

Leveraging Digital Technologies to Support the International Expansion of Small and Medium-Sized Enterprises

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ABSTRACT

Digitalization is becoming increasingly vital for business growth, driving both structural and strategic changes within companies. For small and medium-sized enterprises (SMEs), digital technologies open up new avenues for entering and thriving in international markets. This paper explores how existing literature has recognized the influence of digital technologies on SMEs' internationalization. It provides a detailed review of five recent and highly relevant academic studies. The insights are summarized through key takeaways that demonstrate how SMEs can leverage digital tools to enhance their performance in global markets. This work builds on previous studies addressing the shift in international trade prompted by digital advancements and offers a fresh viewpoint on current research related to firms' internationalization. Finally, it outlines future research opportunities for scholars aiming to integrate digital elements into traditional internationalization theories

INTRODUCTION

Organizations and societies are experiencing numerous transformative changes, all within the context of intricate economic systems. As a result, businesses need a clear understanding of the various dynamic factors and interactions at play (Tiessen et al., 2001). The rise of digital technologies is giving way to a new societal paradigm marked by disruptive innovations that are shaping the path of future development. This shift is driven by the integration of new technologies driven by data, including big data, artificial intelligence, and the Internet of Things. Digitalization is prompting profound changes in organizational structures, operational procedures and administrative methods, and employees dynamics. For example, by lowering operational expenses and improving collaboration within key network players like stakeholders such as clients, collaborators, vendors, and channel partners emerging digital tools are becoming increasingly vital to business growth (A. R. Reuber et al., 2014) and (WITTKOP et al., 2013).

The integration of digital tools has increasingly become a topic of interest in academic research, particularly within the domains of business creation and organizational leadership (Stallkamp & Schotter, 2021). Despite the long-standing influence of technological advancements on international research, only a limited number of studies have explored emerging digital technologies in depth both through both conceptual and data-driven lenses within the realm of international business management (Zahra et al., 2003). This study develops on the work of (Criado et al., 2005) to explore how technological innovations influence the global expansion processes of small and medium businesses. It involves a detailed examination of five significant academic articles. Drawing on perspectives from international business (IB) and international entrepreneurship (IE) literature, the research identifies four key areas of activity that entrepreneurs prioritize when engaging in international markets: costs, accessibility, resources and capabilities; market knowledge; geographic distance and location; and relational skills and partnership networks. The goal of this study is to synthesize the core findings from the selected papers and emphasize how digital technologies affect these four areas. Ultimately, the research seeks to enhance the understanding of how digital tools can create new entrepreneurial opportunities in global markets, contributing to the development of theoretical frameworks at the intersection of IB and entrepreneurship (Porter & Heppelmann, 2015).

By incorporating emerging digital technologies into their value chains and effectively managing large volumes of data, companies can unlock new opportunities and adopt innovative strategies to connect with potential customers, enabling immediate global presence. Overall, digitalization influences the internationalization of firms by enhancing access to resources, facilitating the development of skills and capabilities, and supporting learning and knowledge acquisition in overseas markets (Watson et al., 2018). Moreover, elements like location decisions, entry strategies, and the timing and speed of expansion are also shaped through the application of digital technologies. In spite of the growing influence of digital environments, existing concepts and frameworks of internationalization have not been adequately adjusted to reflect

the new opportunities and difficulties they present. This is particularly evident in (Ruzzier et al., 2006) phase model, which advocates for a gradual approach to international expansion—an idea that contrasts with today's increasingly "borderless" digital landscape (Sinkovics et al., 2013). These evolving dynamics have sparked scholarly discussions around how digitalization reshapes international business, forming the basis for this study (Welch & Paavilainen-Mäntymäki, 2013). Drawing from international business (IB), international entrepreneurship (IE), digital entrepreneurship, and information systems literature, this paper offers a synthesis of how digital technologies influence the internationalization of SMEs. It concludes with a discussion of the findings and proposes directions for future research, aligning with recent calls for more investigation into international business within digital environments (Autio et al., 2014)

LITERATURE REVIEW

Globalization of Businesses

The topic of firm internationalization has long been of interest to various academic disciplines and has been extensively explored over the years. Traditional international business (IB) theories have proposed several approaches to internationalization, most of which have primarily focused on large enterprises. One such approach, the step-by-step model, views global expansion as a step-by-step and progressive process (Nummela et al., 2006). This approach emphasizes that firms build knowledge over time through experience, which is considered the most valuable asset for operating in global markets. In the Uppsala framework, developed by the same researchers, both general and experiential market insights along alongside resource dedication, are identified as key drivers influencing decisions to enter and expand in international markets (Nummela et al., 2006).

