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The Internationalization of Born-Digital Companies

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Introduction

Digital technologies provide businesses increasingly efficient ways to internationalize, by *digitalizing* parts of their value chain (Wentrup 2016). Indeed, a completely new type of company has emerged that bases its business model on the latest web and mobile technologies and the larger phenomenon of digitalization (Brouthers et al. 2016). The arrival of this type of company in almost all sectors of activity was made possible by the development of Web 2.0 (Addison 2006; Bell and Loane 2010; Lee et al. 2008; O'Reilly 2007), after the dot-com bubble (O'Reilly 2004), followed by Web 3.0 (Barassi and Treré 2012; Fuchs et al. 2010; Hendler 2009; Lassila and Hendler 2007). Even given these developments, entrepreneurship in a digitalized context is considered a distinct topic (Brouthers et al. 2016; Nambisan 2017; Wentrup 2016). Building on the research of Nambisan (2017), Wentrup (2016), and Brouthers et al. (2016), we propose that these companies (i.e. technology firms, ibusiness, and online service providers) be termed *born-digital*. However, others have also suggested the reality of born-digitals and that, indirectly, they

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can impact entrepreneurship research. Therefore, we now extend this research to examine entrepreneurship from the international point of view.

Digitalization refers to the use of digital technologies to improve a business model to provide new revenue and value-producing opportunities (Acedo and Jones 2007; Brennen and Kreiss 2014; Li et al. 2009).[1] Based on our assertions and on existing research cited in our literature review, born-digitals are services or manufacturing companies in which most of the inward and outward value chains are digitalized soon after inception. This means that primary activities (inward: e.g. creating and producing; outward: e.g. delivery, marketing and sales, and support) are Internet-enabled (activated or coordinated by Internet applications and technologies). Born-digitals are companies that were digitalized early after foundation or were fully digitalized from day one (e.g. HelloFresh or Global Fashion Group). These companies are characterized by business models that facilitate a higher degree of digitalization, a development which in turn enables easier entry into global markets.[2]

In sum, since digitalization is a developing phenomenon in entrepreneurship (Brouthers et al. 2016; Nambisan 2017; Wentrup 2016), we argue that in addition to being relatively silent on the topic, the information provided by existent literature does not sufficiently describe the role of digitalization of the value chain on internationalization of born-digital companies. Thus, the main research question assessed in this study is: *How can born-digital companies be described based on the role of digitalization of the value chain on internationalization*?

The present exploratory study tackles the novelty of international digital entrepreneurship or internationalization of born-digitals. It is based on secondary literature and highlights the existence of a new phenomenon related to born-digital companies from two perspectives, digitalization of the value chain and degree of internationalization. A conceptual research framework will be used to analyze the selected sample to classify born-digital companies. The contribution of this chapter represents a framework that will guide the analysis.

The literature review, provided in the next section, presents the current research related to digitalization and internationalization, and digitalization of the value chain. Following this, the methodology and the constructs included in the proposed research model are described, and potential relationships

[1] Not to be confused with digitization, which is the process of converting any data into digits (1s and 0s) and represents the first step in realizing the phenomenon of digitalization (Brennen and Kreiss 2014).

[2] However, not all Internet-enabled companies are born-digital firms, because some of them are late in the process of digitalizing their activities. As this term is more holistic, readers may be confused.

among variables are presented. After analyzing the obtained results and examining the findings, the article concludes with a discussion of the implications of the results, the overall contribution of this study, limitations, and potential future avenues of research.

Literature Review

Digitalization and Internationalization

In recent years, the blend of new digital technologies has highlighted the uncertainty in entrepreneurial processes and results, as well as ways of addressing such unpredictability (Nambisan 2017). These technologies include big data and analytics, mobility and pervasive computing, cloud computing, virtual networks, social media, artificial intelligence (AI), and robotics (outlined in Table 10.1).

