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Evolution of Digitalization and Internationalization Literature: A Bibliometric and Content Analysis for Future Research Agenda

Full paper

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Abstract: Digitalization and internationalization have an important role in the growth of enterprises, especially small and medium enterprises (SMEs). Despite considerable attention to this topic in the literature, there is a need to synthesize and categorize diverse contributions to obtain a deeper understanding of how digitalization and internationalization have developed. This article aims to provide a holistic picture of the topic as a basis for future research and debate. A bibliometric analysis technique was used to analyse 246 publications in IB research to present a contextual picture of digitalization and a subsequent front analysis was conducted to supplement these findings. The way in which literature has evolved is divided into five phases: initiation, IT boom, turbulence, international relations, and evolution. Four major clusters were identified as: competitive advantage; business growth and market expansion; evolution and innovation; and theory building through case studies & research. Perspectives for future research are also provided.

Keywords: Digitalization; Internationalization; Bibliometric Analysis; Digital; Content Analysis

1. Introduction

Reis et al. (2020) define digitalization as the use of digital technologies and data/information to replace/transform business processes, improve business, create revenues, and create an environment for business, whereas Li et al. (2017) argue that digitalization describes how information and digital technologies can alter existing business processes. The first step towards digitalization is ensuring all information is converted into a digital format. Once completed, this digital format can be used to advantage by reaching a wider audience. For business this is important as it means restructuring or modifying their business model in order to exploit advances in technology

and create new business opportunities. In our modern world this has implications for all businesses if they wish to retain a competitive edge as it is the way businesses and consumers will operate in work today. As Herve, Schmitt and Baldegger (2020) state, using digital technologies (such as social media, mobile phones and multimedia, for example) also provides opportunities for businesses, especially SMEs, to achieve their goals for reaching foreign markets despite having limited resources compared to larger companies (Knight & Liesch, 2016). Internationalization can be defined simply as exporting to foreign markets and this has become a strategy that is facilitated by being able to sell products online (Gabrielsson & Gabrielsson, 2011). Being able to access information about markets using the internet has enabled businesses to facilitate their marketing approaches, their communications and their transactions across borders (Coviello et al, 2017).

Lopez-Morales (2020) states that it is not possible to provide one definition of internationalization but concludes that it is a process that involves the economic benefits of entering foreign markets. There are, however, conflicting views on the impact of digitalization on internationalization. Theories in the literature have often focused on large companies and the so-called stage model, where a company's market knowledge is gradually developed over time and where such experience is at the basis of all international interactions (Johanson & Vahlne, 1977). There has also been a focus on relationship approaches (Anderson et al., 1994; Morgan & Hunt, 1994), although this may limit the range of international transactions, given that too much emphasis may be placed on specific markets. It is undeniable that digitalization has changed the way that businesses approach internationalization as the internet has provided a platform for reaching a wide range of markets very quickly. This is especially so with so-called born digital companies, which set up their digital processes at the outset (Vadana et al, 2019), but can also be applied to more mature digital companies which developed their digitalized value chain at a later date (Nambisan, 2017; Wentrup, 2016).

Some scholars are wary of digitalization's benefits to internationalization due to its hazards. McKinsey (2020) notes that digital connectivity, or being so dependent on digital technologies, might make international enterprises more interdependent, so if a shock occurs, such as a financial crisis, it can spread quickly and affect everyone. As information becomes more accessible online, high-tech organizations are more susceptible to data breaches and cyber-attacks, which can damage their reputation and customer trust (Kshetri, 2005; World Bank, 2016). Research has shown that corporate leaders' risk-taking may hinder digital technology implementation and slow internationalization (Xu et al, 2020).

Despite numerous studies on this subject, digitalization's impact on internationalization remains still unclear in the literature. For example, Eduardsen (2018) found that while organizations using the internet for transactions were more likely to increase sales, these sales were more limited in the markets they reached. The effectiveness of digital technologies in business (micro to medium companies) largely depends on the corporate

behaviour/orientation of firms and of self-efficacy of the staff (Hervé et al, 2022). With SMEs there may be more caution on the part of owners, bearing in mind the risks of sharing information online, cybercrime, lack of protections and competitiveness (Hervé et al, 2020). Trying to gain a competitive advantage through embracing digital technologies may pressurise some companies into considering this is the way to reach global markets (Reis et al, 2018), but they may be unaware of the implications, as literature on how digitalization impacts internationalization is a relatively new research area. Yet authors are aware that digitalization is now seen as a condition for international competitiveness (Ghobakhloo, 2020; Kutnjak, 2019). The literature further suggests there are pros and cons depending on the type of business, ownership, goals, and products or services. Manyika et al. (2016) report that there may be more opportunities for companies using digital technologies but there are more challenges related to intensification of competition. Furthermore, several studies (e.g. Strange et al, 2022) have pointed out the role of **some contextual factors, such as a firm's size, product type, ownership or objectives, on the impact of digitalization on internationalization of organizations and these can have positive impacts in some cases and negative impact in other cases**. In the literature we can also see that studies relate to the existence of a causality (mostly within a particular sector, country or region), between digitalization and business performance of enterprises, especially SMEs, and internationalization and business performance of enterprises, especially SMEs. Previous studies (Welch & Luostarinen 1988, Vahlne & Johanson 2017, and Knight 2008) show a lack of analysis on the evolution and determining factors that may connect digitalization and internationalization. In investigating evolution, it is important to note that the theoretical approach of internationalisation and digitization research remains ongoing, and the millions of examples and subdimensions associated with them make it nearly impossible to propose a comprehensive list of all possible factors and metrics that can be used in research (Bergamaschi et al.,2021).

One of the rare available studies on this topic is the one by Bergamaschi et al. (2021) who analysed 68 papers on international business and management and, combining qualitative and quantitative methodology, identified four key stages of the debate: (a) how interaction between digitalization and internationalization has an impact on aspects within an organization (1996–2004), (b) how digitalization can change perspectives on the risks and returns that internationalization may offer (2005–2009), (c) how the advances being made in digital technologies provide different strategies for internationalization (2010–2014), and (d) how digitalization and internationalization can impact on aspects within an organization (2015–2019).