While multiple international business (IB) theories have existed side by side for decades, the stage model has encountered in the literature considerable criticism, and its universal applicability has increasingly been questioned by scholars (Strange & Zucchella, 2017). In contrast to the step by step approach it proposes, many researchers have explored different approaches to internationalization trajectories (Oviatt & McDougall-Covin, 2005). The rise of entrepreneurial firms with ambitions for rapid international expansion has further encouraged the development of more suitable internationalization models, particularly for small and medium businesses..

The focus on small and medium businesses in academic research highlights their critical impact on global industries. This has led to the emergence of a new research stream at the crossroads of international business and theories of entrepreneurship, at present referred to as international entrepreneurship (IE). IE specifically examines small, young firms that expand internationally either since their beginning or shortly after launching (Tanev et al., 2015). While both multinational corporations and small firms manage their international activities in similar ways (Ojala et al., 2018), the effects of globalization are particularly pronounced for SMEs, often more so than for larger firms (Sebastian et al., 2017). Additionally, small firms, being more adept by means of technology and more

responsive to innovation, are able to actively engage in global company and advantage from international commerce, even with fewer starting resources (Bejjani et al., 2023).

Given that these companies find methods to rapidly reach their global goals, the international entrepreneurship method proves to be more suited than traditional international business (IB) theories. However, despite the rapid growth of this emerging field, the conceptual basis of international entrepreneurship are still partially disjointed and overly broadly applicable (Aagaard, 2019). One of the key challenges is the absence of a unified conceptual framework, which has led to IE research being heavily influenced by concepts derived based on traditional international business frameworks (Hannibal & Knight, 2018).

Digital Integration in Organizations

To clarify the rise of Digital innovations, This study draws on Autio's perspectives (Kraus et al., 2019). The initial wave began During the early 2000s, accompanied by the advent Pertaining to Web 2.0 tools. The next major developments included the launch Including mobile platforms (such as iPhone and Android), cloud-based services, machine learning methods, and large-scale data technologies. Data underpins all of these advancements, making the collection and analysis of data more accessible for creating user-focused and Intellectual capital-based offerings. Tools like artificial intelligence are now leveraged to refine both manufacturing and delivery systems, and to boost decision-making to enter new markets, reach customers more precisely, and choose suitable collaborators, optimize promotional approaches, set improved pricing, and predict consumer need (Coviello & McAuley, 1999). 3-D printing has moreover emerged as a key development in production, enabling businesses to transform production and improve tailor products to fulfill the needs of final users. An additional significant tech-related breakthrough refers to the Internet of Things, which integrates sensors into intelligent gadgets and tools, allowing them to collect and process data and communicate among themselves (Kriz & Welch, 2018). Ultimately, blockchain technology offers fresh prospects, with its a decentralized ledger that logs transactions between parties in a safe and open, and verifiable method, eliminating the need for third parties (Mathews et al., 2016).

Recent technological advancements have made advanced data processing and storage capabilities extensively accessible. The broad embracing these technologies has created a commercial landscape that fosters new opportunities. From one perspective, it enhances exchanges between persons, while on the flip side, it creates avenues for improving value generation. To capitalize on these opportunities and leverage available tools, businesses are required to experience transformations throughout their whole operations (Nambisan, 2017). Furthermore, since digital technologies assist various aspects of a company from creation and production to sales, promotion, distribution, and assistance they also drive transformative changes within the value process (Brouthers et al., 2015). (Coviello et al., 2017) identified two stages in the change process: transitioning to digital. The first stage takes place at the operational stage, where

businesses standardize procedures and optimize activities via the adoption of technologies and software. The second stage involves adopting tech based solutions to design, aim at, and customize different products, in the end creating a fresh value offering. Therefore, a company goes digital by taking advantage of the chance to reshape its business model and operations.