These advances happened in stages known as Web 2.0 and Web 3.0. Web 2.0 flourished under the Internet's network effects: 'databases that get richer the more people interact with them; applications that are smarter the more people use them; marketing that is driven by user stories and experiences, and applications that interact with each other to form a broader computing plat-

Table 10.1 The utilities of digital technologies

Type of digital technology	Description
Social media platforms	Develop digital patterns
	Trail of user personalities and choices
	Help to know customer better and understand his needs
Cloud computing	Uses the power of networks
	Affordable digital resources
	Makes any company seem big, regardless of size or resources
AI and robotics	Machine learning
	Algorithms learn to understand human behavior
	Suggest next purchase in advance
Big data and analytics	Users are individualized
	Poll of data gathered from web platforms, mobile apps and sensors
	Predict future trends and serve unique customers
Mobility and pervasive computing	Internet of things
	Gathers data from any device more naturally
	Creates big tanks of data

Source: Bell and Loane (2010), Brouthers et al. (2016), Lu and Liu (2015), Nambisan (2017), and Wentrup (2016)

form' (Musser and O'Reilly 2006, p. 3). Although Web 3.0 is still a concept under development, it is essentially viewed as semantic web technologies implemented and powered into large-scale web applications (Hendler 2009; Lassila and Hendler 2007). Overall, these technologies enabled communication and information transparency as well as user collaboration (Addison 2006; Barassi and Treré 2012; Lee et al. 2008), all of which contributed to the rise of Internet-enabled companies (Nambisan 2017; Wentrup 2016). Thanks to these evolutions in web and mobile technologies, born-digital companies are present not only in the information and communications technology (ICT) sector, but in most industrial sectors, not only to software or hardware industries (Bell and Loane 2010; Brouthers et al. 2016).

Various terms are used in the literature, such as *ibusiness* (Brouthers et al. 2016), *high-tech firms* (Almor et al. 2014; Crick and Spence 2005; Li et al. 2012; Zhu and Qian 2015), *digital information goods providers* (Mahnke and Venzin 2003; Wentrup 2016), *e-commerce companies* (Hänninen et al. 2017; Luo et al. 2005; Singh and Kundu 2002), *new technology-based firms* (Bell and Loane 2010; Campos et al. 2009; Mahadevan 2000; Reuber 2016, and *accidental internationalists* (Hennart 2014). And, in general, these are Internet-enabled companies, the operations of which are based online, and which actively develop, produce, and/or commercialize products/services to customers using the web and mobile technologies or other computer-based information system technologies built on the Internet infrastructure.

The arrival of such companies has raised questions, specifically regarding the processes of internationalization. However, the existing studies (Addison 2006; Bell and Loane 2010; Berry and Brock 2004; Freeman et al. 2006; Hamill et al. 2010; O'Reilly 2007) have been restricted to arguing the advantages that digital technologies and the Internet infrastructure provide for overcoming the barriers to internationalization these firms often face (Addison 2006; Arenius et al. 2006; Berry and Brock 2004; Shaw and Darroch 2004; Sinkovics et al. 2013). These studies are based on the traditional classification of internationalizing enterprises, including born-global (low, incremental, and high committers) (Melén and Nordman 2009), born-internationals (Kuivalainen et al. 2007; Kundu and Katz 2003), committed internationalists (Bonaccorsi 1992), international new ventures (Oviatt and McDougall 1994), and micro-multinationals (Dimitratos et al. 2003). The current literature shows previous research typically concentrated on outward processes to determine how firms internationalize, and less on inward ones. The existing literature, therefore, provides only a partial picture of the functions and marketing strategies used by Internet-enabled firms and neglects the potential role of inward processes in enhancing innovation and performance.

According to Luostarinen (1979) and Hernández and Nieto (2015), firms generally internationalize using two types of processes: inward (related to international supply operations) and outward (related to serving or selling in foreign markets). These processes are related to value chain activities: inward to creating and producing, and outward to delivery, marketing, sales, and support.

Digitalization of the Value Chain

The value chain describes the full range of activities that firms perform to bring products or services from conception to end use and after support. To be successful, a company must design a distinctive value proposition to cover the needs of a market niche. In general, a firm gains a competitive advantage from how it configures the value chain, or the set of activities involved in creating, producing, marketing and selling, delivering, and supporting its products or services (Porter and Kramer 2011). Given the fragmentation and dispersion of activities around the globe, management literature has used the terms *global value chain* (Gereffi and Fernandez-Stark 2011) and *global factory* (Buckley 2011; Buckley and Ghauri 2004) when some core activities are located in other countries. We use the definition of *value chain* given by Porter (1991), in which a company's value chain is a system of value-adding activities that connect the supply part of a company to its demand part.

