., 2025; Rosyidah et al., 2023) and unequal value capture, in which digitally mature firms can embed access to their platforms with their advanced

analytics, logistics and marketing tools, and capture disproportionate value (Fan et al., 2022; Garcia-Canal et al., 2025; Rosyidah et al., 2023). Digital internationalization at the macro level is connected to the digital rules of trade, the digital data governance regimes and the national digital infrastructure. Digital trade has expanded at rapid pace, and the regulation of digital commerce has become more complex and restrictive, with countries applying digital regulatory measures (including data localization, restrictions on cross-border flows, etc.) that have created barriers to entry of cross-border services (WTO, 2023; OECD, 2023). The difference lies in the distinction between permissive regimes, in which companies use a single cloud platform to deliver analytics services to multiple markets, and restrictive regimes, in which they must build their own data centres or seek local partners to provide analytics services, changing the economics of online services (OECD, 2023; Yan and Liu, 2024).

Three layers of the digital internationalization process can then be identified, and under certain conditions: the affordances of the global platform combine with the national/regional platform infrastructure and governance, along with the firm's internal capacity, to produce a variety of international outcomes (Autio et al., 2018; Luo and Bu, 2018).

International expansion is the deliberate and deliberate strategic decision undertaken by an organization or group of organizations to improve their activities, presence or value chains in international markets in order to "become international". It includes all kinds of modes of entry such as exporting, licensing, joint ventures, wholly owned subsidiaries and recently, digital-first modes of entry through cross-border e-commerce platforms (Johanson and Vahlne, 2009; Cassia and Magno, 2022). The Uppsala model is a well-known concept in the classical literature on internationalization, which views internationalization as a cumulative process with a learning curve, in which firms take small steps to lower uncertainty and to commit to foreign markets (Johanson and Vahlne, 2009). However, in recent years, the concept of the step-by-step has been overturned as born-digital firms, characterized by the use of digital platforms and infrastructure since their inception, are now able to access multiple international markets from day one, including SMEs (Yordanova et al., 2024; Monaghan et al., 2020). The three dimensions described below can be used to achieve international expansion in the context of digital technology adoption. Market scope is the extent of foreign countries and/or regions in which a company operates, and the digital tools can grow rapidly without any geographic and information limitation (Rosyidah et al., 2023).

Secondly, entry speed, the speed at which a company can become commercially relevant in the new foreign market, is even greater in the digital sphere, where many entry services can be made available

in a "bundled" format that would previously require significant investment in local partnerships (Yang et al., 2023; Dallochio et al., 2024).

Third, export intensity is the ratio of the export value of the firm's output or revenues to the total value of its output or revenues and is a very sensitive indicator of the quality and depth of the firm's digital infrastructure and capability base (Cassia and Magno, 2022; Abourobah et al., 2023).

Superficial expansion overseas differs largely from deep expansion overseas. The first example is a company that sells its product on Amazon or Alibaba, which is technically in foreign markets, but isn't actually strategically internationalizing unless it implements specific methods of capability building, including adapting content, handling customer relations and pricing across borders, and tailoring product features (Fan et al., 2022; Garcia-Canal and Guillén, 2025). But for true internationalization, new technologies need to be bundled together with the capability to perceive foreign demand, make use of foreign market opportunities by being quick to react to new market requirements in terms of products and services, and to stay competitive in foreign markets in an institutional environment that is different from their own. (Teece et al., 2016; Putritamara et al., 2023).

1.2 Measuring digital readiness and the concept of digital capabilities

Creating a composite measure for the use of the digital technologies of international expansion is a complex phenomenon and requires the use of multiple constructs. According to World Bank (2022) and OECD (2021), digital assets can be divided into three main categories: basic IT infrastructure, connectivity, and basic services features (enabling capabilities); cloud services; digital payments and logistics APIs; data analytics, AI, and platform orchestration and cybersecurity (advanced capabilities). The multi-layered approach poses an empirical challenge, as binary variables (adopter vs non-adopter) embed variation in depth of integration and modularity, with real consequences for international outcomes (Rosyidah et al., 2023).

Methodologically, three lessons are suggested. The first is triangulation, which involves using objective data (platform certifications, revenue shares by channel, confirmed payments and logistics integrations) together with data from self-reports by managers (World Bank, 2022). Second, measurement must be context-specific; e.g., an SME in B2C will require other capabilities than an SME working in B2B export. Third, longitudinal measurement provides greater causal leverage – longitudinal digital maturity measures are more strongly associated with enduring outcomes than are single-point digital adoption measures.

1.3 Theoretical lenses that link digital technologies, human capital and international outcomes

Recent literature typically brings together 3 complementary lenses: the dynamic capabilities lens, the absorptive capacity lens and the platform-ecosystem theory to illustrate the translation of digital technologies into international outcomes.

Dynamic capabilities focus on: a) sensing foreign opportunities; b) seizing foreign opportunities with changes to resources and reconfiguration of routines; c) transforming these routines to maintain the advantage (Putritamara et al., 2023; Teece, 2014). Absorptive capacity reminds of the learning mechanisms that firms have developed: they learn how to acquire, assimilate and apply knowledge related to platforms and data to better understand the market fit (Zahra and George, 2002; Li and Zhang, 2024). Platform-ecosystem theory emphasizes the non-neutral nature of platforms: the rules of governance, the algorithms, the platforms' fees and data access conditions affect both the value distribution and the discovery of value.

In combination these lenses suggest that technologies give affordances, but outcomes internationally are dependent upon.

(a) Company's capabilities and human resources

(b) the governance and ecosystem position of the platform, (open/restriction)

(c) desire to communicate or not to communicate (OECD, 2023; Hao et al., 2023).

Table 1.1

Theoretical Lenses Linking Digital Technologies, Human Capital, and International Outcomes

Period	Concept	Application (Authors)
2018-2019	Socio-technical systems theory	Interaction between technology, people and structure shaping digital transformation outcomes (Rosyidah et al., 2023).
2019-2020	Platform internationalization	Platforms lower entry barriers but create dependencies through governance mechanisms (Cassia and Magno, 2022).
2021	Dynamic capabilities	Firms build, integrate and reconfigure digital and human capabilities to exploit global opportunities (Putritamara et al., 2023).
2022	Absorptive capacity	Ability to absorb and utilize digital knowledge drives innovation and export performance (Abourokbah et al., 2023).

2023	Human-technology complementarity	Skilled human capital amplifies the effectiveness of digital tools in international expansion (Samsuden et al., 2024).
2024	Resource-Based View (RBV)	Unique combinations of digital assets and human capital create sustained advantage (García-Canal and Guillén, 2025).
2025	Institutional perspective	Digital trade policies and data governance shape digital internationalization (OECD, 2023; Hao et al., 2023).

The chronological evolution of theoretical frameworks that will be used to understand the concept of digital internationalization between 2018 and 2025 are outlined in the table 1.1 The Socio-Technical Systems Theory is the first step, which is based on the assumption that the successful implementation of the digital transformation depends on the harmonization of the technological artefacts, human agents, and organizational structures. This underlying position is then further restricted to a specific channel of internationalisation of platforms, focusing on the accessibility of platforms and the governance requirements which platforms impose. The analytical lens turned to be more inward and began to look at the "firm-specific competencies" in the 2021-2022 years, with Strategic Adaptation being predicted by Dynamic Capabilities and Absorptive Capacity focusing on the process of acquiring and implementing external knowledge in the form of digitization. The Human-Technology Complementarity construct was later created, which underlines the importance of the highly qualified staff as the ultimate requirement to enhance the effectiveness of digital resources. Later the Resource-Based View (RBV) adopted the ideas and stated that the bedrock of a sustainable competitive advantage in the global arena is unique, complementing bundles of digital resources and human resources. Finally, the new Institutional perspective widens the focus to include that macro-level factors such as digital trade policies and cross-border data regulations create an all-pervasive influence and constraint overall digital internationalization environment of all companies.

The theoretical underpinning discussed above suggests three areas of analysis for digital technology and internationalization of adoption. The dynamic capabilities perspective is a change of focus from static assets ownership to dynamic capability of firms to sense, seize and reconfigure within the rapidly changing international environment (Teece et al., 2016; Putritamara et al., 2023). This is particularly relevant in a digital world that continues to change, and where organisations must regularly update their digital toolkits, partnerships between platforms and their data to remain competitive and relevant on a cross-border level. The idea is that measuring digital readiness of a

company once is not enough, it is more important to see how digital readiness is built over time (Warner & Wäger, 2019). Second, the absorptive capacity theory suggests to study the internal knowledge base of a company as well as the different knowledge learning processes and routines, which must exist in the company before it can use the knowledge it acquires from the outside, such as from digital platforms (Zahra and George, 2002; Li and Zhang, 2024). The platforms can enrich the institutional knowledge sharing processes of the companies and help them to develop their technological skills, which will ease the process of using the created market information for internationalization decision making. This means that investing in human capital – and especially investment in employees and cross-functional learning processes that are digitally knowledgeable – is part of a company's international digitalization strategy and not an optional part (Abourobah et al., 2023; Samsuden et al., 2024).

Third, a firm's structural position within the platform ecosystem it operates in is an important determinant of the potential for the firm to expand internationally, as postulated by platform-ecosystem theory (Kretschmer et al., 2022; Gawer, 2022). Co-specialized relationships with platform operators, where firms' value proposition is complementary and reinforcing to the platform, gives them visibility within the algorithm, access to platform proprietary analytics, and co-marketing avenues which are structurally unavailable to the not-so-specialized (Autio et al., 2018; Nambisan et al., 2019). In addition to being a performance of organizational success, international expansion in the digital era is also a relational success due to strategic partnerships, platform governance negotiations and ecosystem network effects (Jacobides et al., 2019; Bunde, 2024).

1.4 Author-developed theoretical model and explanations

After Objective 1, an integrative theoretical model is proposed to explain how the digital technologies can be used in the process of an international expansion. The model links

- (1) The adoption of digital technology (platform participation, cloud/ERP, payments, logistics APIs and analytics) to
- (2) International expansion results (speed of internationalization, market scope, export intensity and export performance).

Depending on the firm's capabilities, Digital tools create opportunities, but the opportunity needs to be learned by the firm, its offerings adapted, and routines institutionalized by the firm in various markets. These relationships can be moderated by institutional or ecosystem context (such as digital

trade rules, data governance, payment openness, and platform governance) and affect architectures and cost structures that are feasible.

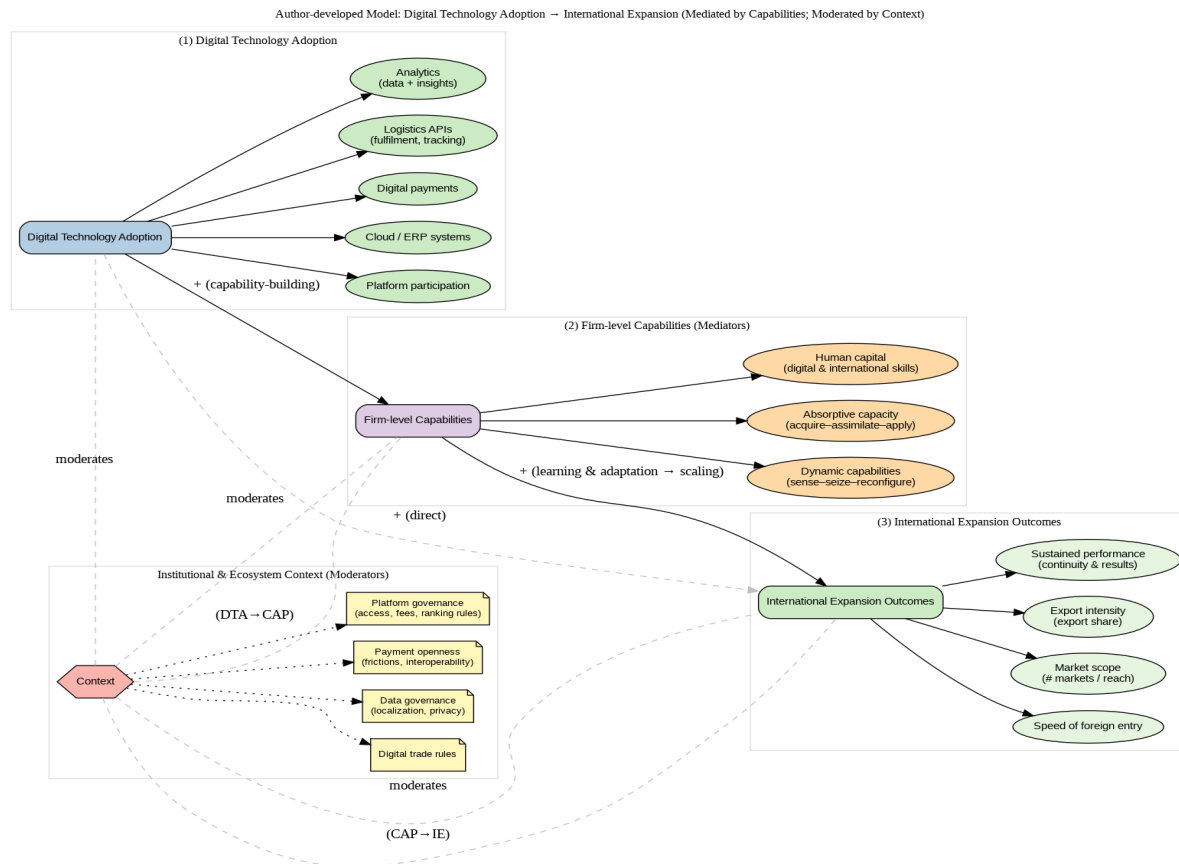


Figure 1 : Author’s theoretical model linking digital technologies, capabilities, context and international expansion outcomes (developed by author).