While scholars have made significant progress in categorizing research on the interplay between digitalization, internationalization, and diverse fields and disciplines, there remains a conspicuous gap in comprehending the underlying rationales and trends that have molded these associations in the last two decades. Therefore, the pertinent research question that emerges is: What are the underlying reasons and trends propelling the nexus between digitalization, internationalization, and diverse fields and disciplines in the previous two decades?

Therefore, highlighting emergent or under-researched topics that need additional debate seems necessary. Therefore, the objective of this paper is to conduct a bibliometric analysis which allowing us a better understanding of these ambiguities and clarify any disconnect between positive and negative influences of digitalization on internationalization. To this aim, the first section explains the bibliometric methodology and process of identification of articles. The second section presents the results of different bibliometric analyses (citation, co-citation and content analysis, etc.). Finally, the last section discusses our findings and develops an agenda for future research.

2- Methods

To provide an overview of the relationship between digitalization and internationalization, a bibliometric analysis and content analysis was conducted. Due to the advent of digitalization and internationalization in the 21st century, the selected timeframe for the investigation encompassed the most recent 20 years (2000–2021). A bibliometric analysis was chosen as a quantitative macro analysis that uses academic publications as a source of data (Donthu et al., 2021) to provide an objective evaluation of a specific area or areas (Nerur et al., 2008). Also, a bibliometric analysis has gained significant attention and popularity among scholars in many academic fields, especially in the last decade with the e-book revolution. Donthu et al. (2021) describe bibliometrics as statistical study of books, journals, and other publications. De Moya-Anegon et al. (2007) say this method accurately measures the scientific community's impact on individual or collective publications. According to Ferreira et al. (2014), this study helps researchers identify key areas for academic and practical effect by providing a greater understanding of field trends. It also identifies influential authors and works (Nerur et al., 2008). Using a bibliometrics method adopted by previous literature (e.g. Montecchi et al., 2021; Casprini et al., 2020; Donthu et al., 2021), this paper aims to synthesize and categorize existing knowledge on digitalization and internationalization, expand our comprehension, show how literature on digitalization and internationalization has evolved, and identify different possibilities in terms of impact between the two concepts. Furthermore, content analysis enables an investigation of a text's views and the relationship between its numerous components.

2.1 Sample database creation

Scopus database was chosen to find the relevant articles, since it had a wider variety of publications than ISI Web of Science (Casprini et al., 2020). Articles which contained "Digitization," "Digitalization," and "Internationalization" in their title or abstract were selected. As recommended by some authors (Lu, 2020), secondary keywords like "foreign markets," "international business," and "international markets" were added to enrich the investigation. We focused on the papers published in the International Business field (IB) from 2000 to 2021 (see Figure 1 for the details of the review procedures applied).

[Please, insert Figure 1 here]

2.2 Analysis process

This review analysed the findings utilizing Microsoft Excel, Vosviewer, and NVivo software and discusses noteworthy outcomes. Vosviewer is a powerful network analysis software that visualizes science dynamics and structures (Van Eck & Waltman, 2010) and was used here for co-citation analysis. First, descriptive statistics was applied to examine the historical distribution of the sample's most-published articles and journals. The journals from which the referred were published were ranked by cited impact score as of 2021. Second, citation analysis was used to highlight literature's most influential works by showing at least five citations. Third, bibliographic content analysis was applied to reveal research topics. Content analysis examines article frequency, emotion, and concept correlations. To do this analysis, textual interpretation and NVivo11 content analysis were used based on the most cited research publications among 246 articles (Armfield et al., 2014, Kim & So, 2022, Kumar et al., 2022). In line with Vakkari and Sormunen, (2004), the abstracts of all papers were examined to identify those that discussed digitization and internationalization. Articles were graded as (A) Relevant, (B) Borderline Relevant, or (C) Irrelevant during reading. Two articles which did not fulfil this research objectives were rejected and in line with Vallaster et al., (2019); Albort-Morant & Ribeiro-Soriano, (2016) the 32 papers with the highest citation score were utilized to identify the most common theories, settings, traits, and procedures.

Fourth, statistical patterns of the keywords based on the most referenced publications showed the most important research area. This helped uncover the contextual factors of digitization and internationalization by comparing historical and present studies. Nvivo allows theoretical structural work for word frequency count and association strength. It can handle complicated and huge datasets with high-layered definite information, generating a structured domain-specific notion. NVivo is a qualitative data analysis programme that may be used to generate word clouds from text data, such as abstracts. Text data is entered into NVivo to form a word cloud, and then the software's text analysis capability is used to identify and extract the most commonly used words or phrases from the text. These words or phrases are then displayed in a cloud-like representation, with the most frequently used words appearing in larger font and more prominently in the cloud. Using the text analysis features of the software, it will locate and extract the most used words (Sadusky et al., 2021). In the sections below, we present the results of different analyses.

3- Results

3.1 Influential Sources and Growth of Publications

A literature profiling was conducted to assess patterns in literature dealing with digitalization and internationalization and to identify their structure. During the period 2000 to 2021, 246 articles were published in 144 journals dealing with digitalization and internationalization. Table 1 shows the top 18 journals from the 144 in which the referred

were published. The impact score for 2021 was highest in the Journal of Strategic Information Systems at 12.45.

[Please insert Table 1 here]

[Please insert Figure 2 here]

Figure 2 shows three articles were published in 2000 and then publications increased every three years. During the years 2015-2021, a more significant number of publications were shown: 26 were published in 2019, 47 in 2020, but there was a decrease of 17 publications in May 2021 when the data was extracted. Over the last two decades, digitalization and internationalization publishing has increased with articles growing by 91%, indicating that scientists are increasingly interested in digitalization and internationalization. With expanding online penetration and smartphones, a constantly expressive generation of millennials is establishing trends on digital stack tactics of collaboration, and the pandemic has changed the global landscape in connection with digital usage.