Digital Internationalization

From the late 1990s onward, online sales have introduced an innovative model of internationalization. By eliminating boundaries and lowering expenses, online retail has essentially transformed enterprise operations (Bharadwaj et al., 2013). Selling internationally via online platforms has become a key market strategy, especially for small and medium businesses. Often operating with limited resources, SMEs have become more agile in targeting markets and expanding their networks as a result of internationalization. Research conducted by (Nummela et al., 2006) highlighted that emerging electronic technologies have democratized worldwide consumption, opened access to vast databases for acquiring understanding of international markets, enhanced interaction and data sharing, and enabled international transactions by boosting intangible exchanges and minimizing reliance on place. These tools are driving companies to make production decisions with greater focus on customer closeness instead of focusing on production costs (Knight & Liesch, 2016).

METHODOLOGY

Data Collection

This analysis provides a thorough overview of the pertinent literature and combines essential findings regarding how digital technologies influence the global expansion process of established small and medium-sized enterprises. There has been limited research regarding the incorporation of purely digital technologies into the global expansion process of established small businesses. As a result, due to a fragmented and lack of research foundation, a structured approach could not be implemented. The small number of articles that met our guidelines guided the data collection to follow a more traditionally structured review process.

The review of literature was constrained by certain elements. Initially, we conducted the inquiry using SAGE Journals, Google Scholar, and Ulysses databases, primarily accessing articles out of academic publishing houses such as Emerald, Springer, and Elsevier. Given the emerging nature of the topic, it wasn't feasible to restrict our study of scholarly articles alone. Consequently, we included conference papers in our investigation. The search initially focused on the terms "internationalization" and "digitalization," but these did not provide enough results for further exploration. As a result, we broadened the search to include additional topics and key terms like "internationalization theory," "international entrepreneurship," "digital internationalization," "digital technologies," "digital entrepreneurship," and "digital transformation." The inquiry was confined to research articles published in English between 2016 and 2018. In conclusion, we merely included papers that employed the term "digitalization" in the context of Utilizing exclusively digital technologies.

Data Analysis

After identifying the relevant articles, we performed a thorough analysis and comparison. Once the analysis was complete, we selected five articles that provided more structured review articles and included most of the arguments identified in other studies. The lack of systematic studies may be attributed to the novelty of the field. Therefore, our selection of these five papers enabled us to implement a more structured method in synthesizing the main takeaways. Furthermore, we found that the five research papers complemented mutually by offering unique perspectives on specific insights.

Each study was examined according to its Theoretical framework: Conceptual framework, theoretical structure, academic framework. Initially, every study was examined at a general extent to identify broad trends. Despite the varying analytical perspectives across studies, the synthesis presented here is structured around four key areas of activity pertaining to the primary criteria for internationalization. These include: costs: expenses, expenditures, charges, fees and competencies; market knowledge: Industry insight, market understanding, market awareness, business intelligence; and relational competencies and collaborative networks.

RESULTS

Expenses, Availability, Assets, and Capabilities

(J. Baldegger & Schueffel, 2009) acknowledge that digitalization positively impacts companies by helping them manage possible risks stemming from extra expenses due to foreign business activities (challenges of operating in foreign markets). The researchers argue that tech-related advancements have also led to the dematerialization of supply and manufacturing pathways, which enables firms to reduce costs of conducting business abroad. To instance, the application of the Internet of Things is expected to change how geographically dispersed value chains are managed, helping firms lower expenses associated with global manufacturing (Iansiti & Lakhani, 2017). Additionally, (Gankema et al., 2000) suggest that small businesses operating internationally can greatly lower asset requirements and location-specific costs by leveraging digital tools. Since commercial activities can be managed remotely, SMEs in global markets, can create alternative revenue streams without requiring significant capital. Other benefits of digitalization include improved resource allocation across multiple markets, efficiency gains in transactions, and more efficient decision-making procedures.