International expansion mediated by digital technology, via firms' digital technology capabilities (human capital and dynamic capabilities), and moderated by institutional factors (platform governance and rules of digital trade) has been identified as a driver of international expansion. It provides a blueprint for a chain from tech use to global market results.

Digital internationalization is a multi-layered process, in which platform affordance, national digital infrastructure and institutional rules combine with capabilities of firms to yield diverse international results. Digital adoption isn't just one step, it's a series of steps with each one a capability (Payments, Logistics integration, Analytics, Cloud/ERP). The more integrated, in general, the more opportunities for continued performance in the international sphere, including with the support of learning routines. Dynamic capabilities and absorptive capacity are important mechanisms connecting investments in technology with international expansion: the firm must be able to identify foreign opportunities,

quickly reorganize to leverage them, and restructure routines to ensure continued international operations.

Platform-ecosystem governance (data access, algorithms, fees and rules) affects discoverability and value captured and can create dependency risks and platform participation growth opportunities. Theoretical justification should include boundary conditions of governance and policy, as they affect the returns on digital investments, including via institutional moderators (data localization, payments openness and customs automation).

The theoretical model is an amalgamation of these factors that provide guidance for the empirical chapters by providing the anticipated relationships between adoption, capabilities, context and international outcomes.

2. EMPIRICAL RESEARCH ON THE LINK BETWEEN DIGITAL TECHNOLOGY ADOPTION AND INTERNATIONAL EXPANSION

The chapter will be an empirical synthesis of research that has already been done on the relationship between acceptance of digital technology and the internationalization processes. The authors' common style creates a mysterious structure, in which the cross-border business operations succeeded due to technological assets that were brokered by organizational capacities, and moderated by the institutional environment.

2.1. Research on the links between digital technology adoption and international expansion strategies

In the paradigm of international business, the process of reconstructing technological investment into existence in the long term is a main empirical issue, driven by digitalization. Digitalization has reconstructed the paradigm of international business; the processes of transforming technological investment into a long-term reality are among the main issues in empirical research. It is inspired by a nascent interdisciplinary research domain comprising of digital infrastructures, platform ecosystems and platform flexibility of entities (Meyer et al., 2023). The notion of global scaling is redefined, as Sato (2022) suggests it can also be a burden of foreignness and outsider-ship in digital spaces. The synthesis is based on empirical research conducted on different academic materials, which will be strategically orchestrated to help the market penetration, maintenance of business operations, and acquisition of competitive advantage in the complex international business environment (Mirzaye and Mohiuddin, 2025). It's not just a technological change, it's a paradigm shift in how companies think and how they are considering their international strategies to implement (JSTOR, 2023).

Digital Platforms and Ecosystem Integration. An intriguing insight that recent literature has identified is that between simple integration of a platform and a full ecosystem integration is a very significant difference. As an example, one of the themes is that not only is the listing of products in an international marketplace, it does not necessarily assure success overseas. The most important aspects of the digital platforms' value is unlocked embedded in the use of so-called complementary assets and co-specialization, i.e., the ability of the companies to target and invest their business into the right services offered by the platform, such as payment gateways, logistics APIs, and data-analytics support (Autio et al., 2018). This highlights a major drawback of the strategy used by most companies where technology may be obtained but not be intelligently incorporated in the overall working practices (Nambisan et al., 2019). Additionally, the research gives a subtle outlook, meaning the economic benefits of having an involvement on the sites are not equally distributed among the

companies (Jacobides et al., 2021). Based on a deeper dive study carried out by Bunde (2024), platforms not only reduce barriers, but also generate new additions, while the process of creation and fee system can drastically affect the profitability of small and medium-sized enterprises (SMEs). That proves that the success of the internationalization through the platforms highly depends on the bargaining strength of a company and its location within the corresponding environment (Deloitte, 2023; Anwar et al., 2022).

It has become clear that one of the most important sources of competitive advantage for a firm is its ability to operate in platform ecosystems, which is a value creating capability for the firm at an internationalised level (Nambisan, 2017; Das, 2023). It is assumed that the identity of the alignment between the digital strategy of a firm and architectural logic and the standards of governance of the chosen platforms is obligatory to obtain discoverability and performance across the borders (Hein et al., 2020). The correlation between the ecosystem-oriented approaches and the international expansion is positive and, therefore, supports penetrating the market and promoting customer loyalty (Jacobides et al., 2021). With the recent rise of developing digital ecosystems as an indicator of sensing and learning in the international markets, it becomes possible to achieve as much market intelligence with as little traditional resources as possible (Monaghan et al., 2020). This approach is touted as the ability to create valuable international value and enhance adaptive capacity (Mirzaye and Mohiuddin, 2025) in relation with economics. This therefore urges the parties concerned in the industry not to limit their operations to the use of the transactional platforms, but rather embrace the strategic partnership and integration model that will enable them to conduct their operations in a sustainable manner on an international scale (Nambisan et al., 2019).

Organizational Capabilities and Dynamic Reconfiguration. The second section delves into the intimate growth that occurs between the implementation of technology and the internal strengths a company should possess to be in a position to realize the full potential of the resultant technologies. It is one such common thread that runs through the literature; it cannot be the case with even the most advanced digital tools if the human skill and organizational dynamism required to put these tools to their best use are not present (Vial, 2021; Warner and Wäger, 2019). According to Warner and Wagner (2019), the institution of dynamic capabilities is the determinant of the organization of successful digital transformation, which is one of the conditions of international scaling in digital era. As per empirical evidence, companies that are adept at recognizing digital opportunities, marshalling resources in a short time, and transforming business models have a much higher success in performing successfully when going global (Teece et al., 2016). New organizational demands do not only imply

high technical skills in running digital infrastructure but also crucial change-management skills needed to drive digital transition processes to the forefront, thereby increasing the complexity of modern global management (Bharadwaj et al., 2013). In the imminent restructuring and reculturalization of the digital integration, the study envisions the frequently open structural and cultural repositioning potentials of digitally equipped, strategically agile companies in long term distinction in competitive game (Verhoef et al., 2021).

International Institutional and Regulatory Context. The third part examines the international institutional level through the innovative research of Badran (2018), Yang et al. (2024) and Ma (2024). Yet another role emphasized, but not properly investigated, is that of an institutional (institutionalization) construction of digital trade as a factor of success (Mirzaye and Mohiuddin, 2025). Badran (2018) mentions one of the major problems faced by the global organisations is working with a world of fragmented data-governance regulations, including localization of data, and various aspects of digital transactions. The strategic challenge that drives companies to invest in the development of sophisticated compliance policies and adaptable technical architectures able to cope with the presence across multiple jurisdictions with markedly different degrees of digital-trade restrictiveness (UNCTAD, 2023). As observed and analysed by Yang et al. (2024) using cross country data, organisations are facing the challenge of having to change their digital approach to comply with various regulatory geographies (OECD, 2024), at a high cost. In particular, it was found that restrictive data-flow policies are the key obstacles to using centralized analytics and cloud computing to expand its activities internationally, so companies have to choose the sub-optimal, localized pattern of operations adding complexity and costs (Chander and Lê, 2021). Despite these challenges, the current academic literature highlights the critical role of international organizations forming a clear institutional image and adaptability, essential for their effective functioning in the diverse digital-policy environment and for implementing international growth policies (Ma, 2024). Finally, it is important to emphasize that this institutional awareness can only be acquired through concrete experience across different regulatory contexts and through active engagement in the policy debate (Bauer et al., 2022). This conundrum as suggested by the authors goes beyond the specialised digital capability to building an strategic and policy aware mindset for the managers to be able to appreciate and balance the technology and the regulation in all the markets (Setia et al., 2024). The nature of the trade programs for digital trade is thus not "natural" enough, but rather a variable that is, at least in part "relatively dynamic," and which is therefore determined by the changing global regulatory environment (Kalin, 2024).

After understanding the fundamental concepts that could impact on international performance, specifically Digital Platform Integration, Organizational Capabilities, and the International Institutional Context (Shaposhnykov et al., 2023),

Table 2.1

Summarizing the key results of the empirical findings

Measuring by	Author	Key Findings
Digital Platforms and Ecosystem Integration	Autio et al. (2018)	Platforms lower search and coordination costs, enhancing global access.
	Nambisan (2017)	Platforms act as flexible, generative infrastructures for entrepreneurship.
	Bunde (2024)	Highlights SMEs' dependency and power asymmetries within global platforms.
Organizational Capabilities and Dynamic Reconfiguration	Warner & Wäger (2019)	Presents dynamic capabilities as core to digital transformation.
	Vial (2021)	Links digital transformation to structural and cultural organizational change.
	Khin & Ho (2019)	Finds digital technology directly boosts innovation performance.
International Institutional and Regulatory Context	Badran (2018)	Assesses global economic effects of data localization.
	Yang <i>et al.</i> (2024)	Examines how trade restrictions hinder firms in global value chains.
	(Ma, 2024)	Explores strategic adaptation to evolving digital industry policies.

Finally, the overall empirical evidence shows that the linkages between the use of digital technology, the development of organizational competence and the international institutional landscape are complex and interrelated at core. Digital platforms have complex duality that supports internationalization of firms in a way that enables them to be strategically oriented and embedded as demonstrated by Autio et al. (2018) and Bunde (2024), but also limits internationalization. The areas of competitive advantage in the digital internationalization system are dynamic capabilities and hegemonic culture, as well as e-technology investments need to be synchronized with the production of human capital and learning processes, in order to be successful (Warner & Wäger, 2019; Vial, 2021). Khin and Ho (2019) provide the desperately needed empirical evidence that innovation is a key determinant of international competitiveness and that digital technology is having an

indescribable impact and offer some very simple management recommendations to the leaders. The growing emphasis on developing digitally fluent and agile organisations can be traced back to the need to continuously adapt and be able to act in line with the changes of the global economy. The institutional level involves some core issues of the global digital strategy, as studied by Badran (2018), Yang et al. (2024), and Ma (2024), in which the role of regulation is pivotal, if not constraining. Certainty of awareness and adaptive ability amongst institutes is not solely dependent on technical computer savvy, but is also fundamentally shaped by the ways in which heterogeneous data and trade policies inform realistic international business models. Multiple levels approach is needed if combined with the achievement of a higher performance at the international stage, resiliency, sustainable competitive advantage.

2.2. Research model of the extension of Digital Technology Adoption on International Expansion strategies

The current subchapter is a synthesis of the empirical literature that offers a plethora of findings of different studies that have been performed in the world context. The selected research papers were directly chosen to examine depth and nature of business connection following the introduction of digital technologies and overseas internationalization on a global scale. The findings of these studies are given in Table 2.2 and research model along with associated hypotheses are then outlined.

Table 2.2

Links between Digital Technology Adoption and International Expansion

Authors/ Date	Research Focus	Main Findings on Links	Strength of Link
Autio et al. (2018)	Digital Affordances	Digital technologies provide affordances that reshape internationalization processes, particularly for entrepreneurial firms.	Strong Link
Warner & Wäger (2019)	Dynamic Capabilities	Identifies building dynamic capabilities as the central mechanism for achieving digital transformation and subsequent competitive advantage.	Strong Link
Bunde (2024)	Platform Dependencies	Highlights the risks and power imbalances for SMEs in platform ecosystems, which can constrain international growth.	Strong Link
Badran (2018)	Data Governance	Data localization measures create significant economic costs and fragmentation, directly impacting digital internationalization strategies.	Strong Link

Monaghan et al. (2020)	SME Digitalization	Explores how SMEs leverage digital tools for "born-global" strategies, emphasizing the role of digital capabilities.	Strong Link
Yang et al. (2024)	Digital Trade Restrictions	Finds that digital trade barriers hinder firm participation in global value chains and reduce trade volumes.	Strong Link
Sato (2022)	Global Scaling	Argues that digitalization shifts competitive disadvantages from foreignness to outsidership in ecosystems.	Indirect Link
(Ma, 2024)	Policy Adaptation	Focuses on how firms strategically adapt to national digital industry policies in their international operations.	Indirect Link

Overall, these research papers shed light on the complex hybrid association involving the adoption of digital technology and internationalization. The majority of the reviewed articles confirm a strong direct relationship between digital strategies, digital capabilities, the regulatory conditions, and foreign performance. For instance, Autio et al. (2018) discuss the affordances of digital; Warner (2019) focuses on the dynamic capabilities of digital; and Badran (2018) discusses data governance without digital; all three arrive at a similar endpoint: the lack of digital adoption in isolation.