Creating an overview of value chain configuration is therefore an examination of the activities involved. These activities can be grouped according to various criteria, differentiating primary or core activities—creating, producing, delivering, marketing, and selling the product or service—from support activities (Hernández and Pedersen 2017; Porter 1991; Porter and Millar 1985). Core activities are those needed for sustaining profitable operations that are complementary and important for competitive advantage; non-core activities are those that can easily be outsourced (Hernández and Pedersen 2017; Oviatt and McDougall 1994).

The evolution of these activities may depend on industry dynamics and changes in the market, which also determine modifications in the structure of the value chain. Generally, firms retain the core activities they do best in-house, and allocate more resources, time, and effort to these activities (Buckley 2011; Buckley and Strange 2015; Hernández and Nieto 2015; Hernández and Pedersen 2017).

Thus, digital technologies provide online businesses increasingly efficient ways to internationalize by digitalizing parts of their value chain. Such com-

panies tend to be new technology-based firms (Almor et al. 2014; Campos et al. 2009; Li et al. 2012) across different fields of activity and industry (Hagen and Zucchella 2011; Knight and Cavusgil 2004; Nambisan 2017; Power 2014); however, many scholars have found that fast internationalization exists only in highly technologized industries (Li et al. 2009; Luo et al. 2005; Mahnke and Venzin 2003). To survive in a dynamic environment, Internet-enabled companies must adapt very quickly (Bell and Loane 2010) and grow more rapidly than traditional firms (Brouthers et al. 2016; Wentrup 2016).

As mentions before, firms generally go international using inward and outward processes that are related to value chain activities. The extant literature shows previous research typically concentrated on outward processes to determine how firms internationalize, and less on inward ones. Therefore, the literature provides only a partial picture of the functions and marketing strategies used by Internet-enabled firms and neglects the potential role of inward processes in enhancing innovation and performance.

Classification of Born-Digital Companies

We analyze the phenomenon of born-digital companies using a framework that describes the internationalization dimension of these firms, as defined by their online-offline presence (Hennart 2014; Luo et al. 2005; Reuber 2016; Wentrup 2016). Following Lowy and Hood (2004), this was done using a 2×2 matrix for classification of digitalized (Internet-enabled) firms and for finding main patterns among these companies (Berrill and Mannella 2013; Brooksbank 1991).

Figure 10.1 illustrates the classification of born-digital companies across the two dimensions discussed above: degree of digitalization across value

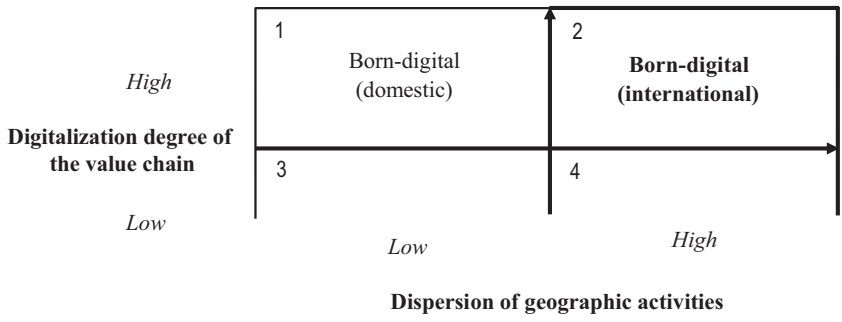

Fig. 10.1 Internationalization aspect of digitalized (Internet-enabled) firms

chain activities and degree of internationalization based on dispersion of geographic activities. To measure 'degree of internationalization,' we proposed a 'dispersion of geographical activities' measure (Brouthers et al. 2016; Li et al. 2012; Luo et al. 2005) as it is suitable for both online retailers who require a physical value chain and companies that have fewer demands for physical presence.