3.2 Citation Analysis

It is argued that micro-level analysis of the research may be problematic while performing bibliometric research in a specific area (Bornmann & Daniel, 2007). Moreover, standing on the shoulders of giants indicates that any research is rooted in other research. Hence, the bibliometric analysis is conducted considering the relationships of research with other research. Appendix A list citations for publications on digitalization and internationalization research ranked by frequency. As per the data extracted from the 246 publications during 2000–2021, referenced articles must have been cited at least ten times. Considering this research subject is still developing, Horváth and Szabó has the most citations (100). This article explores the drivers and limitations of Industry 4.0 and claims that multinational corporations have greater prospects than small and medium-sized companies. Due to its relevance to current research trends, high quality or originality, and usefulness as a resource for other researchers, this research is highly cited. Citations and studies cited are two of the most popular bibliometric indicators of an article's quality (Duque Oliva et al., 2006).

Based on citations, the most influential papers can be identified. As mentioned above, Horvath and Szabo's paper tops the list (2019). According to the authors, manufacturing companies face major technological, organizational, and administrative challenges from the Fourth Industrial Revolution. Despite the potential to change management functions, resistance to Industry 4.0 technology might be a major impediment as resistance may be a hurdle for any size organization, and management is key to overcoming it. Multinational companies may have an advantage in terms of resources and access to international markets, but small and medium-sized companies can be more agile and adaptable. The second-most-cited article discusses multinational corporate strategies (MNEs), which must be agile in culturally varied host countries (Shams et al., 2021). Academics and executives are interested in strategic agility since the literature is lacking in this subject. According to the authors, to become an "agile multinational," firms should develop agility

integration in operational areas like IT, supply chain, and production, according to this study. This notion is more suited to large enterprises where flexibility is crucial, as smaller businesses may already have strategic agility due to their faster decision-making processes.

Strange and Zucchella (2017) found that global organizations benefit from innovation strategies. They argue that Industry 4.0 is still in its infancy, but its effects are already affecting competitive landscapes and company strategies in several sectors. Cyber-risks and their effects on privacy are highlighted by the writers, who argue for legislation. The first work to address the effects of new digital technologies on international business theory and practice is this one. It is similar to Stalkamp and Schotter's (2021) thesis on global strategies, which focuses on digital platform-using firms. Social networking is a common theme in articles on relationship building (for example, Ali-Hassan et al., 2015; Eid et al., 2019; Scuotto et al., 2016); Vadana et al., 2019, Watson et al., 2018). Networking is useful for communication, and this can transcend geographical borders. However, whether designed to traverse national borders or whether platform businesses need to build user networks focused on a specific region is a crucial decision. Choices regarding internationalization are affected by many factors, including cultural effects, socioeconomic and privacy factors (Chen et al., 2019; Nam & Kannan, 2020).

Furthermore, Vahlne and Johanson (2017) describe the multinational business enterprise (MBE) as a new type of cross-border organization that is superior to the MNE. The convergence of technological advancements such as virtual reality, augmented reality, digital and social networking platforms and other similar technologies provide new directions and solutions for companies, which has led to the proliferation of small and medium-sized businesses taking advantage of these technologies. Even in developing countries, where they serve as pioneers in the field of digital transformation, small and medium-sized firms are recognized as having the reputation of being the most innovatively minded businesses among commercial establishments. It has been widely recognized that local SMEs can gain advantages from MNE spillover (Del Giudice *et al.*, 2019). Many of the papers focus on SMEs and how they can internationalize (Cassetta *et al.*, 2020; Pergelove *et al.*, 2019), how they can create jobs in developing countries (Chege & Wang, 2020), their utilization of social media marketing (Eid *et al.*, 2019), and whether they are indeed ready for digitalization and internationalization. The effects that digital technologies have had and how they have affected society, along with how internationalization processes are being changed is highlighted by Coviello et al. (2017). Other papers also discuss international entrepreneurship development (Nambisan, 2019) and how internet firms, which sell their services or products online, internationalize (Kotha, Rindova & Rothaermel, 2001).

3.3 Content Analysis

Based on the 32 most cited articles a content analysis was carried out (Appendix A). Digitalization and internationalization through Industry 4.0 technologies, the Internet of Things (IoT), strategic agility, big data, and analytics were the most common contexts in

articles. The sampled articles argued that digital technologies are creating a new social dynamic and that disruptive innovations are essential to progress. Digitalization is the convergence of various emerging technologies (big data, artificial intelligence, the IoT, etc.) with data at their center, causing firms to drastically modify their systems, processes, management methods, and personnel (Kreiss & Brennan, 2016). Emerging digital technologies can reduce operating costs and improve ecosystem stakeholder, supplier, and distributor interactions, helping organizations grow.

From the methodological and characteristics point of view, case study methodologies, large-scale surveys, and empirical research emerge as the most critical approaches used for most articles. Based on large, multinational corporations extensively involved in innovative city initiatives, case study techniques were well defined in the 32 articles. Further, large-scale surveys conducted within global IT firms provided more insight into digitization and internationalization. Empirical research studies that focused on SMEs in the technology-intensive industry further elaborated on the constraints of digitization and internationalization. Specifically, through structural equation modeling, the sampled articles critically examine these areas, with a significant focus on economic variables such as investment in communication and IT.

Various salient themes can be drawn upon through examination and synthesis of the theories, contexts, characteristics, and methodologies. The globalization theme is strongly evident in the sampled articles. The process of globalization revolves around bringing cultures, economies, and people from many regions closer together, enabling organizations and enterprises to strengthen their connections with customers and business partners worldwide (Tuhtaboev *et al.*, 2011). Globalization may help consumers just as much as it benefits businesses by providing them with access to transformative developments (Kotarba, 2018). There is a growing recognition that the current stage of economic growth is defined by a revolution in the organization of markets and enterprises (Lee, Falahat, and Sia, 2019). The rise of digital technology and the globalization of the international economy are the two elements driving this revolution. Apart from globalization, and strategic choice, the sampled articles cover a wide range of topics, including telecommunications, the internet, and online shopping. Businesses and society are undergoing major shifts; they function in more complex economic systems. Customers' expectations are being raised because of digitization and globalization, and organizations must be prepared to meet those expectations in a way that exceeds them.