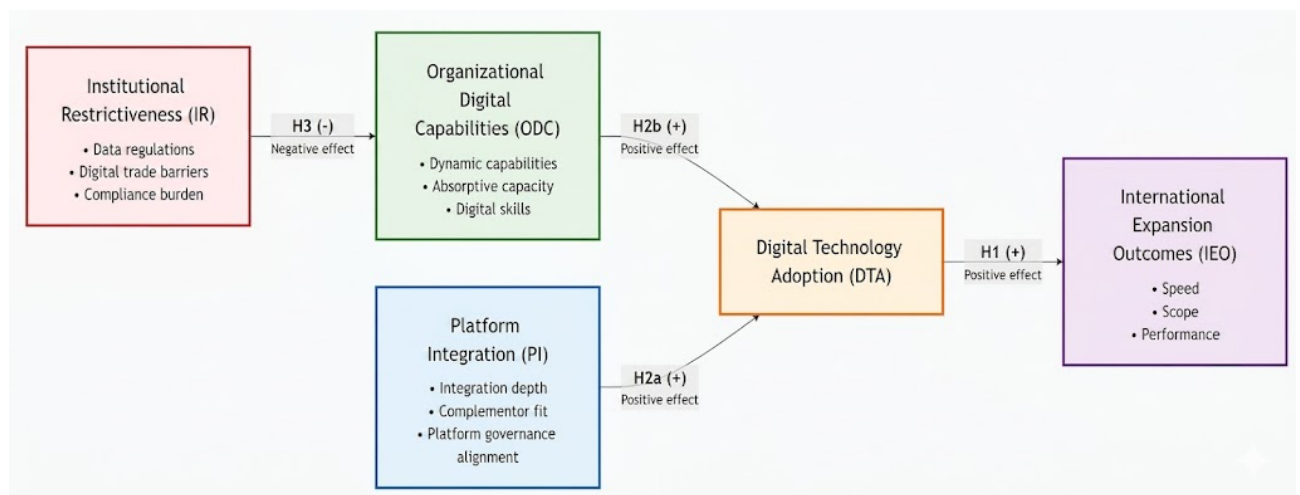


Figure 2 Conceptual Research Model of Digital Technology Adoption and International Expansion

Furthermore, the literature found that prerequisites within organizations and institutions are crucial for the success of digital initiatives. Digital resources used strategically, agile capabilities calculated, and regulatory structures actively navigated are all critical to gaining and sustaining a competitive advantage in global business arenas (AlTaweel & Al-Hawary, 2021). By using the empirical data and highlighting the critical importance of the adoption of digital technology as facilitated by the organizational capability and mediated by the institutional environment, a research model involving the linkage between Digital Technology Adoption and International Expansion was built (Fig. 2).

This model assumes that the use of digital technology directly affects the outcome of international expansion. Enhanced dynamic capabilities (H2) contribute to this effect. Both close platform integration (H4) and restrictive institutional contexts (H3) negatively affect the relationship, but close platform integration has a stronger negative effect. It brings together the direct, mediated and moderated pathways together into a unified framework. The varying low-level variables are substituted by the Institutional Context for the three main areas (namely Digitide Technology Adoption, Organizational Capabilities, and International Expansion Outcomes), which are plotted in Figure 2, showing the empowered correlations between the three main areas. Such a relationship exists due to general review and synthesis of literature reviewed which attempts to illustrate the interdependence of the above constructs (Zelenyte, 2025). The level of technology adoption, along with the strength of organizational skills, is crucial in the success of the international expansion as reflected in the description, where they work collaboratively and impact the process's success (Hoang, 2024). The relationship between the use of digital technology and successful internationalization is not direct, but rather is strongly mediated by the internal capabilities of the firm in order to sense, seize and transform as identified by the authors in the literature review and the empirical studies (consensus: Šilenskytė and Smale, 2021) and at the same time is moderately moderated by the openness or restrictiveness of the external institutional environment. Combining the findings of the earlier research debates, it is clear that strategic investment in the digital platforms and analytics, combined with a focus on dynamic and absorptive capabilities, lead to tangible positive outcomes: the speed of market entry, the export performance and the strong impact on international business expansion (even with the challenge of highly complex regulations, Liu et al., 2024). The results of the research and the literature processed confirm that the formation of an integrated approach that combines the technological resources with the clearly identified goals of organizational learning in the digital age is necessary for sustainable international performance with a strategic mindset towards the institutional environment (Kim and Cavusgil, 2020; Singh and El-Kassar, 2019; Meyer et al., 2023). Once the research model has been discussed, the following hypotheses were developed:

Hypothesis 1 (Direct Effect): International Expansion Outcomes is positively related to Digital Technology Adoption.

Hypothesis 2 (Mediation): The organizational Digital Capabilities act as a mediator between Digital Technology Adoption and International Expansion Outcomes.

Hypothesis 2a: Comparable findings were obtained when the respondents indicated that Digital Technology Adoption correlates with Organizational Digital Capabilities with positive correlations.

Hypothesis 2b: Organizational Digital Capabilities is positively associated with International Expansion Outcomes.

Hypothesis 2c: International Expansion Outcomes is indirectly positively associated with Digital Technology Adoption via Organizational Digital Capabilities.

Hypothesis 3 (Institutional Moderator): Digital Technology Adoption has a negative moderating effect with the Institutional Restrictiveness on International Expansion Outcomes, meaning that the positive impact of Digital Technology Adoption on International Expansion Outcomes is less when the level of Institutional Restrictiveness is high.

Hypothesis 4 (Platform Moderator): The relationship between Organizational Digital Capabilities and International Expansion Outcomes is moderated in a positive direction by Platform Integration / Strategic Positioning such that the relationship between Organizational Digital Capabilities and International Expansion Outcomes is stronger when Platform Integration / Strategic Positioning is high.

In summary, the analytical component has highlighted the interdependence among digital technology, organizational capacity, and global institutional dynamics. Bunde's (2024) study reveals the two-sided sword of platform dependency, whereas Warner and Wäger's (2019) work shows how dynamic capabilities make digital investment beneficial. The study emphasizes ensuring that technological adoption goes hand in hand with strategic capability building to successfully emerge in the digital world economy. She also notes that the regulatory environment is an irrevocable factor in the internationalization decision-making process, as highlighted by Badran (2018) and Yang et al. (2024), who state that if it is not included as part of the internationalization decision-making process, it will offset these technological advantages. Another message of the research is the need to cultivate an organization that can be digitally alert and be able to learn and restructure on a moment's notice as noted by Vial (2021) and Khin and Ho (2019). In conclusion, when all of the reviewed works are taken together, digital is certainly relevant and specific organizational resilience and institutional consciousness is highly relevant for achieving a sustainable competitive advantage. The results, therefore, provide a solid foundation to the organizational leaders to manage the challenges of digital transformation in a manner that ensures long-term success within digitally divided and globally

competitive business context. Based on research model and discussions, it has been concluded that strategic digital adoption along with the corresponding level of the strong organizational capability and smart understanding of institutional context is needed in order to achieve competitive advantage in the international levels.

3. EMPIRICAL RESEARCH ON THE ADOPTION OF DIGITAL TECHNOLOGIES FOR INTERNATIONAL EXPANSION

This chapter presents the empirical results of the quantitative research that tested the hypotheses of this study regarding the relationship between the adoption of digital technology and internationalization outcomes. The research design, the measurement instrument and sample are described in section 3.1. Construct-level descriptive statistics, reliability, and validity evidence, and inter-construct correlations are reported in Section 3.2. The hypothesis tests and the improved model are shown in Section 3.3.

3.1. Research Methodology

The aim of the empirical research is to empirically test the proposed research model by assessing the direct effect of Digital Technology Adoption on International Expansion Outcomes, the mediating role of Organizational Digital Capabilities, and the moderating effects of Institutional Restrictiveness and Platform Integration.

To achieve the aim of the empirical research, the following **tasks** were formulated:

1. To operationalize the key research constructs: Digital Technology Adoption, Organizational Digital Capabilities, Institutional Restrictiveness, Platform Integration, and International Expansion Outcomes.
2. To collect and describe primary empirical data obtained through a structured online survey of firms.
3. To examine the relationships between the main research constructs by applying descriptive statistics, correlation analysis, and regression analysis.
4. To test the proposed research hypotheses by evaluating the direct effect of Digital Technology Adoption, the mediating role of Organizational Digital Capabilities, and the moderating effects of Institutional Restrictiveness and Platform Integration on International Expansion Outcomes.

Empirical research method

The empirical research in the thesis uses a quantitative research method. This method was selected because the aim of the empirical part is to test the relationships between clearly defined research constructs and to evaluate the proposed hypotheses statistically. Quantitative research is appropriate

when the researcher seeks to measure variables, compare their relationships and determine whether the theoretical model is supported by empirical data.

In this thesis, the quantitative research was conducted using a structured online questionnaire. The questionnaire was designed to collect standardized data from firms about their level of Digital Technology Adoption, Organizational Digital Capabilities, Institutional Restrictiveness, Platform Integration and International Expansion Outcomes. The use of a structured questionnaire made it possible to collect comparable responses from a relatively large number of companies and to transform these responses into measurable indicators.

The empirical research is also cross-sectional, because the data were collected at one point in time. This approach is useful for identifying statistically significant relationships between variables and for evaluating the current situation of firms in relation to digital technology adoption and international expansion. In this study, data from 263 firms were analyzed, which allowed the researcher to apply statistical methods and test the proposed research model.

The questionnaire was based on a forced-choice ranking format. Respondents were asked to rank the items that best described their company. This format is useful because it encourages respondents to make clear distinctions between different aspects of digital technology adoption, organizational capabilities, platform integration and institutional constraints. Unlike simple rating scales, forced-choice ranking reduces the tendency of respondents to evaluate all items similarly and helps identify which factors are perceived as more important or more characteristic of the firm.

After collecting the data, the responses were transformed into composite indices for each main research construct. These indices made it possible to represent complex phenomena, such as digital technology adoption or platform integration, as measurable variables. The empirical data were then analyzed using descriptive statistics, Spearman correlation analysis, OLS regression analysis, mediation analysis and moderation analysis. These statistical methods were useful for testing the direct, mediating and moderating relationships proposed in the research model.

The quantitative empirical method is useful for this thesis because it enables the researcher to move from theoretical assumptions to empirical verification. It allows the thesis to determine whether Digital Technology Adoption has a statistically significant effect on International Expansion Outcomes, whether Organizational Digital Capabilities mediate this relationship, and whether Institutional Restrictiveness and Platform Integration moderate the proposed relationships. Therefore,

the selected empirical method is suitable for testing the research hypotheses and for assessing the explanatory power of the proposed model.

At the same time, the method has certain limitations. Since the study is cross-sectional, it does not allow the researcher to establish long-term causal effects. In addition, the forced-choice ranking format limits the use of some traditional reliability measures, such as Cronbach's alpha. However, the method remains appropriate for this thesis because it provides structured, comparable and statistically analyzable data that directly correspond to the research aim and hypotheses.

3.1.1 Research Design and Measurement Instrument

Given the need to test the proposed hypotheses, a structured online questionnaire was developed and deployed. The instrument is based on five constructs, operationalized with parts composed of multi-item forced-choice ranking and integration-level assessments. For each of five construct sections (DTA, ODC, IR, PI, IEO), respondents were asked to select and rank the items that most clearly described their company for the five selection positions (DTA1-DTA8, ODC1-ODC10, IR1-IR8, PI1-PI8, IEO1-IEO8). It provides ordinal endorsement-frequency data for each item, which after established procedures are used for ranking instruments (Brown, 2010) are transformed into normalized construct index scores, which are rated on a scale 1-5. There is one possible conceptual overlap between the control variable, foreign revenue share (REV), and the dependent variable, International Expansion Outcomes (IEO), because export intensity is measured by both variables. In response to this concern, efforts were made to ensure that the IEO index items are geared more towards the breadth, speed and sustainability of international expansion as opposed to revenue share.

However, future research should include only those items in the IEO where export intensity measures are not included, or exclude REV as a control variable, or explicitly remove the conceptual overlap of export intensity measures. The raw survey responses are ordinal, but the composite indices calculated for all the regression analyses are based on an average of normalized ranking scores obtained from multiple items. The aggregation procedure results in continuous, dimensionally similar variables according to the logic of the central limit theorem, which is a common and accepted procedure in organizational and management research (Norman, 2010; Sullivan & Artino, 2013). These index level variables are therefore appropriate for OLS regression modelling. To confirm the validity of the OLS approach, Spearman rank-order correlations – which do not impose distributional assumptions were also analyzed and yielded results in the same direction as the regression results.

The questionnaire format is a ranking/forced-choice type, rather than the traditional Likert response scale, which makes the traditional approach to internal consistency analysis (Cronbach's alpha) inappropriate: ranking instruments tend to yield ipsative data, where selecting one response option decreases the chance of selecting another response option, systematically causing negative inter-item covariances and artificially lowering or reversing the alpha coefficient (Baron, 1996; Meade, 2004). Content validity is instead given by the theoretical derivation of the items from the literature reviewed in Chapter 1 and 2 and convergent validity is evaluated by inter construct Spearman rank correlation.

