

Technical, Strategic, and Cultural Bottlenecks of Born-Global-Digital Firms

Sara Fraccastoro
University of Eastern Finland
sara.fraccastoro@uef.fi

Arto Ojala
University of Vaasa
arto.ojala@uwasa.fi

Mika Gabrielsson
University of Eastern Finland
mika.gabrielsson@uef.fi

Abstract

A born-global-digital firm belongs to the group of firms that apply and develop digital technologies to achieve early internationalization. However, there might be different types of bottlenecks related to foreign market entries and the development of digital services affecting those markets that limit such firms' global activities. In this work, we divide these bottlenecks into technical, strategic, and cultural forms. This multi-case study examines the impact of those bottlenecks and how that might be overcome. We provide practical and theoretical alternatives to bypass the impediments created by the bottlenecks.

Keywords: Born-global, digital, technical, strategic, cultural, bottlenecks.

1. Introduction

In the 1990s, the Internet and the information and communication technology (ICT) industry created the infrastructure for a new round of the technological industrial revolution, now known as Industry 4.0 or 4IR (Alden et al., 1999). That 4IR round was triggered by the digitization of data, the evolution of digital ICT infrastructures, and the growth of digital processing and storage (Autio et al., 2018). Globalization is being driven more significantly than ever before by digitization (Luo, 2021). New digital technologies such as mobile networks and smartphones have facilitated small and large companies engaging in international business and quickly expanding into new foreign markets.

Although Industry 4.0 is considerably different from the previous industrial revolutions, the business models and ideas for firms largely come from the industrial age business models (Nambisan, 2017). Further, studies focusing on born globals or born digitals (Monaghan et al., 2019; Ojala et al., 2018) have generally investigated factors and business models enabling rapid growth and internationalization. However, factors that might limit

or delay the international growth of firms have received far less attention (Ojala et al., 2018). For these reasons, this paper focuses on born-global-digital firms, those that have achieved both global and digital status from inception. We examine different types of bottlenecks such firms can encounter in their approach to developing, marketing, and selling their digital services in global markets.

This research aims to illuminate the phenomenon of born-global-digital firms and their internationalization process, as existing research has called for (Monaghan et al., 2019). Specifically, we believe the growing number of born-global-digital firms is worthy of academic investigation because the group is at the forefront of a new breed of firms spawned by the megatrends of the last thirty years: globalization and digitalization. Our approach analyzes the idiosyncratic challenges facing such firms and can offer practical and theoretical solutions that can be leveraged to smooth the process of achieving global expansion goals. Because our study adopts a theoretical and empirical approach to examine the foundational elements of globalization challenges and related solutions, it can provide academic and managerial tools to tackle an ever-changing business environment characterized by disruptive technologies and societal changes. Accordingly, the research contributes to the growing body of literature dealing with born-global-digital firms (Gabrielsson et al., 2021; Monaghan et al., 2019; Rollins et al., 2022), which then is embedded in the broader academic discourse on digital entrepreneurship and born global firms (Gabrielsson et al., 2022; Nambisan, 2017).

This paper is organized as follows: first, we explain the conceptual foundation of born-global-digitals, and we then take three empirical cases set in different contexts to analyze the typologies of bottlenecks that firms encounter in their approach to globalization and internationalization. We thus conceptualize technical, strategic, and cultural bottlenecks for born-global-digital firms. After that,

we provide practical and theoretical solutions to overcome these challenges.

2. Conceptual foundations

2.1. Born-global-digital firms

In this paper, when referring to born-global-digital firms, we leverage the definition by Gabrielsson et al. (2021) that incorporates the following characteristics of a digital firm:

(1) the products or services are available in the digital format of binary codes as a series of zeros or ones and are thus based on digital artifacts, (2) their products or services can be marketed and sold through digital infrastructures -Internet, email, etc.-, and (3) their products or services can be delivered through digital infrastructures -Internet, email, etc.- (Gabrielsson et al., 2021).

The definition of a digital firm is central to our conceptualization in that it unites the three elements of digital artifacts, digital platforms, and digital infrastructure already identified by Nambisan (2017) as pivotal to digital entrepreneurship. Furthermore, the conceptualization of born-global-digital firms merges elements of digital entrepreneurship with those of literature dealing with Born Global firms (Gabrielsson et al., 2008; Nambisan, 2017).

Gabrielsson et al. (2021, p. 5073) define born-global-digital firms as “ventures whose value offerings are available in [a] digital format of binary codes (such as software, a mobile game and according to the definition of a digital firm), from the moment they are created and serve global markets soon after their inception.” A famous example of such a firm is the global music streaming platform *Spotify*, founded by two entrepreneurs in Sweden in 2006, which immediately reached internationalization. In addition, *Skype*, originally an Estonian video calling service (albeit now American owned), and the American video calling service, *Zoom* are examples of born-global-digital firms.