3.4 Phases of Research on Digitalization and Internationalization

The stages and themes were derived through NVivo content analysis and publication patterns in corresponding years. The publishing trends reflect 5 phases in the literature of the previous 20 years and NVivo analysis yielded names. “Initiation phase” (see Fig 3a) represents studies which began to dominate the relevant literature on digitalization and internationalization from 2000 to 2004. This phase is also marked by the emergence of information technology in the digitalization domain. Phase 2 (see Fig 3b) is the “IT boom phase” (the years 2005-2008) and is characterized by a focus on information technology

with a knack for design and development. This phase is aligned with the crash of 2008 which marks the entry of the third phase of turbulence. Phase 3 (see Fig 3c) represents “turbulence” (the year 2009-2013) and is the phase where literature reflects the low and high number (dominantly low) of publications representing information technology with more focus on purpose and development. This phase may be a response to the earlier development in the IT burst and general industry patterns of the post-2008 era. It was when information technology literature began to focus on purpose and development when companies started looking at international markets in terms of new markets for selling their products/services. This focus on global markets also reflects how companies were beginning to engage with their customers using digital technology. Phase 4 (see Fig 3d), “re-emergence” (2014-2018), is dominated by the renewed focus on technology while adding innovation to it. Internationalization takes the centre stage in this phase as well. Currently, phase 5 (see Fig 3e), “digital” (2019-2021), has seen an abrupt rise in the publications focusing on internationalization and digitalization as the dominating theme in the literature. A reconfiguration phase is marked by the emergence of COVID-19 which is reflected in the higher frequency of focus on purpose and implications. Interestingly, the focus on innovation is still high but is reduced compared to digitalization. It may reflect that innovation itself is dependent on, or aligned with, the digitalization processes (Nambisan et al., 2019). The unfiltered word cloud generated by NVivo software based on the textual presence in the relevant phases can be seen in Figures 1 to 5, as used by Mulay et al. (2020) and Zhang et al. (2021).

[Please insert Figure 3 here]

3.5 Co-citation Analysis

As the objective of our paper is to identify the key themes discussed in the internationalisation and digitalisation literature, a co-citation analysis conducted overall 246 articles in which minimum of six times frequency for each reference was required. An in-depth analysis reveals distinct codes in the research material, with digitalization and internationalization being common ideas discussed. In the sections below, we discuss the key themes that emerged from digitalization and internationalization literature clusters.

[Please insert Figure 4 here]

3.5.1 Cluster 1: Digitalization and Internationalization for Competitive Advantage

The articles included in the first cluster examine the relationship between digitalization and internationalization focusing on the impact of technology on international business and how it affects a firm's competitiveness and performance (e.g. Armstrong & Overton, 1977; Gabrielsson & Gabrielsson, 2011; Robinson, 1981; Watson et al., 2018). It is one of the most prominent themes as it contains 14 articles which is the highest number of articles found among the 4 clusters. This cluster discusses the relationship between firm-specific factors and internationalization. (Kotha et al., 2001; Teece et al., 2009) discovered that a company's competitive edge depends on a variety of factors like intangible assets such as internet traffic and reputation might be used to obtain a competitive edge in foreign markets. These resources

can aid businesses in overcoming the obstacles to entry into international markets and help them establish a distinctive position that is challenging for rivals to match. Firms can increase their presence in international markets by engaging in strategic operations including mergers and acquisitions, joint ventures, and strategic alliances. By collaborating with businesses in other countries, internet businesses can gain access to their knowledge, contacts, and resources. These advantages can be leveraged to expand their customer base and gain market share, which will help them become more globally competitive.

While (Barney, 1991; Glavas & Mathews, 2014) suggested that a firm's resources may create a long-lasting competitive advantage by using digitalization to establish distinctive and priceless resources. They found a connection between entrepreneurship and using online tools to gain a competitive edge. Similarly, (Bianchi & Mathews, 2016) discovered that an organization's exporting efforts, which can be a source of competitive advantage, are positively impacted by the Internet. The survey discovered that the Internet offers businesses a fresh and easily accessible platform for connecting with customers worldwide and growing their market. Businesses can become more competitive and get a competitive advantage by using the Internet to reach a larger audience. In alignment with this study, (Yamin & Sinkovics, 2006) found that online internationalization can lead to a reduction of psychic distance, which can be viewed as a competitive advantage. The perceived cultural, institutional, and geographic disparities between a company and its worldwide clients are referred to as psychic distance. Businesses can improve their ability to interact and connect with clients in global markets, thereby reducing psychic distance and boosting their competitiveness. Online internationalization is the process through which a business uses the Internet to expand its operations and activities to other markets. This can involve developing a website with a global audience, utilizing social media to connect with customers worldwide, and engaging in online business with clients in other countries. By utilizing the Internet to reach a wider audience, firms can reduce psychic distance and improve their competitiveness in international markets.

With respect to online internationalization and digital firms, (Hamill, 1997) anticipated that marketing would be significantly impacted by the growth of international trade on the Web. The author recognized the potential for businesses to use the Web to connect with clients around the world, eradicating the conventional obstacles of distance and language. (Madsen & Servais, 1997) found that born global firms play a significant role in the global market. Digitization helps businesses overcome difficulties in foreign markets, boost competitiveness, and reach clients in global markets. Both born-global and born-digital firms can benefit from digitization and internationalization to enhance their ability to reach customers and streamline operations.

Furthermore, (Zaheer & Manrakhan, 2001; Gold et al., 2011) investigated how modern Information and Communication Technologies (ICTs) might alter how businesses decide their activities. They discovered that ICTs, such as the Internet, can lower the expenses of doing business abroad, making it simpler and more affordable for businesses to expand into new areas. Lowering operating expenses and boosting productivity, could improve a company's

competitiveness.

With cost and revenue being considered, (Gabrielsson & Gabrielsson, 2011) found that technological advancements can impact a company's sales channels, including digital channels like e-commerce. They boost competitiveness by allowing companies to target new customers in foreign regions and broaden their reach. Advances in digital technologies offer fresh opportunities for businesses to connect with clients globally.