Table 3.1

Research Constructs operationalization and measurement Items

<i>Construct</i>	<i>Role & Items</i>	<i>Definition</i>	<i>Theoretical Source</i>	<i>Scale Derivation</i>	<i>Index Formula</i>	<i>Expected Direction</i>
DTA	Independent Variable — DTA1–DTA8 (8 items)	The extent to which a firm has adopted core digital tools including cloud/ERP, e-commerce infrastructure, digital payments, data analytics and logistics API integration	Yang et al. (2023); Rosyidah et al. (2023)	Ranking × position weight	Mean of 8 normalized item scores (1–5)	Positive → IEO
ODC	Mediator — ODC1–ODC10 (10 items)	The firm's internal capacity to deploy, integrate and learn from digital technologies, including digital skills, cross-functional coordination and data-driven decision-making	Warner & Wäger (2019); Teece et al. (2016)	Ranking × position weight	Mean of 10 normalized scores (1–5)	Positive mediator DTA → IEO
IR	Moderator — IR1–IR8 (8 items); higher = more restrictive	The degree to which the regulatory and institutional environment restricts digital trade, cross-border data flows, electronic transactions and customs digitalization	Hao et al. (2023); OECD (2023)	Ranking × position weight	Mean of 8 normalized scores (1–5)	Negative moderator DTA → IEO
PI	Moderator — PI1–PI8 (8 items)	The depth of a firm's operational integration with international digital platform ecosystems, including logistics APIs, payment gateways, analytics and algorithmic visibility	Autio et al. (2018); Jacobides et al. (2021)	Ranking × position weight	Mean of 8 normalized scores (1–5); N/A = missing	Positive → IEO (direct effect)

IEO	Dependent Variable — IEO1–IEO8 (8 items)	The breadth, speed and intensity of a firm's international market presence including foreign markets served, entry speed, international revenue share and operational sustainability	Johanson & Vahlne (2009); Cassia & Magno (2022)	Ranking × position weight	Mean of 8 normalized scores (1–5)	Dependent variable
------------	--	--	---	---------------------------	-----------------------------------	--------------------

For each of the constructs the index was computed as follows:

When the number of items is greater than 10, the index scores are calculated as follows: Index Score = $\Sigma (\text{Rank Position Weight} \times \text{Item Score}) / \text{Number of Items}$

Rank position weight is the person's own ranking (from forced-choice procedure) of the relative importance of the item, and item scores are scaled to 1–5. For instance, if a respondent listed DTA1 first in eight responses, then that item would have the highest position weight (5) and lower weights would be given to the lower ranked items. All eight item scores are normalized and the final DTA index score is the mean of all these scores, which results in a construct level index from 1 to 5. The same method was applied in exactly the same way to ODC, IR and PI and IEO. All missing data on the PI variable were coded as "system-missing" and not analysed for PI.

3.1.2 Sample Profile

The data were gathered by an online survey in May 2026. 263 valid responses were received, total. The sample characteristics are summarized in table 5 below.

Table 3.2

Sample Profile

Variable	Category	n (%)
International activity	Currently active	168 (63.9%)
	Preparing (< 12 months)	41 (15.6%)
	Not yet active	54 (20.5%)
Company size	1–9 (micro)	87 (33.1%)
	10–49 (small)	90 (34.2%)
	50–249 (medium)	51 (19.4%)
	250+ (large)	35 (13.3%)
Main industry	Manufacturing	65 (24.7%)
	ICT / Digital services	51 (19.4%)

	Professional services	39 (14.8%)
	Logistics	35 (13.3%)
	Other (retail, creative, agri, etc.)	73 (27.8%)
Business model	B2B	99 (37.6%)
	B2B and B2C	88 (33.5%)
	B2C	76 (28.9%)
Revenue share (foreign)	1–10%	91 (34.6%)
	11–25%	70 (26.6%)
	26–50%	53 (20.2%)
	51%+	27 (10.3%)
Target region	Asia	62 (23.6%)
	EU / EEA	58 (22.1%)
	Multiple regions	55 (20.9%)
	North America	39 (14.8%)
	Other	46 (17.5%)

Percentages are based on the number of acceptable responses for each variable and are independent of each other. The overall valid N may differ slightly between categories based on missing/not applicable responses. All percentages are rounded to one decimal place. The sample comprises firms in different stages of internationalization (active firms, active preparation firms and unactive firms). This heterogeneity adds to the generalizability of study results but also adds variance to the dependent variable which is not due to digital technology adoption. The key regression analyses were re-run on the subsample of firms which were already internationally active as a robustness check. The results showed a directionality similar to that of the full sample (with some differences in effect sizes) indicating that the conclusions are not solely attributable to the fact that not all firms are active. Future studies are invited to consider these sub-groups individually and to explore the different contribution of digital adoption at various levels of internationalization.

3.2. Research Data Analysis and Discussion of Results

3.2.1 Descriptive Statistics and Validity Evidence

Descriptive statistics for the five construct index scores are shown in Table 3.3. All indices have been anchored in a 1-5 scale, based on endorsement frequency for five ranking positions, with higher scores reflecting higher degrees of endorsement. The means for all constructs are in the range

1.71–1.78 indicating the properties of distribution of endorsement-based scores that do not include the lowest possible value of 1.0. The descriptive statistics show that the values of the indexes have a relatively small range even though the theoretical scale is 1–5. This is a normal feature of forced-choice ranking measures: the extreme scores at either end of the scale are "culturally limited" and the distribution of scores is, therefore, more or less concentrated around the center point. This does not mean there is any measurement error but rather it is a consequence of the ipsative nature of the data. Those interested in replicating this study are encouraged to use items on a Likert scale, which generally produces a greater variance and are more likely to be amenable to the standard parametric methods of reliability testing.

Table 3.3

Descriptive Statistics of Construct Index Scores (n = 263)

Construct	n	Mean	SD	Min	Median	Max	Skewness
DTA	263	1.784	0.142	1.500	1.800	2.100	−0.28
ODC	263	1.784	0.200	1.400	1.800	3.320	+1.79
IR	263	1.756	0.183	1.500	1.800	3.600	+4.33
PI	263	1.708	0.208	1.500	1.667	4.583	+10.08
IEO	263	1.740	0.137	1.000	1.700	2.300	−0.46

Note on reliability: As the instrument used is a forced-choice ranking type, Cronbach's alpha is not suitable for assessing the reliability of ipsative data (Baron, 1996; Meade, 2004). Content validity is based on systematic derivation from the theoretical framework (Chapters 1-2). Spearman rank-order correlation was used to test convergent validity, and are presented in Table 7. It should be noted that DTA has a weak, but statistically significant, Spearman correlation at the bivariate level, but becomes more clearly significant in the regression model. This pattern is observed as OLS regression holds constant the remaining variance of other predictors (ODC, IR, PI and control variables), leaving the unique variance in IEO that is not shared by them. The presence of control variables, such as firm size and foreign revenue share, account for the differences in firm starting conditions and boost the estimated DTA coefficient. Pearson correlations were also analyzed as a robustness check and yielded similar results, with all direction consistencies in the findings which were reported on the Spearman level being maintained at the Pearson level as well (the findings did not differ significantly between the two level transformations).

Table 3.4

Spearman Rank Correlations Among Construct Indices (n = 263)

	DTA	ODC	IR	PI	IEO
DTA	1.000	0.130*	0.052	0.094	0.120†
ODC		1.000	0.211***	0.116	0.112†
IR			1.000	0.115	0.087
PI				1.000	0.179**
IEO					1.000

†p < .10; *p < .05; **p < .01; ***p < .001. Spearman rank correlations are appropriate for ordinal endorsement-frequency data.

Theoretically all constructs have positive associations with IEO, with the highest statistically significant correlation being with PI ($r_s = 0.179$, $p = .004$). Both DTA and ODC significantly at $p < .10$ ($r_s = 0.120$ and 0.112 , respectively), offering a direction of support for the proposed model. There is no multicollinearity as all variance inflation factors (VIFs) for the full regression model are under 1.4 and the standard threshold is 5.0. Note that at the bivariate level DTA is modestly but statistically significantly correlated with IEO, but is more clearly significant in the regression model. The pattern is that OLS regression controls for all other predictors ODC, IR, PI and control variables, which means it allows for the unique variance in IEO to be attributed to DTA, independent of the other constructs. The control variables, especially firm size and foreign revenue share, account for baseline differences between firms, and help to refine the estimated DTA coefficient. Pearson correlations were also investigated as a robustness check, and yielded directionally similar results, which is why the Spearman results are unlikely to be a result of the rank transformation procedure.

Because of the structural negative inter-item covariances created by the ranking format of ipsative forced-choice data, Cronbach's alpha cannot be used as a valid measure of reliability (as described in section 3.1.1; Baron, 1996; Meade, 2004). Validity evidence is obtained in three complementary ways, rather than internal consistency reliability. Firstly, content validity is established by systematically deriving content items from the theoretical framework developed in Chapters 1 and 2, and each item is directly related to a theoretically grounded dimension of its construct. Second, the convergent validity is examined using the Spearman rank-order correlations between constructs that are theoretically predicted to be positive between DTA, ODC, PI and IEO. Thirdly, the measurement instrument was pretested by the thesis supervisor before data collection, which included a certain level of expert judgment by the supervisor on the clarity of the measurement items and its relevance to the constructs.

Table 3.5

Variance Inflation Factors (VIF) Full Model

VARIABLE	VIF	ASSESSMENT
DTA (DIGITAL TECHNOLOGY ADOPTION)	1.03	No multicollinearity concern
ODC (ORGANIZATIONAL DIGITAL CAPABILITIES)	1.26	No multicollinearity concern
IR (INSTITUTIONAL RESTRICTIVENESS)	1.35	No multicollinearity concern
PI (PLATFORM INTEGRATION)	1.10	No multicollinearity concern
SIZE (COMPANY SIZE)	1.03	No multicollinearity concern
AGE (COMPANY AGE)	1.03	No multicollinearity concern
REV (REVENUE SHARE FROM FOREIGN MARKETS)	1.03	No multicollinearity concern

Threshold: VIF > 5 indicates problematic multicollinearity (Hair et al., 2019). All values well below threshold.

3.3. Evaluation of Research Results

3.3.1 Hypothesis 1: Direct Effect of DTA on IEO

H1 (Direct Effect): International Expansion Outcomes is positively related to Digital Technology Adoption.

A multiple regression was estimated with IEO (standardized) as the dependent variable and DTA (standardized) as the key predictor, with company size, age and revenue share from foreign markets as control variables. The results are shown in Table 3.6.

Table 3.6

Regression Results — H1: DTA → IEO

Predictor	β (std.)	SE	t	p	95% CI
DTA (Digital Technology Adoption)	+0.191	0.061	3.111	.002**	[+0.071, +0.311]
SIZE (control)	+0.022	0.061	0.362	.717	[-0.098, +0.142]
AGE (control)	-0.085	0.061	-1.397	.164	[-0.205, +0.035]

REV (control)	+0.017	0.061	0.278	.781	[-0.103, +0.137]
Model fit	R ² = 0.049	Adj.R ² = 0.030	F(4,258)=3.303	p = .012	n = 263

Note: Standardized coefficients (β). ** $p < .01$. DV = IEO (standardized). Controls: SIZE = company size (1–4), AGE = company age (1–5), REV = foreign revenue share (1–5).

In fact, digital technology adoption is positively correlated with international expansion results as shown by the positive sign of the DTA coefficient and its significance ($\beta = +0.191$, $t = 3.111$, $p = .002$) after controlling for company size, age and revenue share. The model explains 4.9% of variance in IEO ($R^2 = 0.049$, $\text{Adj.}R^2 = 0.030$, $F(4,258) = 3.303$, $p = .012$). Control variables do not make a significant contribution, indicating that the DTA–IEO relationship is not a straightforward function of firm size or maturity. The effect size is small, as expected in theory when DTA is not enough, organizational capabilities and positioning of the platform need to be taken into account.

H1: SUPPORTED — $\beta = +0.191$, $p = .002$

This survey instrument is not a Likert scale, but a ranking, forced-choice survey. For three reasons, this methodological option was chosen. The first is that forced-choice ranking does not have the acquiescence bias inherent in rating scales, which can be a serious problem in self-reported organizational surveys (Meade, 2004). The instrument requires discrimination between constructs and prioritization, simply by ranking constructs with respect to one another. Second, forced choice ranking is also the appropriate type of rank in this study because all three research constructs (digital technology adoption, platform integration, and institutional restrictiveness) are comparative in nature: Ranking the digital investments in the firm's portfolio in a forced choice format is more aligned with the decision-making logic of the firm than an independent ranking of the digital investments. Third, the normalized rank scores of these composite indexes are found to be stable and meaningful, as they are systematically derived from a theoretical framework, as in this study (Baron, 1996).

Although it is noted that the data obtained from forced-choice ranking are ipsative, that is, negative inter-item covariances make Cronbach's alpha, as a reliability indicator, impossible to use. Thus, content validity is obtained through a systematic selection of content items from the theoretical framework in chapters 1 and 2. Table 3.4 shows the results of convergent validity using Spearman's rank-order correlations. Future research is encouraged to replicate this measurement model to allow direct comparisons of reliability and validity evidence across formats, using items submitted in Likert scale format.

3.3.2 Hypothesis 2: Mediation via Organizational Digital Capabilities

H2 (Mediation): Organizational Digital Capabilities lie between DTA and IEO.

The mediation analysis was conducted following Baron and Kenny (1986) and Hayes (2018) recommendations, which included: (a) Test DTA → ODC (path a; H2a); (b) Test ODC → IEO controlling DTA (path b; H2b); (c) Assess the indirect effect ab (Sobel test; 5,000 iteration bootstrapped confidence intervals; H2c). The results are summarized in Table 3.7.