The internationalization dimension is expressed by the horizontal axis and comprises the number of countries in which these firms are most active (with offices), plus the number of localized websites or .com/.other domains in the country's official language(s). The first two quadrants comprise born-digital companies and the next two represent other types of companies, in different stages of digitalization, with domestic or international activities. The figure identifies two types of born-digital firms: born-digitals with more domestic activities and born-digitals with intensive international business. The third and fourth quadrants comprise those companies with a low-digitalized value chain, which have domestic, international, or global activities. According to Fig. 10.1, the more highly digitalized (Internet-enabled) a company is, the higher its degree of internationalization (Ojala and Tyrvainen 2006; Styles and Genua 2008; Su 2013). However, not all born-digital companies have intense international activities, even though they could start to sell to international customers online rather easily from inception.

At one extreme, an absolute online presence means only a digital footprint; for instance, all the value chain activities would be Internet-enabled. At the other extreme, a pure offline presence means that only physical resources, such as staff, are present (Wentrup 2016). In practice, the degrees of online and offline presence may vary over time, leading to asymmetry. Balance results from the nature of the resources that are committed to these two spatial domains (Wentrup 2016). The efficiency of the internationalization strategy overall, together with strong marketing skills and backed up by external funding, allows such ventures to 'bootstrap' into international markets (Bell and Loane 2010). To examine this classification, we applied the matrix in Fig. 10.1 to classify a sample of internationally operating firms.

Methodology

Sample Selection

This study is exploratory, based on secondary online literature. We explore this new phenomenon by describing the internationalization of born-digital companies and creating an initial model based on several variables and on a

sample of firms positioned within the model. Four *shallow*[3] (Loane 2006) exploratory cases were built based on secondary sources (Bell and Loane 2010; Hänninen et al. 2017; Mahnke and Venzin 2003) to test the proposed framework.

The methodology used by *Fortune* magazine to build this list of companies is based on ranking by valuation. The list is based on a combination of data from PitchBook, CB Insights, news reports, and their investigation (Fortune Magazine 2016). The resulting sample comprises a group of 18 firms from a variety of industry sectors. All 18 companies were founded in Europe, but most of them have intensive international activities around the world. These companies are included on the so-called unicorn list, compiled by *Fortune* magazine in 2016. They are called 'unicorns' primarily due to their rapid growth and their market valuations of $1 billion or more; however, this aspect was not considered among the selection criteria.

The firms analyzed in the study are Spotify, Global Fashion Group, Delivery Hero, HelloFresh, Klarna, Adyen, Avito.ru, BlaBlaCar, Skyscanner, Blippar, Oxford Nanopore, Auto1 Group, CureVac, Avast Software, Farfetch, Funding Circle, Home24, and TransferWise (Powa, the 19th company on the list, was excluded because of the financial problems the company is facing). These firms were chosen because they were founded after 2000 (an exception was made for Avast Software), when web technologies evolved into Web 2.0 (Cearley et al. 2005; O'Reilly 2007). Other selection criteria included the sector in which these companies operate and that the firms are well known around the world so that important sources of information can be found online.

The firms and their descriptions are listed in Tables 10.2 and 10.3. Of these cases, four *shallow* (Loane 2006) exploratory cases were built based on secondary sources (Bell and Loane 2010; Hänninen et al. 2017; Mahnke and Venzin 2003). The internationalization year shown in Table 10.2 is the year in which the companies had their first international activities.

Measure Development

The firms were investigated across two dimensions: degree of digitalization and degree of internationalization. The degree of digitalization was evaluated based on the digitalization of the inward and outward (Hernández and Pedersen 2017) components of their value chain: creating, producing, selling,

[3] Are called *shallow* by Loane (2006) cases because are made based on secondary literature such as the World Wide Web (WWW), databases/sites, firm websites, government, and industry reports.