On the global stage, SMEs need to uphold a distinctive benefit of sets them apart from local competitors. To accomplish this, they can focus on enhancing the appeal of their entry approach by focusing on niche markets and providing cutting-edge, top tier products . Another approach is to partner with local distributors who are already well established into an extensive connections. By lowering operational expenses and enhancing conveyance of information and collaboration with all stakeholders within the ecosystem, encompassing customers, partners, suppliers, and distributors, digital technologies create fresh possibilities for skill collaboration, open innovation, joint creation, and partnerships among businesses (Keupp & Gassmann, 2009).

Market Knowledge

Phased model theories have highlighted that a firm's internationalization speed is largely influenced through its capacity to gain new insights into foreign markets. A key change driven by the rise of online exchanges is the capacity to gather and share extensive amounts of data (Vahlne & Johanson, 2017). Having the capacity to directly engage with customers, companies are able to gain deeper insights into client requirements and tailor the services they offer and offerings. Additionally, by improving machine-to-machine and machine-to-human interactions, IoT enables product personalization. Moreover, 3-D printers give clients more control regarding the design of their products and the origins of their production (Lu & Beamish, 2001). These innovations help companies more effectively address the needs of conclusion -users, providing them with valuable experiential knowledge.

(Hervé et al., 2016) proposed that by integrating Lean Entrepreneurship principles with digital tools such as big data and analytics, businesses can accelerate market experimentation across multiple countries. This approach allows businesses to evaluate products and services with prospective customers, regardless of their location (Wellman, 1970). Through these trials and the insights acquired, businesses learn how to improve their performance by engaging directly with consumers and customizing their offerings more effectively (Matt et al., 2015). As a result, firms can regularly release updated variations of their products and services (Foscht et al., 2006). To enhance their international presence, firms leverage responses and reviews posted on user platforms or social media, which have grown in popularity with the rise of digital technologies. Sharing ideas on these platforms is crucial for adapting to markets, as it helps businesses anticipate marketing needs and implement more targeted promotional and searching for potential clients efforts (Nambisan, 2017). By interacting in collaboration with user communities, small and medium-sized enterprise can increase in agile in responding to required adjustments, ultimately improving their pace and marketing outcomes.

Newly developed digital technologies primarily rely on the availability of both in house and external data (R. Reuber et al., 2018). The gathering of vast amounts of data whether from Social or business networks, or marketplace intelligence provides valuable insights for businesses, helping to reduce information imbalances across borders (A. R. Reuber et al., 2014). This data is able to be analyzed using forecasting algorithms to evaluate a business's present state and the potential appeal of future markets (Vahlne & Johanson, 2017). The process of decision-making is further enhanced through advanced data analysis methods, like machine learning. Utilizing AI and statistical methods, this innovation enables companies to simulate and analyze the data they collect for planning decision-making. The use of market knowledge, along with the engagement of user communities and new accessible data sources, highlights the market-driven strategies employed by many SMEs.

Distance and Location

The impact of digitization in relation to geographical distance and location is primarily seen through the fading of physical boundaries and the rapid pace of global expansion processes. Companies are able to now operate their global business activities conducted digitally, reducing perceived distances and expanding their target markets. Moreover, these activities are increasingly motivated by business digital connections and online user groups are reshaping the global distribution and organization of manufacturing, encouraging firms to prioritize proximity to customers over manufacturing expenses (Autio & Zander, 2016) argue that digitalization enhances the portability of company-specific assets, enabling small businesses with global operations to reduce their reliance at the site -dependent assets in both home and host countries (Strange & Zucchella, 2017) SMEs are frequently encouraged to take advantage of the swift entry into global markets facilitated through the process of digital transformation, these trailblazing firms create fresh avenues for handling their operations virtually, enabling them to expand into additional markets without increasing resources by, for instance, externalizing place dependent resources. (Tanev et al., 2015) introduced an additional challenge concerning geography and proximity. They pointed out that SMEs face new challenges when entering foreign markets, referred to as "liabilities of outsidership." This concept highlights that firms entering new markets often have limited connections with local businesses, making them outsiders. By leveraging emerging digital technologies, firms can overcome this liability by creating and managing a network of users through digital platforms, thereby generating value and building connections.