Born-global-digital firms attain high levels of internationalization and digitalization soon after the company’s inception, mainly by exploiting the potential of characteristics of digital artifacts (Ojala et al., 2020), digital platforms, and digital infrastructure. Conceptually we suggest that born-global-digital firms are affected by peculiar bottlenecks that can hinder their approach to internationalization and digitalization activities and adversely affect their value creation and capture activities.

2.2. Bottlenecks

In general, a bottleneck refers to a factor in a system whose existence significantly limits the system’s performance as a whole (Goldratt, 1990). Baldwin (2015) defines a bottleneck as a critical part of a system with no alternatives at present. Further, she argues that “the points of both value creation and value capture are the system’s bottlenecks” (p. 3).

Academic literature generally defines two types of bottlenecks: technical and strategic (Baldwin, 2015). In addition, we claim that companies that expand to international markets early on and are early in using digital technologies also suffer from cultural bottlenecks, given the international nature of their activities that entails adapting to cultural differences (Ojala et al., 2020). Although digitalization enables firms to easily access foreign markets and reduces costs associated with geographical distance (Brouthers et al., 2016), we argue that born-global-digital firms encounter a set of detrimental challenges that we categorize as *technical*, *strategic*, and *cultural bottlenecks*, which we present below.

2.2.1. Technical bottlenecks. In earlier literature, technical bottlenecks refer to criticalities that hinder the further development of a specific technical system (Baldwin, 2015). A technical bottleneck refers to a situation characterized by the lack or limited presence of technological options enabling the technology to be introduced to a market (Baldwin, 2015).

There are several examples of technical bottlenecks in business history and how these bottlenecks might become a barrier to a successful launch of new technologies. Generally, such innovations were too radical for the existing technological environment. For instance, Sony commercialized its first eBook reader in 1992 and launched it to the market (Adner, 2013). However, several technical bottlenecks related to the displays and components meant the product was not commercially successful at the time. In reality, the idea of eBooks was presented as early as the 1930s by Brown (1930); however, there was no available digital infrastructure to realize such a revolutionary and pioneering idea. Further examples of technical bottlenecks are an unreliable broadband network in the target country/area, technical incompatibility of the service with the technology used by foreign partners, and limited technical features of the services in some countries (Ojala et al., 2018).

2.2.2. Strategic bottlenecks. A strategic bottleneck refers to the difficulty a firm faces in accessing the strategic resources it requires for areas such as service development, growth, and internationalization in a

market owned or controlled by another firm that creates obstacles to accessing those resources (Baldwin, 2015). For instance, Apple has strong control over its App Store and can restrict other firms' opportunities to access it to deliver digital content. The same applies to other digital sales channels where the service provider can decide whether to allow third parties to use a platform to sell products or services, for example, the channel provider might block a product or service it assesses might negatively impact a sales channel. In addition, IP rights might create strategic bottlenecks and slow the internationalization process significantly (Ojala et al., 2018). Strategic bottlenecks might be significant, especially in the case of small start-ups aiming to internationalize their digital services through digital platforms, as they have few alternative routes to reach global customers. Further, overcoming these bottlenecks might require considerable time and effort as negotiations with foreign actors are time-consuming and difficult to implement in practice.

2.2.3. Cultural bottlenecks. In the context of digitalizing firms, the four pillars of the CAGE Model (Ghemawat, 2001)—cultural, administrative, geographical, and economic distance—can explain how firms coordinate distance when internationalizing (see also Berry et al., 2010). Although those distance factors might be less impactful in the case of born-global-digitals (Gabrielsson et al., 2021), research on digital platform businesses operating in business-to-consumer markets indicates that CAGE aspects still act as a barrier to a productive adoption of a platform by some users (Shaheer & Li, 2018). Research also confirms the relationship between digital artifact characteristics and cultural and geographical distances in relation to internationalization among fast internationalizing firms (Ojala et al., 2020).

Earlier research also indicates that rapidly internationalizing firms leverage specific digital channels such as social media networks (Facebook or Instagram) for internationalization purposes because they are affordable and widely used (Fraccastoro & Gabrielsson, 2018; Fraccastoro, 2021b; Godes, 2011). However, some countries have their own popular variants to social network sites like Facebook; China and Iran being popular examples (Wikipedia, 2021). Accordingly, firms wishing to capture value from those countries must find alternative communication channels/approaches. In addition, sales of some products, such as alcoholic beverages, may be forbidden in certain countries. Preferences among consumers and users also differ widely across countries owing to cultural differences (Hofstede, 1980; 1991; Jaffe & Nebenzahl, 2006; Kim, 2021).