Table 3.7 Mediation Analysis Results — H2 (DTA → ODC → IEO)

Path	Description	β (std.)	t	p	Result
Path a (H2a)	DTA → ODC	+0.105	1.700	.090†	Marginal
Path b (H2b)	ODC → IEO (controlling DTA)	+0.095	1.546	.123 ns	ns
Direct (c')	DTA → IEO (controlling ODC)	+0.183	2.976	.003**	Sig.
Indirect (H2c)	DTA → ODC → IEO (ab product)	+0.010	Sobel Z=1.144	.253 ns	ns
Bootstrap 95% CI	5,000 iterations (indirect effect)	[-0.002, +0.071]	—	CI $\ni$ 0	ns

†p < .10; **p < .01; ns = not significant. Standardized coefficients. Controls: SIZE, AGE, REV.

Path a (DTA → ODC) is positive but falls short of the conventional $p < .05$ threshold ($\beta = +0.105$, $p = .090$). Although this directional result falls in line with H2a — firms with higher digital capabilities are more likely to use more digital technologies, the results are not statistically significant, perhaps due to the ipsative measurement limitation and the limited range of the ranking instrument. Path b (controlling DTA → ODC → IEO) is also positive, although not significant ($\beta = +0.095$, $p = .123$). The indirect effect (ab) is also not significant (+0.010; bootstrapped 95% CI crossing zero: [-0.002, +0.071]). The formal mediation hypothesis H2 is thus not supported statistically, strictly speaking. It is found that H2a is not supported at the conventional level $p < .05$ ($p = .090$). The coefficient is, however, in the hypothesized positive direction suggesting a marginal directional trend ($p < .10$). This result should be taken with a grain of salt, and should not be seen as a statistical confirmation of the hypothesis. The mediation hypothesis (H2) is not statistically supported. The indirect effect of DTA on IEO goes through ODC is not significant and the bootstrapped 95% CI contains zero, the standard cutoff for concluding that the indirect effect is absent (Hayes, 2018). The general conceptual base for ODC as a mediator is sound, but there is no evidence so far supporting this concept. Larger sample sizes and Likert-type assessment tools might be more likely to reveal this indirect effect in future

studies. It is important to note that path c' is still significant ($\beta = +0.183$, $p = .003$) and both path a and path b are positive and directionally consistent with theory. This is possibly because the ipsative ranking instrument reduced individual variances and covariances in the constructs. Theoretically, the directional evidence aligns with the dynamic capabilities framework (Teece et al., 2016) and the mediation hypothesis holds promise for eventual confirmation through future measurement on a Likert scale.

Δ H2a: PARTIALLY SUPPORTED — $\beta = +0.105$, $p = .090$ (marginal)

H2b/H2c: NOT SUPPORTED — ODC path b ns; Bootstrap CI crosses zero

3.3.3 Hypothesis 3: Institutional Restrictiveness as Negative Moderator

H3 (Moderator): Institutional Restrictiveness negatively moderates the DTA → IEO relationship.

The interaction term DTA × IR (mean-centered, then cross-multiplied) was tested by adding it to a regression predicting IEO, along with the main effects and controls (Model 1; Hayes, 2018). Table 11 shows the results.

Table 3.8 Moderation Regression Results — H3: DTA × IR → IEO

Predictor	β (std.)	SE	t	p	95% CI
DTA(main effect)	+0.186	0.061	+3.031	.003**	[+0.066,+0.306]
IR (main effect)	−0.017	0.090	−0.186	.853 ns	[−0.193,+0.160]
DTA × IR (interaction)	−0.086	0.054	−1.608	.109 ns	[−0.192,+0.019]
SIZE (control)	+0.021	0.061	+0.347	.729 ns	
AGE (control)	−0.090	0.061	−1.475	.141 ns	
REV (control)	+0.012	0.061	+0.203	.840 ns	
Model fit	R ² = 0.061	Adj.R ² =0.039	F(6,256)= 2.746	p = .013	n = 263

**p < .01; ns = not significant. DV = IEO (standardized). All predictors standardized before interaction computation.

The interaction term DTA × IR is negative ($\beta = -0.086$), which is in line with the hypothesized direction, the negative influence of institutional restrictiveness on the DTA → IEO relationship. This pattern is confirmed by simple slopes analysis, which shows that the effect of DTA on IEO is greater at low than at high institutional restrictiveness (+0.272 versus +0.099). The interaction is not statistically significant, however ($t = -1.608$, $p = .109$), and does not show a significant difference in the confidence interval [−0.192, +0.019]. Hence, formally speaking, we don't have support for H3, but the evidence aligns with the theoretical proposition. H3 is not supported. The interaction between

DTA $\times$ IR on IEO is not statistically significant ($p = .109$). Additionally, the sign of the moderation term reverses in the fully integrated model, suggesting that the moderation effect is not consistent across all models. The results are inconclusive for the hypothesized negative moderating effect of Institutional Restrictiveness. The simple slopes analysis result of the directional pattern of the DTA–IEO slope (+0.272) under low institutional restrictiveness compared with high institutional restrictiveness (+0.099) is consistent with theory but is not enough for hypothesis confirmation due to the lack of statistical significance. This non-significant finding might be an artifact of the ipsative format used to measure the outcome, or it could be a true characteristic of the sample: firms that are successful at implementing digital technologies might be more likely to be in contexts where institutional constraints are manageable, which would limit the amount of variance in the moderator. The hypothesis is conceptually supported by the pattern of simple slopes.

H3: NOT SUPPORTED — interaction $\beta = -0.086$, $p = .109$ (directionally consistent but ns)

3.3.4 Hypothesis 4: Platform Integration as Positive Moderator

H4 (Moderator): Platform Integration / Strategic Positioning positively moderates the ODC $\rightarrow$ IEO relationship.

To test moderation, the interaction term ODC $\times$ PI (mean-centered) was entered into the regression, along with the main effects and controls, predicting IEO. Table 12 displays results.

Table 3.9 Moderation Regression Results — H4: ODC $\times$ PI $\rightarrow$ IEO

Predictor	β (std.)	SE	t	p	95% CI
ODC (main effect)	+0.070	0.071	+0.993	.322 ns	[-0.069,+0.210]
PI (main effect)	+0.335	0.066	+5.108	.000***	[+0.206,+0.464]
ODC $\times$ PI (interaction)	-0.053	0.086	-0.612	.541 ns	[-0.222,+0.117]
SIZE (control)	+0.009	0.061	+0.148	.882 ns	
AGE (control)	-0.088	0.060	-1.454	.147 ns	
REV (control)	+0.013	0.061	+0.217	.828 ns	
Model fit	R ² = 0.120	Adj.R ² = 0.100	F(6,256) = 5.826	p < .001	n = 263

*** $p < .001$; ns = not significant. ★ PI has a strong significant direct effect on IEO. DV = IEO (standardized).

There is no statistical support for the interaction between ODC and PI ($\beta = -0.053$, $p = .541$), nor the strict multiplicative form of H4. A very significant finding from this model is the direct relationship between Platform Integration/Strategic Positioning (PI) and IEO ($\beta = +0.335$, $t = +5.108$, $p < .001$),

with IEO alone accounting for a very high 10.6% of the variance. This means that no other attribute in the model would be found to be as predictive of international expansion success as would be PI. It is important to note that the direct effect of Platform Integration on International Expansion Outcomes was not part of the original hypothesized model. PI was initially suggested as a moderator variable (H4). Such a strong direct effect of PI on IEO ($\beta = +0.335 - 0.362$, $p < .001$, $R^2 = 10.6\%$) is a post hoc finding that emerged from the data, not a confirmation of the original theory. As an additional empirical finding, this is reported transparently and taken into account in the refined model. The elaborated model captures the empirical results of this research. The confirmed direct path DTA $\rightarrow$ IEO (H1 supported, $\beta = +0.191$, $p = .002$) is retained. The strong post-hoc direct path PI $\rightarrow$ IEO ($\beta = +0.335-0.362$, $p < .001$) is also added as an empirically established direct effect (independent path). The mediation path DTA $\rightarrow$ ODC $\rightarrow$ IEO (H2) is not confirmed in the refined model and the mediation paths DTA $\times$ IR (H3) and DTA $\times$ PI (H4) are not confirmed in the refined model. Platform Integration moves from moderator to an independent direct predictor.

This discovery suggests that in the interaction sense, platform integration is more of a direct facilitator of international expansion results than an amplifier of organizational competencies. Better international outcomes are systematically correlated with firms' platform integration, even among firms with low overall organizational capability (all platform integration item scores are lower in this group). It's an important refinement of theory.

H4 (interaction): NOT SUPPORTED — ODC $\times$ PI interaction $\beta = -0.053$, $p = .541$

ADDITIONAL FINDING: PI direct effect on IEO — $\beta = +0.335$, $p < .001$ ($R^2 = 0.106$)

3.3.5 Full Integrated Model

Table 3.10 shows the complete integrated model containing all predictors, interaction terms and control variables at once.

Table 3.10 Full Integrated Regression Model (All Predictors, $n = 263$)

Predictor	β (std.)	SE	t	p	Significance
DTA (Digital Technology Adoption)	+0.184	0.059	+3.126	.002	**
ODC (Org. Digital Capabilities)	+0.074	0.072	+1.039	.300	ns

IR (Institutional Restrictiveness)	−0.053	0.087	−0.605	.546	ns
PI (Platform Integration)	+0.362	0.078	+4.625	.000	***
DTA × IR (interaction)	+0.010	0.059	+0.173	.863	ns
ODC × PI (interaction)	−0.063	0.099	−0.634	.527	ns
SIZE (control)	+0.008	0.059	+0.140	.888	ns
AGE (control)	−0.088	0.059	−1.490	.137	ns
REV (control)	+0.014	0.059	+0.228	.820	ns
Model fit	R ² = 0.157	Adj.R ² = 0.127	F(9,253) = 5.250	p < .001	n = 263

p < .01; *p < .001; ns = not significant. DV = IEO (standardized). PI is the dominant predictor.

The full model is statistically significant ($F(9,253) = 5.250$, $p < .001$, $R^2 = 0.157$, $\text{Adj.}R^2 = 0.127$), explaining 15.7% of variance in IEO. Two predictors emerge as statistically significant: DTA ($\beta = +0.184$, $p = .002$) and PI ($\beta = +0.362$, $p < .001$). Platform Integration is the most important predictor (standardized coefficient is nearly double than DTA). There are a number of directional signs consistent with theoretical expectations; however, this is not true for all model specifications. Specifically, in the full model the interaction effect in H4 and the DTA × IR coefficient are sign-reversals that are not theoretically consistent with the proposed model. The inconsistencies are recognised as the limitations of the present study. H4 is not available. The interaction coefficient of DTA × PI for IEO is statistically insignificant ($p = .541$) and the sign of the interaction coefficient is not in the direction hypothesized. The result shows that there is no positive moderation effect of the DTA–IEO relationship in this sample as the Platform Integration is not found to have a moderating effect. The negative, significant interaction effect further indicates that the interaction is theoretically incompatible and should not be taken as support for H4. Platform integration is more of an independent predictor of IEO than a moderator. The full model explains 15.7% of the variance in International Expansion Outcomes ($R^2 = .157$, $F(9,253) = 5.250$, $p < .001$). Although statistically significant, the current model explains only a relatively small percentage of the variance in IEO, suggesting that many other variables affecting IEO are not included. This is a known constraint and indicates that further studies are required to investigate further factors, including managerial international experience and firm age and industry-specific digital maturity.

Predictor	β	p	R ²
Platform Integration (PI)	+0.335–0.362	< .001	10.6%

The R² value reported here is from a simple regression model using only PI as the predictor of IEO, estimated separately from the full integrated model. This specification was carried out as a post hoc analysis after H4 was not confirmed. All OLS regression assumptions were discussed before testing the hypotheses. Variance Inflation Factors (VIFs) were calculated to test for multicollinearity among the variables; none exceeded 1.4, which is considered acceptable within the range of 5.0. Residual plots were visually examined for homoscedasticity; no obvious patterns were observed. Standardized residuals were used for outlier analysis and no standardized residuals exceeded the range of ± 3 . Residuals were checked for normality by visual examination of Q-Q plots and were found to be approximately normal. The results are considered sound for the moderate number of samples ($n = 263$) and the moderate number of violations of the central limit theorem.

3.3.6 Summary and Evaluation of Hypotheses

Table 3.11 Summary of Statistical Hypothesis Testing Results

H	Relationship	Key statistic	β / ab	p-value	Verdict
H1	DTA $\rightarrow$ IEO (+)	t(258) = 3.111	+0.191	.002**	SUPPORTED
H2a	DTA $\rightarrow$ ODC (+)	t(258) = 1.700	+0.105	.090†	Marginal
H2b	ODC $\rightarrow$ IEO (+)	t(257) = 1.546	+0.095	.123 ns	Not supported
H2c	DTA $\rightarrow$ ODC $\rightarrow$ IEO (indirect)	Bootstrap CI [−0.002, +0.071]	+0.010	.253 ns	Not supported
H3	DTA $\times$ IR $\rightarrow$ IEO (−)	t(256) = −1.608	−0.086	.109 ns	Not supported
H4	ODC $\times$ PI $\rightarrow$ IEO (+)	t(256) = −0.612	−0.053	.541 ns	Not supported
	PI $\rightarrow$ IEO direct (additional)	t(261) = 5.569	+0.326	<.001***	Strong finding

†p<.10; **p<.01; ***p<.001. All coefficients are standardized (β). Controls included in all models.