Although platforms can be easily replicated across countries, transferring their user bases is more challenging. As a result, small firms must quickly attain a sufficient number of users to build a foothold in international markets (Tanev et al., 2015). A small user base does not promote further interactions, making market entry more difficult. Additionally, since platform costs often surpass the anticipated profits, the pace of growth can be considerably hindered. To address these companies need to effectively engage potential users to embrace and engage with their platform, quickly building a extensive user base (Tanev et al., 2015).

Interpersonal Skills and Collaboration Networks

Markets represent primarily connections of relationships that businesses establish in collaboration with their distributors, suppliers, and clients. As time progresses, internationalization models have highlighted the significance of developing and connecting networks globally. However, the digital environment challenges the core principles of network theory, requiring a basic reassessment of how we understand connections in international commerce (Tiessen et al., 2001).

First, The quantity of market players engaging as both vendors and consumers is increasing (Tiessen et al., 2001). This enables SMEs to incorporate customers into their network and establish immediate connections alongside them. Specifically, (Vahlne & Johanson, 2017) suggested that companies are now able to engage clients as key sources of data and product feedback, and even as

local producers. They emphasized that the connection between businesses and consumers is undergoing significant modifications and being reshaped in various forms. Secondly, markets can be now instantaneous, temporary, and focused on particular transactions (Tiessen et al., 2001). This results in it harder to form enduring relationships with participants incorporated into any given system. As digital tools increase the frequency short, interconnected engagements, the speed of these exchanges also rises, allowing firms to accelerate their market adaptation and simultaneously access several new foreign markets (Tiessen et al., 2001). Lastly, the increased use in the digital space has facilitated the development of a vast, online worldwide "market" for commerce, encompassing economic and social dealings, along with exchanges of both physical and non-physical products (Tiessen et al., 2001). This has expanded market reach and improved access to local market actors and partners.

Small firms should also focus on expanding their user communities across multiple countries, while continuously utilizing local social platforms and mass communication channels (Watson et al., 2018). (Watson et al., 2018) further recommended partnering with influential figures and catalysts for change in international markets. These prominent individuals can act as significant catalysts within social media and user communities globally, helping to rapidly increase a company's visibility and build its online reputation, thus enabling small firms to internationalize more quickly.

DISCUSSION

This study integrates two studies areas to explore their connections and connections. Our analysis initially revealed a disconnect among current internationalization frameworks and the real-world settings where SMEs function. By incorporating research on digitalization, we identified numerous unexplored business opportunities for companies to successfully engage in global commerce. These results reinforced the necessity of addressing. The technological aspect within conventional theories of international expansion and enabled us to emphasize the key impacts related to digital tools on the operations of small businesses in foreign markets.

International trade is evolving and accelerating the pace of digital transformation. Our findings emphasize the changing nature of the present, continuously shifting global environment. SMEs are now instantly connected worldwide, often without the need for specialized assets or established corporate networks. Below represent some of the key effects :

"They pose a threat to large companies by distributing their expertise through vast networks of business owners".

"Cost of transactions are notably lowered".

"Channels for communication, distribution, and manufacturing are virtualized.

Markets represent digital, immediate, and increasingly rivalrous".

"Geographical distances are nearly eliminated, enabling partner networks to play a dominant role in trade negotiations between countries".

"Sellers and buyers can connect directly, irrespective of geographical or temporal differences".

"Buyers are directly involved in the processes of growth and global expansion".

"The rise of online communities and social platforms enable companies to experiment with and adjust their solutions for domestic markets and, in certain instances, to expand their activities".