Table 10.2 Firms in the sample

ID	Rank	Company name	Location city	Location country	Industry	Founded	Year of internationalization
1	15.	Spotify	Stockholm	Sweden	Streaming media	2006	2008
2	31.	Global Fashion Group	Luxembourg	Luxembourg	E-commerce	2011	2011
3	35.	Delivery Hero	Berlin	Germany	Food delivery	2011	2012
4	46.	HelloFresh	Berlin	Germany	Food delivery	2011	2012
5	48.	Powa	London	UK	Mobile payments	2007	
6	51.	Klarna	Stockholm	Sweden	Mobile payments	2005	2008
7	54.	Adyen	Amsterdam	The Netherlands	Mobile payments	2006	2009
8	68.	Avito.ru	Moscow	Russia	Online classifieds	2008	2008
9	75.	BlaBlaCar	Paris	France	Transportation	2006	2009
10	79.	Skyscanner	Edinburgh	UK	Flight, hotel search engine	2003	2011
11	82.	Blippar	London	UK	Augmented reality	2011	2012
12	91.	Oxford Nanopore	Oxford	UK	Biotechnology	2005	2009
13	102.	Auto1 Group	Berlin	Germany	E-commerce	2012	2015
14	104.	CureVac	Tübingen	Germany	Biotechnology	2000	2015
15	129.	Avast Software	Prague	Czech Republic	Computer security	1988	2013
16	137.	Farfetch	London	UK	E-commerce	2008	2010
17	138.	Funding Circle	London	UK	Crowdfunding	2010	2013
18	139.	Home24	Berlin	Germany	E-commerce	2012	2012
19	164.	TransferWise	London	UK	Mobile payments	2011	2015

Source: 'The unicorn list,' compiled by *Fortune* magazine in 2016

delivering, and supporting (Porter 1991; Porter and Millar 1985). Our goal was to discover how prevalent a digital basis was in these highly valued companies. Each activity of the value chain was coded with 1 if it was based or coordinated with a web technology or a non-web digital application, or with 0 if not. Subsequently, each firm's value chain was analyzed through this perspective using the information available in the secondary literature. This produced a digitalization scale of 0–5. The degree of internationalization was analyzed in line with the model illustrated in Fig. 10.2. The firms were added to the first two quadrants if the digitalization degree was 4 or greater, and to the last two if the degree was 3 or less.

The internationalization variables were analyzed based on the combined the results of localized websites or .com/.other, targeted country language, and the number of countries in which these companies are most active (besides their home country). Each variable (office or localization) was coded with 1. The highest number resulting from the sum of these two variables was 92 and the lowest was 2. The numbers were then normalized. First, every

Table 10.3 Data analyzed for case comparison

ID	Company name	Total localizations and .com/.other domain with country official language	Number of countries	Total value chain Scale 0-5
1	Spotify	52	18	5
2	Global Fashion Group	24	22	4
3	Delivery Hero	32	21	4
4	HelloFresh	9	9	5
5	Powa	n/a	n/a	n/a
6	Klarna	9	17	5
7	Adyen	3	10	5
8	Avito.ru	1	1	4
9	BlaBlaCar	22	13	4
10	Skyscanner	41	7	5
11	Blippar	6	6	5
12	Oxford Nanopore	1	1	2
13	Auto1 Group	21	21	4
14	CureVac	2	2	1
15	Avast Software	52	5	5
16	Farfetch	84	8	4
17	Funding Circle	5	4	4
18	Home24	9	7	4
19	TransferWise	9	6	5

result was divided by the highest number, resulting in a scale from 0 to 1. Second, these results were multiplied by 5 to create a scale of 0–5, like that used for digitalization. The raw data is provided in Table 10.3 and a sample of the coding results for the selected cases (see sections 'Avito.ru: Domestic Born-Digital,' 'HelloFresh: International Born-Digital,' and 'Oxford Nanopore: Domestic Low-Digitalized Company') across their value chain is listed in Appendix 2.

Analysis and Findings

Figure 10.2 presents the categorization of the sample companies across a 2×2 matrix that distinguishes between the degrees of digitalization and internationalization to classify the companies according to the proposed research model.

The research framework identifies types of born-digital firms in the first three quadrants of the matrix. The first two quadrants in Fig. 10.2 represent the born-digital companies, which tend to have similar businesses. However, this is not a general rule for all the firms analyzed in this chapter. Indeed, some of these firms have intensive international activities, and some of them focus