3.5.2 Cluster 2: Digitalization and Internationalization for Business Growth and Market Expansion

The articles in cluster 2 mainly discuss the impact of digital technologies on international business, entrepreneurship, and global value chains. The articles analyze various aspects of digital technology such as the digital context, additive manufacturing, digital entrepreneurship, global factories, and industry 4.0. They provide a nuanced explanation of the impact of digitalization on internationalization concerning business growth and expansion has been widely discussed by various authors in different fields. Digitalization has a significant impact on the internationalization of business enterprises and the evolution of multinational business enterprises (MBEs). (Coviello et al., 2017) explains that the rise of digital technologies has led to the development of MBEs. Digital technologies offer firms new avenues for cross-border operations, such as e-commerce, digital marketing, and access to global market information. Another study (Hannibal & Knight, 2018) showed the influence of additive manufacturing on global production in the global factory idea. According to the author, the use of digital technologies like the internet and e-commerce by businesses to directly connect customers would allow them to lessen their reliance on middlemen and disrupt traditional supply chains.

The study by (Ojala et al., 2021) showed the growing influence of digitalization on corporate globalization, particularly for digital platform producers. The digitalization of services allows these companies to scale their offerings internationally and enter new markets. The study expands INV (International new ventures) theory to include internationalization of digital platform providers who leverage the network approach, resource dependence theory, and INV theory. This leads to enhanced business growth and market expansion through opening up new international markets and enhancing customer access.

The location and arrangement of operations within global value chains could be greatly disrupted by the broad use of new digital technologies like the Internet of Things, big data and analytics, and robotics (Strange & Zucchella, 2017). They claim that the nature of competition and corporate strategies in many industries are already being impacted by these new technologies. These technologies can lead to new forms of organization and location of activities as they enable more flexible and efficient production processes. This allows firms to take advantage of new value-added opportunities in the global market. Additionally, the strategies for resolving entrepreneurial uncertainty have changed because of digital technologies (Nambisan, 2017). In addition to advocating for explicit theorizing of concepts connected to digital technologies, the author contends that adding a digital technology perspective would improve current entrepreneurial theories. Digitalization can ease

international expansion and expand the number of enterprises in the global market by giving entrepreneurs new tools to overcome uncertainty and control their processes and outcomes.

In another study (Kogut & Zander, 1993) it was stated that the multinational corporations (MNCs) transfer of technology & knowledge is crucial to their internationalization process. The mode is determined by how effectively tacit knowledge is transferred inside a company, with wholly owned operations being favored. Digitalization makes it easier to transmit knowledge and improves a company's ability to enter foreign markets.

According to (Rangan & Sengul, 2009), internationalization has the drawback of higher production costs, but modern Multinational enterprises (MNEs) are adapting digital technology to reduce these costs and improve coordination. The study (Chen & Kamal, 2016) found that digital technology adoption can significantly impact firm internationalization by reducing coordination costs and enabling greater market reach and growth. Another study, (Banalieva & Dhanaraj, 2019) studied how digitalization affects internalization theory's assumptions about firm-specific assets (FSAs) and governance decisions in cross-border transactions along with the internationalization of digital service multinational corporations (SMNCs). The study concluded that as a result of FSAs being more intangible, less proprietary, and transferable due to digitization, organizations' decisions about corporate governance in international business are impacted.

Digitalization impacts international business growth and market expansion by altering the competitive advantages of places, firms, and governance structure of international business networks. The OLI (ownership, location, and internalization) aspects of the eclectic paradigm are now dynamic due to the new structures and processes that the information age has brought about, reflecting changes in the global corporate environment (Alcácer et al., 2016). The co-citation analysis demonstrates that digitalization has a significant impact on internationalization. This impact includes the potential to disrupt global value chains, changes in business strategies, cost estimates, and governance structures of international business networks, as well as the movement of knowledge and production across borders.

3.5.3 Cluster 3: Digitalization and Internationalization for Evolution and Innovation

The 7 articles in cluster 3 are all related to international business, entrepreneurship, and innovation. These articles examine born-global firms that expand into foreign markets and highlight the role of innovative culture and capabilities in their success. This cluster summarizes the evolution of internationalization research and highlights the differences between incremental internationalization and born-global firms. All the articles aim to contribute to the advancement of knowledge in the field of international business, entrepreneurship, and innovation by exploring various aspects and highlighting challenges, gaps, and future directions for research. (Knight and Cavusgil, 2004) claim that born-global companies have been early adopters of internationalization and exhibit superior performance and knowledge in international business before or during their inception. These businesses employ a distinctive mix of orientations and strategies to succeed in a range of international markets, emphasizing the critical significance of a creative culture, domain knowledge, and talent pool in this particular breed of multinational corporations. Furthermore, by studying the

effects of digitalization on international entrepreneurship as well as the opportunities and difficulties it brings, (McDougall & Oviatt, 2015) look at the nexus of international entrepreneurship and innovation. The authors also explore the role of innovation in advancing global entrepreneurship, emphasizing how internationalization and digitalization are reshaping the industry and inspiring the creation of fresh theories and methodologies (Oviatt & McDougall, 1994).

Digitalization has influenced internationalization research's development as well (Knight & Liesch, 2016; Dunning, 1988). The authors highlight the academic respectability that early internationalization and born-global businesses have attained and suggest possible research avenues for the future. There are still many unresolved research questions, such as what happens to born-global firms as they develop and mature over time and why some firms choose to internationalize early while others choose to stay local, in this respect (Cavusgil & Knight, 2015) provided a structure for the concept of initial and swift internationalization among newly faced enterprises.

Finally, (Porter & Heppelmann, 2014) addresses how digitalization has affected competitiveness and how smart, connected items have ushered in a new era of rivalry. This demonstrates how digitalization has affected corporate competition overall as well as internationalization. By reshaping the landscape of internationalization and innovation and encouraging the development of new ideas and practices in the area, the articles show how digitalization has significantly impacted internationalization and its progress.