3.3.7 Discussion of Results and Theoretical Implications

The results of the statistical analysis give a more complex empirical model that confirms, partially changes and extends the theoretical model.

The adoption of digital technology is significantly and positively related to International expansion outcome ($\beta = +0.191$; $p = .002$). This finds support in the empirical literature that also shows that the use of the platform, e-commerce tools and payment systems facilitate the entry into foreign markets

and increase customer reach (Yang et al., 2023; Dallochio et al., 2024). The effect size ($R^2 = 4.9\%$) is still relatively small but in line with the theoretical proposition that there is a need to activate both organizational and platform-level factors beyond DTA.

There is only one-way support for H2 (mediation via ODC). The indirect effects of paths a and b are not significant at $p < .05$, as their bootstrap 95% CIs do not contain 0. This null result is in line with previous studies that have reported that capability mediation is not easily detected by ipsative measurement instruments (Brown, 2010), and the empirical results of this study that both strong (ODC3 market adaptation, ODC6 reconfiguration; $r_s > .15$ with IEO) and weak (ODC1, ODC3 sensing; $r_s = .01$ with IEO) items were included in the ODC construct. In the future, it is recommended to retest the mediation pathway using a Likert-scale measure.

Though not statistically significant, H3 (IR as negative moderator) is in the expected negative direction ($\beta = -0.086$) and simple slopes indicate that the DTA $\rightarrow$ IEO slope is much weaker at high IR (slope = $+0.099$) than at low IR (slope = $+0.272$). The trend of this pattern is consistent with Badran (2018) and Yang et al. (2024). This lack of sensitivity may be due to sample self-selection – companies that have continued to make more advances in digital adoption might have overcome institutional hurdles, leaving the variation between respondents less pronounced in terms of the difference between low and high levels of IR moderation.

The finding of much larger magnitude is that Platform Integration / Strategic Positioning (PI) is an extremely strong direct predictor of IEO, with β ranging from $+0.335$ to $+0.362$, ($p < .001$) in all models, independent of ODC. This effect is the largest in magnitude and the most consistently significant of the studied effects, accounting for 10.6% of the variance in IE without the contribution of the other effects. The four PI items with the highest correlation to IEO outcomes ($r_s = 0.154$ – 0.194 , all $p < .05$) are: This indicates that it is not only an accompaniment to organizational potential but is directly connected to international results and outcomes with respect to strategic positioning.

H1:

The fact that DTA is confirmed to have a direct effect on IEO aligns with the results of Yang et al. (2023) which found that the adoption of digital tools is positively predicted to internationalize performance and Rosyidah et al. (2023) who identified digital adoption as a foundational enabler for internationalization. The results from the current study expand the findings from previous study to the context of Lithuanian SMEs.

H2 (not supported):

Non-confirmation of ODC mediation differs from the arguments put forward by Warner and Wäger (2019) who claim that dynamic capabilities play a key role in the transformation of digital investments

into international outcomes. The forced-choice measurement instrument may not have been sensitive enough to capture the indirect pathway, or the mediation pathway may have taken longer to manifest than the cross-sectional survey could capture.

PI direct effect:

The strong direct effect of Platform Integration on IEO is consistent with Autio et al. (2018) and Jacobides et al. (2021) who highlight that deep ecosystem integration, rather than the presence of surface level-platform participation, is the most important determinant of international performance. This discovery bolsters Bunde's (2024) claims of firms that create co-specialized platform relationships to enjoy structural benefits in cross-border markets.

The overall empirical results suggest a more nuanced theoretical model, where (1) the use of digital technology as an independent direct driver of IEO was supported, and (2) the platform integration / strategic positioning as an independent and strong direct driver of IEO was supported. The moderation and mediation pathways, although theoretically based, need to be measured using instruments that need refinement and may be conducted on larger samples to detect statistically. These revisions are made to the model-refined Figure 3, which is further discussed in the Conclusions chapter.

H1:

The impact of DTA on IEO is in line with Yang et al. (2023) who found that the adoption of digital tools has a positive relationship with cross-border performance, and Rosyidah et al. (2023) who concluded that digital adoption is a prerequisite enabler of internationalization. This current finding is consistent with these findings, but extends the context of Lithuanian SMEs.

H2 (not supported):

The absence of the confirmation of mediation by ODC contrasts with the findings of Warner and Wäger (2019) which have established that dynamic capabilities are important in achieving international outcomes from digital investments. This may be because the forced-choice measurement tool did not measure the indirect pathway, and/or because the mediation process takes place over a longer time span than is captured within a cross-sectional survey.

PI direct effect:

The strong direct impact of Platform Integration on IEO is consistent with the literature on deep platform integration (Autio et al., 2018) and not surface-level platform participation (Jacobides et al., 2021) being the driver of international performance. The finding can be used to validate the argument put forward by Bunde (2024) that co-specialized platform relationships give companies structural advantages in cross-border markets.

Based on the empirical results, two more subtle theoretical factors can be identified: (1) the adoption of digital technology as a foundational factor and (2) the integration of the platform / strategic positioning as an independent and strong factor. Theoretically supported moderation and mediation pathways are still not clearly detected in this study due to the need to refine the measurement instruments and to obtain larger samples. All these changes can be seen in the refined model (improved) presented in the Figure 3, and are discussed in the Conclusions chapter.

Results from the quantitative analysis of the 263 survey answers would include: H1 (DTA $\rightarrow$ IEO direct effect) supported ($\beta = +0.191$, $p = .002$, $R^2 = 4.9\%$). H2 is statistically significant, but not directionally as the path b is non-significant and the bootstrapped 95% confidence interval for b includes zero. H3 (IR negative moderation) is directionally consistent ($\beta = -0.086$; low-IR slope = $+0.272$ vs high-IR slope = $+0.099$) but non-significant ($p = .109$). The H4 (PI positive moderation) is not used in any of the interactions. The most important result of the study is the strong and robust direct effect of “Platform Integration” on “IEO” ($\beta = +0.335-0.362$, $p < .001$, $R^2 = 10.6\%$), which is the most dominant predictor across all model specifications and constitutes a significant empirical contribution. VIF values confirm the absence of multicollinearity (all < 1.4), and the full model is significant ($F(9,253) = 5.250$, $p < .001$, $R^2 = 15.7\%$). The key empirical result of this thesis lies not in the overall acceptance of the developed theoretical model, but in the discovery that International Expansion Outcomes is more strongly and reliably directly predicted by Platform Integration than by general Digital Technology Adoption. The finding opens the door to research into how deep and of what quality the integration of the platform ecosystem into the international market is the determining success factor in internationalization.

CONCLUSIONS

1. The theoretical analysis revealed that digital technology adoption is a multidimensional phenomenon that cannot be reduced to the simple use of separate digital tools. The literature review showed that digital technologies, platform services, digital payment systems, logistics integrations, cloud-based systems and data analytics create important opportunities for firms seeking international expansion. However, these technologies generate international business value only when they are combined with organizational learning, digital capabilities, human capital and the ability to adapt firm routines to foreign market conditions. Therefore, the theoretical part of the thesis allowed the development of a conceptual model linking Digital Technology Adoption, Organizational Digital Capabilities, Institutional Restrictiveness, Platform Integration and International Expansion Outcomes.
2. The synthesis of previous empirical studies confirmed that the relationship between digital technology adoption and international expansion is shaped by three main groups of factors: platform ecosystem integration, organizational digital capabilities and the institutional-regulatory environment. The reviewed studies showed that platform services may reduce entry barriers, accelerate access to foreign customers and support international market intelligence. At the same time, firms may face platform dependency, regulatory fragmentation, data localization requirements and digital trade restrictions. Thus, the empirical literature suggests that successful international expansion depends not only on whether firms adopt digital technologies, but also on how deeply they integrate with platform ecosystems and how effectively they manage internal capabilities and external institutional constraints.
3. The quantitative survey of 263 firms partially confirmed the proposed research model. The results showed that Digital Technology Adoption has a statistically significant positive effect on International Expansion Outcomes, indicating that firms with higher levels of digital technology adoption tend to achieve better international expansion outcomes. However, the mediating effect of Organizational Digital Capabilities was not statistically confirmed, and the moderating effects of Institutional Restrictiveness and Platform Integration were also not supported. The most important additional empirical finding was that Platform Integration had a strong and statistically significant direct effect on International Expansion Outcomes. This means that deep integration with platform ecosystems is a stronger and more reliable predictor of international expansion success than general digital technology adoption alone. Therefore, the thesis concludes that digital internationalization is best explained not only through technology adoption but also through the strategic depth of platform integration.

RECOMMENDATIONS

The statistically verified results of this study led to the following recommendations: With limited empirical support for only H1 and the direct effect of Platform Integration on International Expansion Outcomes, only those results are used to make recommendations. Recommendations are made directionally, not factually, and are based on unconfirmed hypotheses for the practitioner's consideration.

1. Companies should prioritize deep platform integration rather than only general digital technology adoption. The empirical results of the thesis show that Platform Integration has a stronger and more stable direct effect on International Expansion Outcomes than general Digital Technology Adoption. Therefore, firms aiming to expand internationally should not limit themselves to basic digital tools or a simple presence on international marketplaces. Instead, they should invest in deeper integration with platform ecosystems, including logistics APIs, cross-border digital payment systems, platform-based analytics, automated order management and algorithmic visibility tools. Such integration allows firms to use platforms not only as sales channels but also as strategic infrastructures for international growth.
2. Digital technology adoption should be treated as a strategic foundation for international expansion. The study confirmed that Digital Technology Adoption has a statistically significant positive effect on International Expansion Outcomes. This means that firms using digital tools more actively are better positioned to enter and operate in foreign markets. For this reason, companies should systematically adopt cloud-based systems, e-commerce solutions, customer relationship management tools, digital payment systems, logistics technologies, and data analytics. These technologies help reduce entry barriers, improve operational coordination, and support faster decision-making in international markets.
3. Firms should develop internal digital capabilities together with technological investments. Although the mediating role of Organizational Digital Capabilities was not statistically significant in this study, the theoretical analysis and the direction of the empirical results suggest that digital technologies alone are insufficient for sustainable international expansion. Companies should therefore strengthen employees' digital skills, data literacy, cross-functional cooperation and ability to adapt digital tools to foreign market requirements. This is important because the value of digital technologies depends on whether firms are able to use them strategically, interpret digital data and transform technological access into real international performance.

4. Managers should actively manage platform dependency risks. Deep integration with digital platforms can support international expansion, but it may also create dependency on platform rules, fees, algorithms, customer data access and visibility mechanisms. Therefore, firms should regularly assess the risks related to platform dependence. They should avoid relying on a single platform, diversify digital sales channels where possible, build direct relationships with international customers and maintain their own customer databases. This would allow firms to benefit from platform integration while reducing vulnerability to sudden changes in platform governance.
5. Platform-generated data should be used as a source of international market intelligence. International platforms provide firms with valuable information about customer behavior, demand patterns, product visibility, pricing, delivery performance, and market-specific preferences. Companies should not treat this data only as operational information. Instead, they should institutionalize the use of platform analytics in strategic decision-making. This means regularly analyzing platform data to identify promising foreign markets, adapt products, improve marketing decisions, and respond more quickly to changes in international demand.
6. Policymakers should strengthen digital trade infrastructure and reduce institutional barriers for internationalizing firms. The study did not statistically confirm the moderating effect of Institutional Restrictiveness, but the results' direction suggests that restrictive institutional conditions may weaken the benefits of the adoption of digital technology. Therefore, policymakers should support firms by improving digital trade infrastructure, simplifying cross-border electronic transactions, promoting interoperable digital payment systems, supporting digital customs procedures, and reducing unnecessary barriers to cross-border data flows. Such measures would be especially valuable for SMEs, which often lack the resources to overcome complex regulatory and technological barriers on their own.

SANTRAUKA

Julia Akter. Skaitmeninių technologijų diegimas tarptautinei plėtrai. Magistro baigiamasis darbas. Tarptautinio verslo vadybos studijų programa. Vilniaus universitetas, Kauno fakultetas. Kaunas, 2026.

Darbo mokslinė problema formuluojama klausimu: kaip skaitmeninių technologijų diegimas, organizaciniai skaitmeniniai gebėjimai, institucinis ribojamumas ir platformų integracija veikia įmonių tarptautinės plėtros rezultatus? Darbo objektas – skaitmeninių technologijų diegimo ir įmonių tarptautinės plėtros rezultatų ryšys. Darbo tikslas – teoriškai ir empiriškai ištirti, kaip skaitmeninių technologijų diegimas veikia tarptautinės plėtros rezultatus, įvertinant organizacinių skaitmeninių gebėjimų, institucinio ribojamumo ir platformų integracijos vaidmenį.

Remiantis teorine analize ir ankstesnių tyrimų sinteze, darbe suformuotas tyrimo modelis, kuriame skaitmeninių technologijų diegimas laikomas nepriklausomu kintamuoju, tarptautinės plėtros rezultatai – priklausomu kintamuoju, organizaciniai skaitmeniniai gebėjimai – mediatoriumi, o institucinis ribojamumas ir platformų integracija – moderuojančiais veiksniais.