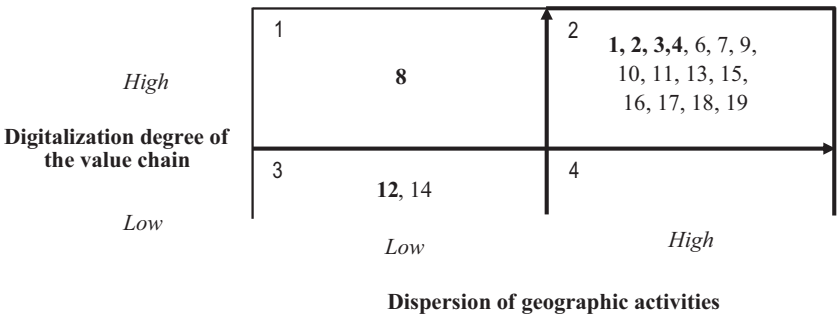

Fig. 10.2 Sample classification of the born-digital companies

more on domestic markets. All the other firms are digital from inception or soon after foundation. The difference between them is the internationalization dimension. All the firms presented in the framework have an Internet-based business model and are born-digital companies. Besides internationalization, another difference lies in the digital distribution of the final product. The first two quadrants represent the companies the value chain of which is digitalized, or at least, all five components of the value chain are coordinated by internet technologies and are conducted online. The last two quadrants are characterized by companies the value chain of which is not digitalized.

Most of the firms analyzed can, in the initial stage of internationalization, fully operate in a market without an offline presence, despite legal compliance and market-specific requirements. The length of the interval between online and offline is dependent on the business model and the sales and distribution channels used. However, as the revenues or number of users grow, even B2C-oriented firms gradually localize their offers and frequently establish an offline presence. According to Wentrup (2016), regardless of how online and digitalized a firm might be initially, the geographical impact and the localization issue become increasingly important as the firm grows. For the same reason, most of the companies establish offices in other countries. Tangible foreign assets in international markets may be used, but are often defined by business offices (UNCTAD 2017) needed more for policy issues or customer support. Furthermore, it is easier to sell ads to local companies and deal with local rights holders or to establish development offices around the world.

To analyze the firms in more detail, we selected companies from each quadrant of the initial sample, namely, Avitor.ru, HelloFresh, and Oxford Nanopore. They were chosen because they differ in the type of service they

provide, their target customers, their size, and their business model. Their similarities and differences should make this sample representative of at least a part of born-digital companies. We selected the cases that can best explain the differences between the matrix cells.

Avito.ru: Domestic Born-Digital

Avito.ru, an online classified ads platform, represents a born-digital company with a value chain that was highly digitalized soon after inception. Its platforms include an online payment system; in addition, it uses online marketing campaigns based on data generated by its users. Most of its services can be delivered from headquarters. Avito.ru has its headquarters in Moscow and operations in only one foreign country. Regarding localized websites and. com/.other web domains with the country's official language(s), this firm scores one website localization with country-targeted language.

HelloFresh: International Born-Digital

HelloFresh is an online platform from which users can order a box with preportioned food ingredients. The company was founded in 2012. It showed growth of 90% over 2015 and closed 2016 with revenue amounting to €894 million. HelloFresh has its headquarters in Berlin and operations in more than nine countries across three continents. Regarding localized websites and .com/.other web domains with the country's official language(s), HelloFresh scores nine website localizations with country-targeted language and one website translation with a .com domain.

Oxford Nanopore: Domestic Low-Digitalized Company

Oxford Nanopore Technologies Limited develops and commercializes nanopore-based electronic systems for analysis of single molecules. Its main locations are the UK and the US.

While the secondary literature lacks detailed information about some of the firm's value chain, social media platforms and mobile apps are used for disseminating company information, organizing special events and conferences, and managing and communicating with the community of scientists all over the world. However, their business model is aligned to the industry and represents a consumer goods company. In general, companies like this spend two

times more on sales and marketing than on R&D. Regarding internationalization, this company scores one website translation and has activities in another foreign country.

Summary of Cases

Born-digital companies go international faster than others, thanks to Internet technologies and the nature of their business model (see Appendix 1). These companies are designed for rapid internationalization from inception (Mäki and Hytti 2008; Saarenketo et al. 2004). According to Hennart (2014), the digitalization of their business model makes them accidental internationalists, with one key element in common—Internet technologies (Bell and Loane 2010; Hagen and Zucchella 2011).

The degree of internationalization of a born-digital company is closely related to the degree of digitalization of its value chain. Thus, to internationalize to a certain scale, these companies must digitalize their value chain. Nevertheless, it is easier to internationalize online via a controlled entry mode (Yamin and Sinkovics 2006). This could mean that a company's online presence might be an 'optical illusion,' so that the firms neglect the complexity of offline business (Wentrup 2016).