3.5.4 Cluster 4: Digitalization and Internationalization for Theory Building through Case Studies and Research

Cluster 4 is the smallest of all the clusters, with only four articles. Despite its small size, it cannot be ignored in terms of its significance. The articles included in Cluster 4 pertain to the advancement and progression of theory building via case studies and their impact on the discipline of international business. Digitalization has a significant impact on internationalization, according to several theories and case studies. In one of the studies, (Oviatt et al., 2011) examined the idea of international entrepreneurship, which is the procedure for locating, putting into action, assessing, and utilizing commercial chances abroad. Through their theory, the authors defined the idea of international entrepreneurship and demonstrate how the developments of the digital economy and technology have made it simpler for businesspeople to pursue possibilities abroad. The Uppsala Internationalization Process Model was updated to better reflect the development of utilizing digital technology for internationalization (Johanson & Vahlne, 2009). The writers provided evidence to support the need for new theoretical developments and commercial strategies. They contend that rather than being perceived as a market, the business environment is now seen as a network of relationships, and outsidership within the network is what causes uncertainty rather than psychological distance. The updated model keeps the same change mechanisms as the original, but it also incorporates digital knowledge generation and trust-building to acknowledge the importance of connections in the production of new information.

Case studies and research are essential for developing notions into models and theories. They

produce new insights and understanding of issues and phenomena that arise in the real world, create theories and models that explain the connections between variables and the mechanisms that underlie them, test and improve pre-existing theories and models using empirical data, and serve as a foundation for making predictions and decisions, all of which advance the field of study by fostering the creation of new knowledge. The authors of a study (Eisenhardt & Graebner, 2007) that examined the benefits of case study research in advancing our understanding of digitalization and internationalization update Morgan and Smircich's typology in light of the developments in organizational and management theory over the preceding 30 years. The qualitative research spectrum benefited from the author's contributions. Their findings show that the meta-theoretical perspective provides a platform for creating carefully prepared, convincing, consistent, and trustworthy study narratives for qualitative researchers. Nevertheless, (Eisenhardt, 1989) highlights the significance of performing thorough and meticulous case study research to create theories based on factual data. Through a variety of viewpoints and data sources (research and case studies), these publications highlight the effects of digitalization on internationalization to better understand these intricate phenomena.

4. Discussion and conclusion

Digitalization and internationalization began in the late 1990s when internet commerce adopted a global model (Kawashima, 2020) and since then e-commerce has changed business by eliminating boundaries and lowering expenses (Li et al., 2019). Internet sales for overseas exports have grown significantly as digitalization allows firms of all sizes to sell to customers worldwide. This allows small businesses to compete globally with larger companies as all businesses can now reach new customers by selling worldwide online. Digital technologies have democratized global content and product consumption, allowing companies to operate in other markets based on increased information exchange and cross-border transactions (Nam and Kannan, 2020).

Business and management are more concerned with digitalization and internationalization and the number of studies on these interrelated subjects is increasing rapidly. Research related to digitalization is mostly published in smaller, specialist journals as only 32 journals published articles in the field of strategy for digitalization. Strategy is vital to digitalization, thus the lack of strategy journals producing research related to digitalization and internationalization studies suggest that these may still be in their early phases (Lee et al., 2019). As the quantity of publications has increased, digitalization and internationalization literature is trying to stay up with advances in industry. The literature on digitalization and internationalization suggests that future research should focus on the developing technologies that directly affect markets. Digital technology helps international companies reach new markets and customers and more organizations are internationalizing as they employ digital technology to engage with customers and partners worldwide. We can see how digitalization is enhancing internationalization and is likely to continue to do so as technology advances.

The research question that underlies this discussion is: "What are the underlying reasons and trends propelling the nexus between digitalization, internationalization, and diverse fields and disciplines in the previous two decades?"

To answer this a review of the literature on digitalization and internationalization was implemented which presented a holistic view of the topic and provides more insight into how these disciplines have grown through time, especially in the previous two decades, and this information can be used to inform future research and debate. In a two-step method, literature profiling was employed to examine 246 IB research papers to contextualize digitalization in IB, and citation analysis, content analysis and co-citation analysis were performed to supplement these findings. Digitalization and internationalization literature includes five phases where clusters can be categorised: initiation (2000-2004), IT boom (2005-2008), turbulence (2009-2013), international relations (2014-2018), and evolution (2019-2022). The study also uncovered four significant areas of research on competitive advantage, business growth and market expansion, evolution and innovation, and theory building through case studies & research. It is suggested that more research is needed in marketing, business modeling, and multi-cultural communication in the context of digitalization's impact on internationalization.

Our analysis indicates that digitalization may help smaller businesses reach new markets and customers more easily and cheaply, driving internationalization. Digitalization also offers new ways to produce and deliver value, which can boost competitiveness. It can improve international operations by introducing new communication and collaboration technologies. Digitalization accelerates a company's internationalization by helping it learn about new markets (Clark, Li, & Shepherd, 2018). Data acquisition and transmission are key advances that have accelerated online transactions (Hilmersson & Johanson, 2020). Companies can better understand client demands and personalize their products and services by directly engaging with them (Broccardo, Culasso, & Truant, 2016). Digitalization and internationalization are changing the global economy and developing new business models (Cavasgil & Knight, 2015). Businesses may quickly internationalize by connecting with clients and suppliers worldwide through digitalization as digitalization helps firms automate and cut costs (Banalieva & Dhanarai, 2019).

There is a growing body of research on digitalization and internationalization, but there are still areas which need further research. Early internationalization has gained increasing attention over the last few decades, but the role of technology in facilitating faster internationalization, especially for small and medium-sized enterprises (SMEs) in developing nations has received less attention (Herve, Schmitt, and Baldegger, 2020). Thus, there is a need to provide a model that emphasizes digitalization's moderating influence on international business competencies and SMEs' limited resources making it difficult for them to expand internationally at a precipitous rate. In emerging countries, small and medium-sized business economies face difficulties adapting to digitalization and internationalization, and an appropriate strategy should be established to enable a speedy transition on the global scale. Therefore, future research should discuss the link

between the speed of digitalization and internationalization, then changes in multi-cultural communication and marketing strategies, ever-changing shifts in consumer behavior, and integration of emerging technologies for the post-internationalized firm.

Additionally, there are few specific questions, for instance, how do digital technologies enable or hinder international expansion? What are the most effective ways for businesses to use digital technologies to reach new markets? How does digitalization affect the way businesses operate in different countries? These are a few of the questions that future research on digitalization and internationalization may address. By answering these and other questions, researchers can help businesses better understand how to use digital technologies to achieve their international expansion goals.