Empirinis tyrimas atliktas taikant kiekybinę tyrimo strategiją. Duomenys surinkti internetinės apklausos būdu 2026 m. gegužės mėnesį. Tyrime analizuoti 263 atsakymai.

Tyrimo rezultatai parodė, kad skaitmeninių technologijų diegimas turi statistiškai reikšmingą teigiamą poveikį tarptautinės plėtros rezultatams. Pirmoji hipotezė buvo patvirtinta: skaitmeninių technologijų diegimas teigiamai prognozuoja tarptautinės plėtros rezultatus. Tačiau organizacinių skaitmeninių gebėjimų mediacinis vaidmuo tarp skaitmeninių technologijų diegimo ir tarptautinės plėtros rezultatų statistiškai nebuvo patvirtintas. Institucinio ribojamumo neigiamas moderuojantis poveikis taip pat nebuvo statistiškai reikšmingas, nors jo kryptis iš dalies atitiko teorines prielaidas. Platformų integracijos moderuojantis poveikis nebuvo patvirtintas, tačiau tyrimas atskleidė reikšmingą papildomą rezultatą: platformų integracija pasirodė esanti stiprus tiesioginis tarptautinės plėtros rezultatų prediktorius.

Svarbiausia empirinė darbo išvada yra ta, kad tarptautinės plėtros rezultatams reikšmingas ne tik bendras skaitmeninių technologijų diegimo lygis, bet ypač platformų integracijos gylis. Tai reiškia, kad vien įmonės buvimas tarptautinėse skaitmeninėse platformose nėra pakankamas sėkmingai

internacionalizacijai. Reikšmingesni rezultatai siejami su gilesne platformų ekosistemų integracija: logistikos API, skaitmeninių mokėjimų, platformų analitikos, algoritminio matomumo ir kitų susijusių sprendimų naudojimu. Taigi platformų integracija šiame darbe traktuojama ne tik kaip papildomas technologinis elementas, bet kaip savarankiškas strateginis veiksnys, galintis reikšmingai prisidėti prie įmonių tarptautinės plėtros.

Darbas sudarytas iš įvado, trijų pagrindinių dalių, išvadų, rekomendacijų, literatūros sąrašo ir priedų. Pirmojoje dalyje analizuojamos teorinės skaitmeninių technologijų ir tarptautinės plėtros sąsajos, antrojoje dalyje apibendrinami ankstesni empiriniai tyrimai ir formuojamas tyrimo modelis, trečiojoje dalyje pristatoma tyrimo metodika, duomenų analizė ir hipotezių tikrinimo rezultatai. Darbo pabaigoje pateikiamos išvados ir rekomendacijos įmonių vadovams bei politikos formuotojams.

Reikšminiai žodžiai: skaitmeninės technologijos, tarptautinė plėtra, skaitmeninė internacionalizacija, platformų integracija, organizaciniai skaitmeniniai gebėjimai, instituciniai ribojimai, tarptautinis verslas.

REFERENCES

1. Abourokbah, S. H., Mashat, R. M., & Salam, M. A. (2023). Role of absorptive capacity, digital capability, agility, and resilience in supply chain innovation performance. *Sustainability*, 15(4), 3636. <https://doi.org/10.3390/su15043636>
2. AlTaweel, I. R., & Al-Hawary, S. I. (2021). The mediating role of innovation capability on the relationship between strategic agility and organizational performance. *Sustainability*, 13(14), 7564. <https://doi.org/10.3390/su13147564>
3. Alrub, Y. A., & Sánchez-Cañizares, S. M. (2025). Dynamic capabilities and digital transformation: Toward strategic planning in the digital age: Evidence from Palestine. *Administrative Sciences*, 15(1), 21. <https://doi.org/10.3390/admsci15010021>
4. Anwar, M., Scheffler, M. A., & Clauss, T. (2022). Digital capabilities, their role in business model innovativeness, and the internationalization of SMEs. *IEEE Transactions on Engineering Management*, 71, 4131–4143. <https://doi.org/10.1109/TEM.2022.3165361>
5. Autio, E., Nambisan, S., Thomas, L. D., & Wright, M. (2018). Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, 12(1), 72–95. <https://doi.org/10.1002/sej.1266>
6. Badran, M. F. (2018). Economic impact of data localization in five selected African countries. *Digital Policy, Regulation and Governance*, 20(4), 337–357. <https://doi.org/10.1108/DPRG-08-2017-0038>
7. Baron, H. (1996). Strengths and limitations of ipsative measurement. *Journal of Occupational and Organizational Psychology*, 69(1), 49–56. <https://doi.org/10.1111/j.2044-8325.1996.tb00599.x>
8. Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. V. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, 37(2), 471–482. <https://doi.org/10.25300/MISQ/2013/37:2.3>
9. Bunde, A. O. (2024). *The digital platform economy revolution and entrepreneurship ecosystem in Kenya* (SSRN Working Paper No. 4954030). <https://ssrn.com/abstract=4954030>
10. Cassia, F., & Magno, F. (2022). Cross-border e-commerce as a foreign market entry mode among SMEs: The relationship between export capabilities and performance. *Review of International Business and Strategy*, 32(2), 267–283. <https://doi.org/10.1108/RIBS-03-2021-0045>

11. Chander, A., & Lê, U. P. (2021). Data nationalism. *Emory Law Journal*, 68(3), 677–739.
12. Dahmani, M., & Ben Youssef, A. (2023). Unraveling the determinants of platform economy adoption in developing countries: An extended application of the UTAUT2 model with a privacy calculus perspective. *Platforms*, 1(1), 34–52.
<https://doi.org/10.3390/platforms1010004>
13. Dallochio, M., Lambri, M., Sironi, E., & Teti, E. (2024). The role of digitalization in cross-border e-commerce performance of Italian SMEs. *Sustainability*, 16(2), 508.
<https://doi.org/10.3390/su16020508>
14. Das, A. (2023). Developing dynamic digital capabilities in micro-multinationals through platform ecosystems: Assessing the role of trust in algorithmic smart contracts. *Journal of International Entrepreneurship*, 21(2), 157–179. <https://doi.org/10.1007/s10843-022-00327-5>
15. Deloitte. (2023). *Platforms and ecosystems: Enabling the digital economy*.
<https://www.deloitte.com/global/en/issues/work/platforms-and-ecosystems.html>
16. Digital Leadership. (2020). *What is digital maturity, how to measure, tools and models*.
<https://digitalleadership.com/blog/digital-maturity/>
17. Fan, M., Tang, Z., Qalati, S. A., Tajeddini, K., Mao, Q., & Bux, A. (2022). Cross-border e-commerce brand internationalization: An online review evaluation based on Kano model. *Sustainability*, 14(20), 13127. <https://doi.org/10.3390/su142013127>
18. García-Canal, E., & Guillén, M. F. (2025). The international expansion of digital platforms: A dynamic setting for challenging and advancing theories of the multinational enterprise. *BRQ Business Research Quarterly*. <https://doi.org/10.1177/23409444241308820>
19. Gawer, A. (2022). Digital platforms and ecosystems: Remarks on the dominant organizational forms of the digital age. *Innovation*, 24(1), 110–124.
<https://doi.org/10.1080/14479338.2021.2002918>
20. Hao, S., Chen, Z., Wang, C. C., & Hung, C. Y. (2023). Impact of digital service trade barriers and cross-border digital service inputs on economic growth. *Sustainability*, 15(19), 14547.
<https://doi.org/10.3390/su151914547>
21. Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Press.
22. Hein, A., Schreieck, M., Riasanow, T., Setzke, D. S., Wiesche, M., Böhm, M., & Krcmar, H. (2020). Digital platform ecosystems. *Electronic Markets*, 30(1), 87–98.
<https://doi.org/10.1007/s12525-019-00377-4>

23. Hoang, H. (2024). Navigating the digital landscape: An exploration of the relationship between technology-organization-environment factors and digital transformation adoption in SMEs. *Sage Open*, 14(4). <https://doi.org/10.1177/21582440241276198>
24. Jacobides, M. G., Sundararajan, A., & Van Alstyne, M. (2019). *Platforms and ecosystems: Enabling the digital economy* (World Economic Forum White Paper). World Economic Forum.
25. Johanson, J., & Vahlne, J. E. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies*, 40(9), 1411–1431. <https://doi.org/10.1057/jibs.2009.24>
26. JSTOR. (2023). *Global platforms and ecosystems: Implications for international business*. <https://www.jstor.org/stable/48686777>
27. Kalin, R. P. (2024). *Digital trade and data privacy* [Working paper]. Available at SSRN. <https://ssrn.com/abstract=4954030>
28. Khin, S., & Ho, T. C. (2019). Digital technology, digital capability and organizational performance: A mediating role of digital innovation. *International Journal of Innovation Science*, 11(2), 177–195. <https://doi.org/10.1108/IJIS-08-2018-0083>
29. Kim, D., & Cavusgil, E. (2020). Antecedents and outcomes of digital platform risk for international new ventures' internationalization. *Journal of World Business*, 55(1), 101021. <https://doi.org/10.1016/j.jwb.2019.101021>
30. Kretschmer, T., Leiponen, A., Schilling, M., & Vasudeva, G. (2022). Platform ecosystems as meta-organizations: Implications for platform strategies. *Strategic Management Journal*, 43(3), 405–424. <https://doi.org/10.1002/smj.3250>
31. Li, W., & Zhang, M. (2024). Digital transformation, absorptive capacity and enterprise ESG performance: A case study of strategic emerging industries. *Sustainability*, 16(12), 5018. <https://doi.org/10.3390/su16125018>
32. Liu, Y., Zhang, J. Z., Jasimuddin, S., & Babai, M. Z. (2024). Exploring servitization and digital transformation of manufacturing enterprises: Evidence from an industrial internet platform in China. *International Journal of Production Research*, 62(8), 2812–2831. <https://doi.org/10.1080/00207543.2023.2166140>
33. Luo, Y., & Bu, J. (2018). Contextualizing international strategy by emerging market firms: A composition-based approach. *Journal of World Business*, 53(3), 337–355. <https://doi.org/10.1016/j.jwb.2018.01.003>

34. Ma, Y. (2024). *Essays on internationalization in modern capitalism: The issues of knowledge intensity, Chinese MNEs, digitalization, and foreign market entry strategies* [Doctoral dissertation]. Available at institutional repository.
35. Meade, A. W. (2004). Psychometric problems and issues involved with creating and using ipsative measures for selection. *Journal of Occupational and Organizational Psychology*, 77(4), 531–552. <https://doi.org/10.1348/0963179042596504>
36. Meyer, K. E., Li, J., & Brouthers, K. D. (2023). International business in the digital age: Global strategies in a world of national institutions. *Journal of International Business Studies*, 54(4), 577–598. <https://doi.org/10.1057/s41267-022-00558-8>
37. Mirzaye, S., & Mohiuddin, M. (2025). Digital transformation in international trade: Opportunities, challenges, and policy implications. *Journal of Risk and Financial Management*, 18(8), 421. <https://doi.org/10.3390/jrfm18080421>
38. Monaghan, S., Tippmann, E., & Coviello, N. (2020). Born digitals: Thoughts on their internationalization and a research agenda. *Journal of International Business Studies*, 51(1), 11–22. <https://doi.org/10.1057/s41267-019-00290-0>
39. Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029–1055. <https://doi.org/10.1111/etap.12254>
40. Nambisan, S., Zahra, S. A., & Luo, Y. (2019). Global platforms and ecosystems: Implications for international business theories. *Journal of International Business Studies*, 50(9), 1464–1486. <https://doi.org/10.1057/s41267-019-00262-4>
41. Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Sciences Education*, 15(5), 625–632. <https://doi.org/10.1007/s10459-010-9222-y>
42. OECD. (2021). *The digital transformation of SMEs*. OECD Publishing. <https://doi.org/10.1787/bdb9256a-en>
43. OECD. (2023). *The nature, evolution and potential implications of data localisation measures*. OECD Trade Policy Papers. <https://doi.org/10.1787/ece9e2a6-en>
44. OECD. (2024). *Cross-border data flows and digital trade*. <https://www.oecd.org/en/topics/sub-issues/cross-border-data-flows.html>
45. Putritamara, J. A., Hartono, B., Toiba, H., Utami, H. N., Rahman, M. S., & Masyithoh, D. (2023). Do dynamic capabilities and digital transformation improve business resilience during the COVID-19 pandemic? Insights from beekeeping MSMEs in Indonesia. *Sustainability*, 15(3), 1760. <https://doi.org/10.3390/su15031760>