Discussion and Conclusions

In this study, we found that 16 of the 18 companies examined digitalized their value chain (inward and outward) from day one or soon thereafter. The two exceptions are the biotechnology firms, Oxford Nanopore and CureVac, which are still on the road to digital business. Thus, born-digital companies are, in general, companies that have undergone that transformation after inception (or did not have the need to). These are opposed to other companies that must, at some point, undergo the process of digital transformation process.

Theoretical Contribution

The contribution of this study is its presentation of a framework that enables classifying born-digital firms when examining their internationalization and value chain activities. By stressing the relevance of a digitalized value chain,

both inward and outward, and internationalization using a balance between online and offline presence, we present a conceptual analysis arguing that born-digital companies are a distinct type of internationalizing firm with an Internet-enabled, inward-outward digitalized value chain from day one or soon after inception.

This research enables classifying companies to explain this new phenomenon of digitalization. Within this framework, four types of companies were described regarding the digitalization of their value chain activities (Porter 1985) and localized websites in the official language of the targeted country. The firm cases show that early digitalization of the value chain, translated into a stronger online presence, followed by a gradual increase of resources dedicated to the offline presence, might represent one solution for sustainable growth for born-digital firms.

We observed that the internationalization process of born-digital companies includes several steps: gradual regional expansion followed by internationalization speed, both of which are supported by Internet technologies. The rapidity of internationalization is best explained by the international venture or born-global phenomenon (Cavusgil and Knight 2015; Madsen and Servais 1997; Oviatt and McDougall 2005), ICT, and Internet-related internationalization theories (Kim 2003; Singh and Kundu 2002; Yamin and Sinkovics 2006); the gradual regional pattern, however, finds support in the Uppsala model (Johanson and Vahlne 1977). Nevertheless, not all born-digital companies operate internationally, although they could sell to international customers online rather easily from day one.

Despite expectations, our research shows that the digitalization of value chain activities is not closely related to the internationalization dimension of born-digital companies. Therefore, the degree of digitalization of the value chain activities does not significantly influence the internalization of born-digital firms. Instead, the business model influences the internationalization of born-digital companies.

Regarding this research, some internationally operating born-digital companies might represent a subset of born-global firms; however, based on Hennart's (2014) work, we might expect the behavior of born-digitals to be determined largely by their business models as well. The novel business models used by digital companies generate revenues from a very early stage (Bell and Loane 2010). These companies are perceived as rapidly internationalizing because of the degree of digitalization integrated into their business model from inception (Brouthers et al. 2016; Wentrup 2016). This could be a topic for further research.

Overall, this study brings a suitable framework to make sense of the spread discussion on digitalization in the context of international entrepreneurship and business. This chapter represents a conclusive work of a new concept defined as *born-digital*. The concept explains a new phenomenon through a new perspective, analyzing the digital value chain activities correlated with internationalization across two dimensions: online and offline activities. The study brings together several concepts that are critical for international business and international entrepreneurship in general; this is an integrative work. Going forward, classification helps to develop the theory by analyzing the internationalization patterns of these companies.

Managerial and Social Implications

This research has several implications for management, such as examples of digitalized business strategies by which traditional companies can go international more efficiently. The internationalization strategies of various types of companies could become important for the future of most companies. These goals recognize that digitalization based on Internet technologies can aid global development by connecting neglected and underserved communities of customers around the world. Companies from almost any industry can use the example of born-digitals as a set of best practices in their own process of digitalization.

We observed that most of the companies we studied organize their business around online platforms; this generally transforms the logic of any industry sector, making transactions between buyers and suppliers easier and more dynamic. Through services provided by digital platforms, digital firms create consumer value. They provide value-adding services, such as loyalty programs, online personal customer support, and a last-mile delivery system; such services can convince customers to focus their purchases on one platform. We also noticed that after a certain point in their growth, these companies can transform their platform into large marketplaces due to the network effects that allow suppliers to handle the actual transaction of goods with consumers on the platform.