5. Limitations

This research provides insights into the evolutionary trajectory of digitalization and internationalization literature through a fusion of bibliometric and content analysis. However, this study also suffers from some limits. First, the focus of this paper was on international business research, which may not fully capture nuances of other fields or interdisciplinary perspectives on digitalization and internationalization. Future research could then be exercised when extrapolating findings to other areas. Second, language bias may be introduced as the research is restricted to English-language publications, excluding research in other languages. Further scholarly endeavors should address these limitations to safeguard the integrity of the research outcomes.

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Appendix

Figure 1: Review of the Methodology

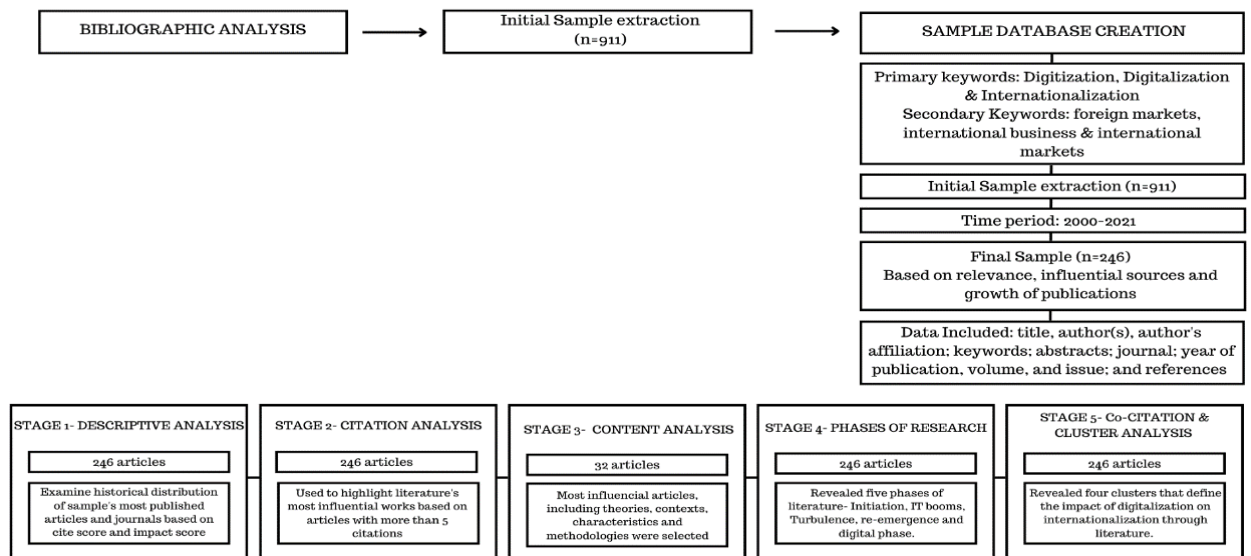


Table 1: Impact of journals by total number of citations (Scopus)

Sources	Citation Year)	Cited ¹ Score	Impact Score 2021	Published in Journal
Journal of Strategic Information Systems	2020	17.4	12.45	1
MIS Quarterly: Management Information Systems	2020	14.7	7.97	1
Journal of International Business Studies	2020	14.2	9.26	3
Journal of Business Venturing	2019	13.3	11.72	1
Strategic Management Journal	2018	12.5	8.24	1
Information and Management	2018	12.3	8.94	2
Journal of Marketing	2017	12.3	9.64	1
International Journal of Production Economics	2015	12.2	8.31	1
Technological Forecasting and Social Change	2015	12.1	9.01	3
Research Policy	2009	11.4	8.29	1
Journal of Information Technology	2003	11.3	6.57	1
Journal of World Business	2015	10.8	8.71	5
Journal of Management Information Systems	2009	10.5	8.32	2
Business Strategy and the Environment	2021	10.3	8.99	1
Journal of Knowledge Management	2021	10.3	9.41	1
Strategic Entrepreneurship Journal	2021	10.2	9.45	1
Family Business Review	2020	9.7	7.38	1
Journal of Business Research	2019	9.2	7.38	6

Figure 2: Number of Publications by Year (Source: Scopus)

¹ Cited Score is a measure of how frequently a publication has been cited by other publications, indicating its impact and influence in the academic community.