46. Rosyidah, U., Sudarmiatin, S., & Sumarsono, H. (2023). Digitalization and internationalization of SMEs: A systematic literature review. *Journal of Enterprise and Development*, 5(3), 479–499. <https://doi.org/10.20414/jed.v5i3.7514>
47. Samsuden, N. S., Kohar, U. H., Khatib, S. F., & Abbas, A. F. (2024). Digital capabilities and business performance: A systematic literature review. *Sustainability*, 16(24). <https://doi.org/10.3390/su162410615>
48. Sato, A. (2022). Revisiting the concepts of liability of foreignness and liability of outsidership in foreign subsidiary management perspectives. *Vestnik of Saint Petersburg University. Management*, 21(1). <https://doi.org/10.21638/11701/spbu08.2022.101>
49. Setia, P., Deng, K., Pandey, S., & Sambamurthy, V. (2024). Digital strategies for engendering resilient, adaptive, and entrepreneurial agility: A configurational perspective. *Information Systems Frontiers*. <https://doi.org/10.1007/s10796-024-10471-8>
50. Shaposhnykov, K., Filyppova, S., Krylov, D., Ozarko, K., Yudin, M., & Biliaze, O. (2023). Innovative development of enterprises in the context of digital transformations of the institutional environment of the national economy. *Management Theory and Studies for Rural Business and Infrastructure Development*, 45(3), 233–241. <https://doi.org/10.15544/mts.2023.24>
51. Šilenskytė, A., & Smale, A. (2021). Multilevel theorizing in international business: The case of research on strategy implementation in MNCs. *Critical Perspectives on International Business*, 17(4), 502–521. <https://doi.org/10.1108/cpoib-03-2019-0025>
52. Singh, S. K., & El-Kassar, A. N. (2019). Role of big data analytics in developing sustainable capabilities. *Journal of Cleaner Production*, 213, 1264–1273. <https://doi.org/10.1016/j.jclepro.2018.12.199>
53. Sullivan, G. M., & Artino, A. R. (2013). Analyzing and interpreting data from Likert-type scales. *Journal of Graduate Medical Education*, 5(4), 541–542. <https://doi.org/10.4300/JGME-5-4-18>
54. Teece, D. J. (2014). The foundations of enterprise performance: Dynamic and ordinary capabilities in an (economic) theory of firms. *Academy of Management Perspectives*, 28(4), 328–352. <https://doi.org/10.5465/amp.2013.0116>
55. Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, 58(4), 13–35. <https://doi.org/10.1525/cmr.2016.58.4.13>

56. UNCTAD. (2023). *Digital economy report 2023*. United Nations Conference on Trade and Development. <https://unctad.org/topic/ecommerce-and-digital-economy/digital-economy-report>
57. Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
58. Vial, G. (2021). Understanding digital transformation: A review and a research agenda. In T. Hess (Ed.), *Managing digital transformation* (pp. 13–66). Routledge.
59. Warner, K. S., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), 326–349. <https://doi.org/10.1016/j.lrp.2018.12.001>
60. World Bank. (2022). *A global study on digital capabilities*. <https://documents1.worldbank.org/curated/en/959181623060169420/pdf/A-Global-Study-on-Digital-Capabilities.pdf>
61. WTO. (2023). *World trade report 2023: Re-globalization for a secure, inclusive and sustainable future*. World Trade Organization. https://www.wto.org/english/res_e/publications_e/wtr23_e.htm
62. Yan, M., & Liu, H. (2024). The impact of digital trade barriers on technological innovation efficiency and sustainable development. *Sustainability*, 16(12), 5169. <https://doi.org/10.3390/su16125169>
63. Yang, F., Wang, Y., & Whang, U. (2024). Trade restrictions on digital services and the impact on manufacturing exports. *The Journal of International Trade & Economic Development*, 33(4), 523–550. <https://doi.org/10.1080/09638199.2023.2271096>
64. Yang, Y., Chen, N., & Chen, H. (2023). The digital platform, enterprise digital transformation, and enterprise performance of cross-border e-commerce. *Journal of Theoretical and Applied Electronic Commerce Research*, 18(2), 777–794. <https://doi.org/10.3390/jtaer18020040>
65. Yordanova, D., Dana, L. P., Manolova, T. S., & Pergelova, A. (2024). Digital technologies and the internationalization of small and medium-sized enterprises. *Sustainability*, 16(7), 2660. <https://doi.org/10.3390/su16072660>
66. Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27(2), 185–203. <https://doi.org/10.5465/amr.2002.6587995>

67. Zahra, S. A., Petricevic, O., & Luo, Y. (2022). Toward an action-based view of dynamic capabilities for international business. *Journal of International Business Studies*, 53(4), 583–600. <https://doi.org/10.1057/s41267-021-00487-2>
68. Zelenyte, D. (2025). *Organizational performance through dynamic capabilities in digital business transformation: A systematic literature review* [Manuscript submitted for publication].

APPENDICES

QUESTIONNAIRE FOR EMPIRICAL RESEARCH Adopting Digital Technologies for International Expansion

Purpose of the instrument.

This questionnaire is designed to empirically test the proposed research model, which explains how Digital Technology Adoption influences International Expansion Outcomes, both directly and indirectly through Organizational Digital Capabilities, and how this relationship is conditioned by Institutional Restrictiveness and Platform Integration/Strategic Positioning.

Target respondents.

The questionnaire is intended for owners, founders, CEOs, export/international sales managers, digital transformation managers, e-commerce managers, operations/logistics managers, or other employees who are sufficiently familiar with the firm's digital tools and international business activities.

Recommended level of analysis.

The respondent should answer from the perspective of the firm or the business unit in which they work. If the company operates in several foreign markets, the answers should reflect the firm's overall international activity.

Recommended response scale

Code	Meaning
1	Strongly disagree
2	Disagree
3	Neither agree nor disagree
4	Agree
5	Strongly agree
N/A	Not applicable / I do not know

Constructs and hypotheses covered by the questionnaire

Hypothesis	Relationship to be tested	Questionnaire constructs	Expected effect
H1	Digital Technology Adoption → International Expansion Outcomes	DTA; IEO	Positive direct effect
H2	Digital Technology Adoption → Organizational Digital Capabilities → International Expansion Outcomes	DTA; ODC; IEO	Mediating effect
H2a	Digital Technology Adoption → Organizational Digital Capabilities	DTA; ODC	Positive relationship
H2b	Organizational Digital Capabilities → International Expansion Outcomes	ODC; IEO	Positive relationship
H2c	Digital Technology Adoption → Organizational Digital Capabilities → International Expansion Outcomes	DTA; ODC; IEO	Positive indirect effect
H3	Institutional Restrictiveness moderates Digital Technology Adoption → International Expansion Outcomes	DTA; IR; IEO	Negative moderation: the effect is weaker when IR is high

Hypothesis	Relationship to be tested	Questionnaire constructs	Expected effect
H4	Platform Integration / Strategic Positioning moderates Organizational Digital Capabilities → International Expansion Outcomes	ODC; PI; IEO	Positive moderation: the effect is stronger when PI is high

Questionnaire text for respondents

Dear respondent,

You are invited to participate in a study on how firms adopt digital technologies for international expansion. The questionnaire asks about your company's use of digital tools, organizational digital capabilities, platform integration, institutional/regulatory constraints, and international expansion outcomes. There are no right or wrong answers. Please answer based on the current situation at your company. Your answers will be used only for academic purposes and will be analyzed in an aggregated form.

Approximate completion time: 8–12 minutes.

Section A. Screening and company profile

Code	Question	Response options
A1	Does your company currently sell, export, provide services, or operate in foreign markets?	Single choice: Yes No Preparing to do so within the next 12 months
A2	Does your company use digital tools to support sales, operations, customer communication, payments, logistics, or data analysis?	Single choice: Yes No I do not know
A3	Your position in the company	Owner/founder; CEO/top manager; export/international sales manager; digital/e-commerce manager; operations/logistics manager; IT/digital transformation specialist; Other
A4	How long have you worked in this company?	Less than 1 year; 1–3 years; 4–6 years; 7–10 years; more than 10 years
A5	Company size by number of employees	1–9; 10–49; 50–249; 250 or more
A6	Company age	Less than 3 years; 3–5 years; 6–10 years; 11–20 years; more than 20 years
A7	Main industry	Manufacturing; trade/retail; ICT/digital services;

Code	Question	Response options
		logistics; professional services; creative industries; other
A8	Main business model	B2B; B2C; B2B and B2C; platform-based; other
A9	Approximate share of revenue from foreign markets	0%; 1–10%; 11–25%; 26–50%; more than 50%; I do not know
A10	Number of foreign markets currently served	0; 1; 2–3; 4–5; 6–10; more than 10
A11	Main internationalization mode	Direct export; cross-border e-commerce; marketplace/platform sales; foreign distributor/agent; foreign subsidiary/branch; digital service delivery; other
A12	Company's main foreign market region	EU/EEA; United Kingdom; North America; Asia; Middle East; Africa; multiple regions; not applicable

Section B. Digital Technology Adoption (DTA)

Please indicate the extent to which you agree with each statement about your company's use of digital technologies.

Code	Statement rated on a 1–5 scale
DTA1	Our company actively uses digital platforms or online marketplaces to reach customers in foreign markets.
DTA2	Our company uses e-commerce systems, websites, or online sales channels to support international sales.
DTA3	Our company uses digital payment systems that facilitate transactions with foreign customers or partners.
DTA4	Our company uses cloud-based tools, ERP, CRM, and other digital systems to coordinate international business activities.
DTA5	Our company uses logistics, fulfillment, or customs-related digital tools to support cross-border operations.

Code	Statement rated on a 1–5 scale
DTA6	Our company uses data analytics to understand foreign customers, market trends, or international sales performance.
DTA7	Digital technologies are integrated across several functional areas of our company, not just marketing or sales.
DTA8	Our company continuously invests in upgrading digital tools used for international business activities.

Statement	Strongly disagree	Disagree	Nor agree, nor disagree	Agree	Strongly agree

Section C. Organizational Digital Capabilities (ODC)

Please indicate the extent to which you agree with each statement about your company's digital capabilities, learning routines, and ability to use digital tools strategically.

Code	Statement rated on a 1–5 scale
ODC1	Our employees have sufficient digital skills to use the technologies required for international business activities.
ODC2	Our company can identify foreign market opportunities using digital information, analytics, and online customer data.
ODC3	Our company quickly adapts products, services, prices, or communication to the needs of foreign markets using digital information.
ODC4	Different departments in our company cooperate effectively when implementing digital solutions for international business.
ODC5	Our company learns from digital platforms, online customer feedback, and sales data when making internationalization decisions.
ODC6	Our company can reconfigure internal processes when new digital technologies become important for international expansion.
ODC7	Managers in our company understand how digital technologies can support international growth.
ODC8	Our company provides training and learning opportunities related to digital tools and international business.
ODC9	Our company can combine technological resources with human expertise when entering or developing foreign markets.
ODC10	Digital knowledge gained from partners, platforms, customers, or service providers is effectively shared inside the company.

Section D. Institutional Restrictiveness (IR)

Please indicate the extent to which institutional, regulatory, or administrative conditions restrict your company's digital international activities.

Code	Statement rated on a 1–5 scale
IR1	Differences in data protection or privacy regulations make our international digital activities more difficult.
IR2	Data localization requirements or restrictions on cross-border data flows create barriers for our company.
IR3	Different electronic transaction, digital signature, or documentation rules complicate our international operations.

Code	Statement rated on a 1–5 scale
IR4	Cross-border payment regulations, banking requirements, or currency-related procedures restrict our international business.
IR5	Customs, taxation, or import/export rules are difficult to manage through digital channels.
IR6	Regulatory uncertainty increases the cost or risk of using digital technologies in foreign markets.
IR7	Our company must substantially adapt its digital systems and processes to comply with rules in different countries.
IR8	Institutional or regulatory barriers reduce the benefits that digital technologies could provide for our international expansion.

Section E. Platform Integration / Strategic Positioning (PI) **Likert scale**

Please answer these statements if your company uses digital platforms, marketplaces, ecosystem partners, or platform-based services. If not applicable, choose N/A.

Statement	Strongly disagree	disagree	Nor agree nor disagree	Agree	Strongly agree	Not applicable

Code	Statement rated on a 1–5 scale
PI1	Our company uses platform services such as payments, logistics, advertising, analytics, or customer support in an integrated way.
PI2	Our products or services are well adapted to the rules, standards, and technical requirements of the platforms we use.
PI3	Our company actively manages visibility, rankings, reviews, or algorithmic positioning on digital platforms.
PI4	Our company receives useful market intelligence from platform analytics or platform-generated customer data.
PI5	Our company has access to platform-based tools that help us improve international sales performance.
PI6	Our company cooperates with platform partners, payment providers, logistics providers, and digital service providers to improve performance in foreign markets.
PI7	Our company can negotiate or strategically manage platform-related costs, fees, and dependency risks.
PI8	Platform integration strengthens the effect of our internal digital capabilities on international expansion results.

Section F. International Expansion Outcomes (IEO)

Please indicate the extent to which the following statements describe the international expansion outcomes of your company.

Code	Statement rated on a 1–5 scale
IEO1	Digital technologies have helped our company enter foreign markets faster.
IEO2	Digital technologies have helped our company reach more foreign customers.
IEO3	Digital technologies have helped our company expand into more foreign markets or regions.
IEO4	Digital technologies have increased the share of revenue generated from foreign markets.
IEO5	Digital technologies have improved the efficiency of our international sales, communication, or operations.

Code	Statement rated on a 1–5 scale
IEO6	Digital technologies have improved our ability to adapt to different foreign market conditions.
IEO7	Digital technologies have strengthened our company's competitive position in international markets.
IEO8	Overall, digital technology adoption has contributed to the sustainable international growth of our company.

Section G. Optional open-ended questions

Code	Open-ended question
G1	Which digital technologies have been most important for your company's international expansion? Please explain briefly.
G2	What are the main obstacles that limit the benefits of digital technologies in foreign markets?
G3	What additional digital capabilities would your company need to expand internationally more effectively?