Wentrup (2016) claims that the company sample analyzed in his research cannot fully operate in a market without being present offline. Thus, companies are limited in how long or at what size they can operate fully online without needing a physical presence. The importance of offline entry also seems to increase with time (Hennart 2014; Mahnke and Venzin 2003; Reuber 2016; Wentrup 2016). The outcomes of these studies suggest that

born-digitals are more frequently born at home rather than born-global (Hennart 2014). Our sample did not behave differently.

Limitations and Future Research

This exploratory study has several limitations. Its scope is to discover theoretical conceptualizations and empirical findings regarding the internationalization of digitalized companies. However, it should be remembered that available information about the subject is limited. We also acknowledge that other measures may be used to measure the degree of internationalization.

Sample selection represents an important limitation. A case can be made for selection bias, since the firms were selected especially because of their year of inception, activity sectors, and information available online. Market valuation was not a criterion. Also, we could have selected companies founded more recently.

Another potential limitation is the measurement used for the value chain digitalization. This is no trivial matter, since most of the activities are Internet-related and the amount of information available can make it difficult to track where in their value chain the companies have their activities. This is especially true when those activities exist in a digital format.

Future research should further explore corresponding themes. For instance, the born-digital phenomenon has been analyzed through studying large firms; other perspectives are also needed on how the value chain structure and digitalization, country of origin, and the dynamism of the industry may influence the evolution of born-digital companies. Also, future studies could empirically examine the kind of internationalization strategy that born-digital companies use, the role of internationalization strategy on international performance, or the customers' view regarding the companies' international performance.

A worldwide shift marked by technology is changing the balance of information in favor of customers. Digital firms create this shift by collaborating with consumers to not only develop new products and services, but also to enable more effective buyer interactions and optimize the customer experience (Cavusgil and Knight 2015). Digital technologies foretell the next era in both local and international entrepreneurship. This is a time in which the traditional ways and processes of following entrepreneurial opportunities will be increasingly questioned and reworked (Nambisan 2017). These firms represent the beginning of a new era in how internationalization will occur in the years to come.

Appendix 1: Some of the Digitalization Advantages of the Value Chain

Value chain	Description
Creating	Optimized inventory planning based on demand forecasting Data-based preventive asset maintenance Integration with partners in digital ecosystem to optimize service delivery Virtual organizations enabled by mobility and seamless cooperation
Producing	Creates new digital products, services, and offerings Rapid prototyping with customer interaction Integrates products and services into solutions that have digital components Convergence of products enabled by digital technologies
Selling and marketing	Analytics-driven and dynamic customer segmentation or Customer relationship management (CRM) platforms Faster time to market with targeted offerings New earnings (subscription, licensing, credit, 'freemium,' etc.) models
Delivering	Digitalized and automated delivering processes Efficiency of the transportation planning using 'last mile' logistics Coordination between storage, stocks, and delivering
Supporting	Systematic management of customer management services Digital manuals with instructions powered by augmented reality apps Forums, e-chat, Frequently asked questions (FQA), virtual assistant, social media

Source: Data sample

Appendix 2: The Sample Coding of the Results of the Empirical Sample

Value chain	Avito.ru—B2C and B2B	HelloFresh—B2C	Oxford Nanopore
Creating	R&D—technology; relationships with entrepreneurs for eShops	R&D—technology; supplier relationships; taste clustering; hyper-personalization	R&D; supplier relationships; storing and distributing the raw materials, inputs, components, and parts used in the production process
Producing	E-commerce fashion platform (core business) for classified ads and online shops	Food box (core business), recipes, complex web platform; web apps	Nanopore DNA sequencer (core business), the MinION; website; online shop

Value chain	Avito.ru—B2C and B2B	HelloFresh—B2C	Oxford Nanopore
Selling and marketing	Online payment system; online/offline marketing campaigns	Online payment system; online/offline marketing campaigns; ambassador marketing	Online payment system; online/offline marketing (lack of info)
Delivering	Software product. No need of delivery system; services/products can be delivered from headquarters; doesn't help with distribution costs	Operated warehouse facilities; logistics partners; local couriers; own last mile	Logistics partners
Supporting	Online customer care/operated call centers	Online customer care/customer care agents	Online customer care/customer care agents
Business model	Marketplace (fee based); SaaS model	Subscription model	Pharmaceutical products model

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