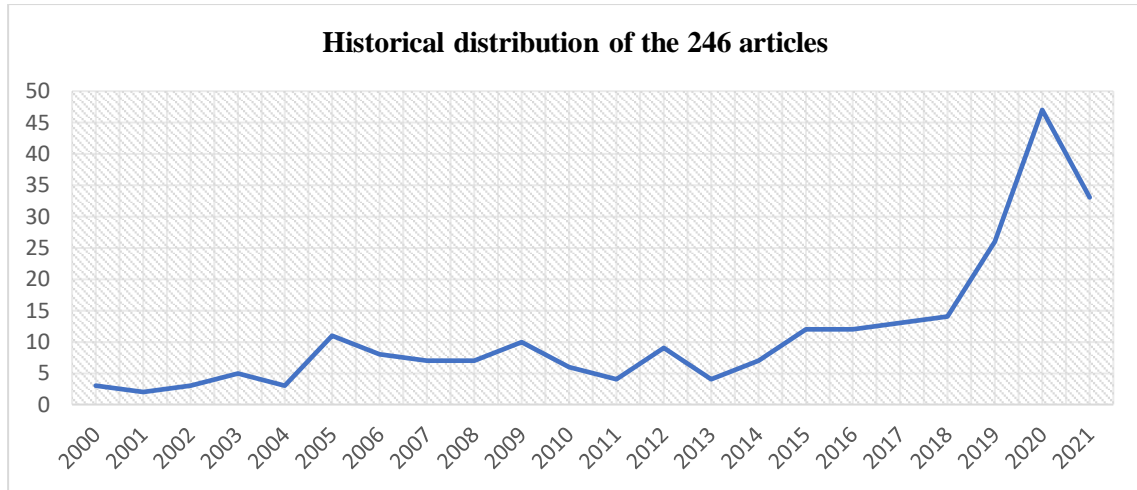


Figure 3: Five phases of research



a) Phase 1 Initiation



b) Phase 2 IT boom



c) Phase 3 Turbulence

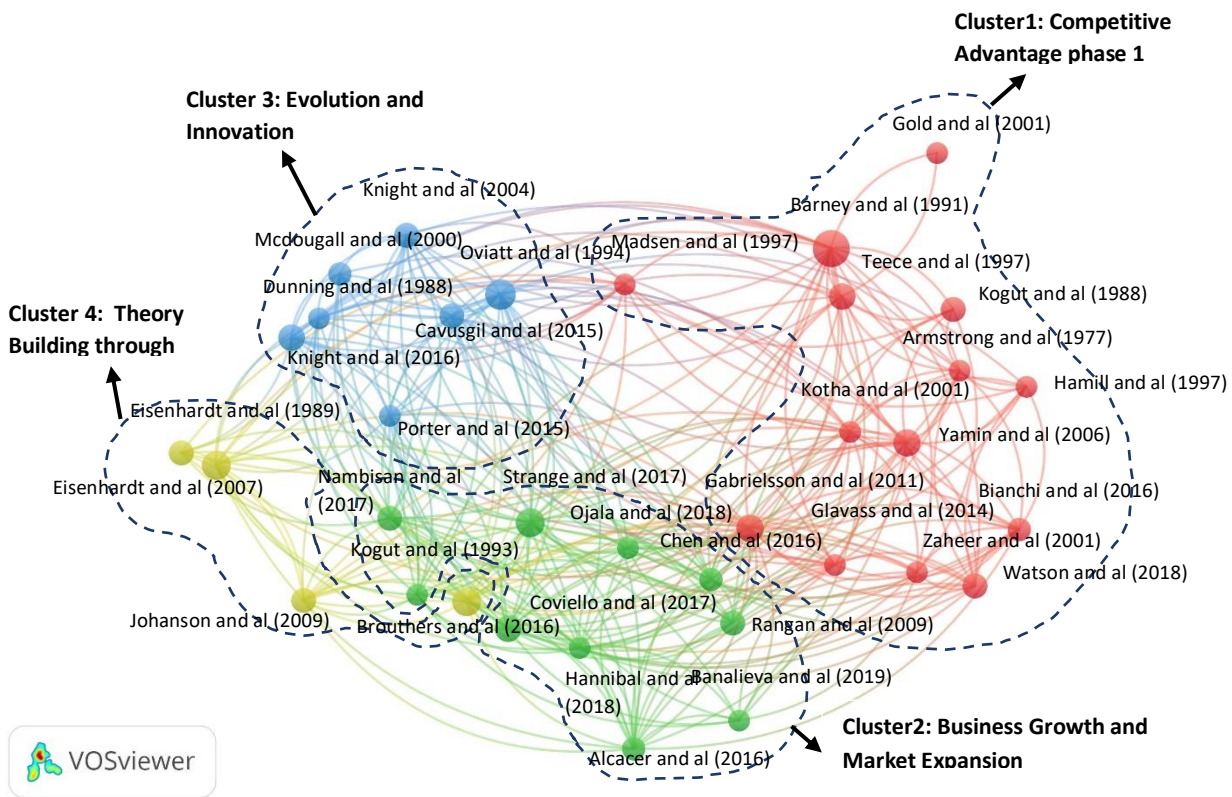


d) Phase 4 International Relations



e) Phase 5 Evolution

Figure 4: Map of bibliographic co-citation analysis



Appendix A

Rank	Authors	Title	Total Cit.	Journal
1	Horváth, & Szabó (2019)	Driving Forces and Barriers of Industry 4.0: Do Multinational and Small and Medium-Sized Companies Have Equal Opportunities?	100	Technological forecasting and social change
2	Shams and al (2021)	Strategic Agility in International Business: A Conceptual Framework for "Agile" Multinationals	55	Journal of International Management
3	Strange & Zucchella, (2017)	Industry 4.0, Global Value Chains and International Business	44	Multinational Business Review
4	Stallkamp & Schotter, (2021)	Platforms Without Borders? The International Strategies of Digital Platform Firms	32	Global Strategy Journal
5	Ali-Hassan and al (2015)	Linking Dimensions of Social Media Use to Job Performance: The Role of Social Capital	32	The Journal of Strategic Information Systems
6	Scuotto and al (2016)	Internet of Things: Applications and Challenges in Smart Cities: A Case Study of IBM Smart City Projects	31	Business Process Management Journal
7	Nambisan and al (2019)	Global Platforms and Ecosystems: Implications for International Business Theories	27	Journal of International Business Studies
8	Kim & Cavusgil (2020)	Antecedents and Outcomes of Digital Platform Risk for International New Ventures' Internationalization	25	Journal of World Business
9	Coviello and al (2017)	Adapting the Uppsala Model to a Modern World: Macro-Context and Micro foundations	25	Journal of International Business Studies
10	Cassetta and al (2020)	The Relationship Between Digital Technologies and Internationalization. Evidence from Italian SMEs	22	Industry and Innovation
11	Del Giudice, M., Scuotto, V., Garcia-Perez, A., and Messeni Petruzzelli, A. (2019)	Shifting Wealth II in the Chinese Economy. The Effect of the Horizontal Technology Spillover for SMEs on International Growth	22	Technological Forecasting and Social Change

Rank	Authors	Title	Total Cit.	Journal
12	Shaheer, N.A. & Li, S. (2019)	The CAGE Around Cyberspace? How Digital Innovations Internationalize in a Virtual World	21	Journal of Business Venturing
13	Banalieva, E.R. and Dhanaraj, C. (2019)	Internalization Theory for the Digital Economy	20	Journal of International Business Studies
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15	Scuotto, V., Del Giudice, M., Peruta, M.R.D., and Tarba, S. (2017)	The Performance Implications of Leveraging Internal Innovation Through Social Media Networks: An Empirical Verification of the Smart Fashion Industry	19	Technological Forecasting and Social Change
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19	Autio, E. (2017)	Strategic Entrepreneurial Internationalization: A Normative Framework	16	Strategic Entrepreneurship Journal
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27	Mazzucchelli, A., Chierici, R., Tortora, D., and Fontana, S. (2021)	Innovation Capability in Geographically Dispersed R&D Teams: The Role of Social Capital and IT Support	11	Journal of Business Research
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