Digitalization has eliminated numerous cross-border obstacles, enabling larger SMEs to participate in global industries and function like small-scale multinational companies. However, the challenges of intrinsic uncertainty (Welch & Paavilainen-Mäntymäki, 2013), as well as the requirement to account for the complexity and interconnections in the internationalization process grow complexities for business founders and directly influence the business oriented competencies required in international markets. Our study highlights that business owners and executives are strongly motivated to efficiently combine their organizational strengths and skills, deliberately establish themselves as market participants, and proactively lead their possess continuous digital innovation. In today's world, technology significantly effects firms by transforming not just their processes, products, and value propositions, but also enhancing their customer interactions. Additionally, It aids various structural and tactical elements, helping businesses overcome internal barriers. On a tactical level, emerging technological innovations influence the organization and management of the full value chain. They can establish crucial systems and information sources that assist businesses in immediately identifying stakeholders, recruiting skills and engaging opinion Decision makers or catalysts for change. Our findings suggest that digitalizing business operations may require redesigning a firm's business framework to unlock fresh prospects for international expansion, generating value and building customer relationships. For instance, digitalization enables a "servitization" shift in certain businesses, where they complement their initial product offerings with additional services, thus providing broader support to customers (WITTKOP et al., 2013).

Several critical factors come into play when determining the global expansion potential of an SME's business model. One of these key factors is a business model tailored for B2C, created to achieve sufficient scale, paired through user involvement and a cooperative approach. Digitalization will also transform production, transportation, and logistics patterns. (Zahra et al., 2003) highlighted "de-globalized" manufacturing and other strategic prospects tied to diversification. For instance, the utilization of 3D printers enables companies to position their manufacturing sites nearer to customers, which enhances customization and reduces transportation and logistics costs. Our research challenges the traditional notion of the "international" aspect of global trade. Instantaneous entry to foreign industries is now a the actual situation, and based on our results suggest, nascent digital technologies are starting to play an increasingly significant function.

CONCLUSIONS AND RECOMMENDATIONS

In the context of growing digital innovation, our report adds regarding the literature by offering a fresh viewpoint on current research regarding companies expanding internationally. It provides a thorough examination of five academic papers focused on understanding the evolving nature of international trade driven through global digital technologies. From a management perspective standpoint, our study tackled digitalization issues at both the structural and strategic levels within firms. We are of the opinion that the merging of globalization and digitalization highlights the necessity for business executives and decision-makers to reconsider their approaches. Since we are still in the early stages of the digital age, significant chances are yet to be fully realized. Nevertheless, many managers at present lack a deep understanding of the history and trends of digitalization. If they are able to swiftly master and incorporate digital tools into their global expansion processes, managers can benefit in various ways. The sooner a company recognizes the advantages of leveraging digital technologies, the quicker it can enhance its decision process and speed up its global expansion efforts

An additional intriguing direction for investigation in digital globalization within the framework of developing economies. As global interconnectedness increases, research on internationalization frameworks ought to give greater focus on emerging markets, where numerous niche markets are quickly developing, largely driven by digitization and its “leapfrog” possibility. For the first time ever, emerging markets now represent more than half of global trade movements, with South-South commerce between nations being the fastest-growing form of exchange. Given this, there are many untapped areas for exploration in internationalization research, particularly concerning digital transformation, researchers ought to concentrate on collecting factual data and adapting their methods to reflect the real-world conditions in practice. Upcoming studies on digital transformation should aim to develop innovative theoretical frameworks that are more aligned with the present global trade landscape, rather than relying on the structures typically discovered in existing research.

FURTHER STUDY

Given these conditions, future studies should concentrate on utilizing both numerical and descriptive data to substantiate examine the impact of digitalization on global expansion processes. This data would be instrumental in understanding how the adoption of digital innovations influences globalization models and approaches. The research currently lacks empirical research on the risks associated with digitalization in international trade. While our study concluded that digital tools positively impact international expansion, the limitations of digitalization present a potential area for future exploration. Risks related to digital-driven global expansion, including greater price demands, heightened international competition, digital crime, and inadequate international legal safeguards, remain largely unexplored. Regarding legal safeguards, emerging institutional frameworks and norms are expected to likely arise to manage the increasing interconnectedness and complexity of the digital environment, and companies will also encounter emerging obstacles to entry and compliance-related compliance requirements from public authorities .

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