Another culturally related challenge that may impact internationalization is the country-specific quality associations, explained by the country-of-origin literature (Zeugner-Roth et al., 2008). Jaffe and Nebenzahl define country of origin as “the country which a consumer associates with a certain product or brand as being its source, regardless of where the product is produced.” (2006, p. 29). Even though there are contrasting views regarding the theoretical and practical relevance of country-of-origin in explaining consumers' choices (Liefeld, 2004), we believe that country-specific quality associations can still play a role in service or product selection.

Based on the above discussion, we propose that this literature contributes enormously to the nascent stream of research looking at digitalization in international business endeavors from a cultural distance point of view. That is, we think that among the four dimensions of distance elaborated by Ghemawat (2001), the cultural dimension has the most decisive potential impact on the development and growth of born-global-digital firms. Hence, we refer to it as the cultural bottleneck.

3. Methodology

The current research adopts a qualitative, multiple case-study analysis to examine some technical, strategic, and cultural bottlenecks that born-global-digital firms encounter. The method permits a holistic view of the phenomenon under consideration (Yin, 2009). This methodological approach is also appropriate for investigating new research questions that tend to prompt new theoretical development (Eisenhardt, 1989). We used purposeful sampling to identify three born-global-digital firms. The main criteria for selecting the case firms were: (i) to be a born-global-digital according to the definition by Gabrielsson et al. (2021), and (ii) to have a different cultural background from the other selected cases. We selected firms exhibiting macro and micro-level differences to ensure we produced generalizable findings and high levels of variance in the data. Accordingly, the case firms come from diverse geographic environments with different levels of economic development and different cultural characteristics. Those case firms are three software firms from Brazil, Finland, and New Zealand. Table 1 includes a brief description of those case firms and the fictitious names representing the firm's main activity

and location that were assigned for reasons of confidentiality.

Table 1. Background of the case firms under investigation.

	BRSOft	BRSoft	FISoft
Origin	Brazil	New Zealand	Finland
Business sector	Software house; development of digital platforms	Provider of software as a service for corporate security	Visualization Platform Developer
Age; Start of internationalization	Established in 2011; immediately with one international client; more international in 2013	Established in 2013; first foreign customers from Australia in 2014	Established in 2006; first foreign customers from Sweden and Italy in 2007
Number of countries served	majority of sales from USA; entering Europe and Canada.	USA, Australia, and Malaysia	Europe, Japan, Australia, USA
Number of employees	More than 60	6	50
Headquarters	Sao Paulo	Wellington	Oulu

3.1. Data collection

We used multiple sources of information to undertake the data collection phase of the research process represented by multiple informants within and across the firms. Primary data were gathered from direct and semi-structured interviews with the managerial team of the selected firms. The interviews lasted between 45 and 90 minutes on average. With the permission of the interviewees, we recorded and transcribed the interviews verbatim to ensure their reliability. To gather longitudinal data and dynamic information, we ran two rounds of interviews, which was not possible for the NZ firm. This nevertheless did not limit our analysis, as we gathered extensive secondary data and had email discussion with the CEO on aspects needing additional information. The first interviews focused on aspects such as the history of the firm, its business idea and business model, service development, and international expansion. The second interview focused in more detail on the challenges faced by these firms during foreign market expansion and the development of the firms' digital services for global markets. Secondary data were gathered from different sources such as the firms' websites and social

media profiles and analyzed to ensure validity. Primary and secondary data are stored in a database shared by the authors. Table 2 provides a detailed description of the sources of information constituting the bases for the research.

Table 2. Data collection and further sources of information

Case Firm	Interviewed person(s)	Time period covered in: 1 st interview (i) 2 nd interview (ii)	Secondary sources of information for data triangulation
BRSOft	Business director and co-owner	(i) 2011–2017 (ii) 2017–2018	Facebook, LinkedIn, & Twitter profiles, the firm's website, online press articles from the Chamber of Commerce and other online sources, and product demonstration provided by an interviewee.
NZSoft	Founder and CEO	(i) 2013–2018	Facebook and Twitter profiles, the firm's website, and blogposts
FISoft	Sales Manager and CEO	(i) 2010–2021 (ii) 2010–2021	Facebook, LinkedIn, the firm's website, online press articles, company presentations

3.2. Data Analysis

The data analysis was conducted following the abductive approach of Dubois and Gadde (2002), where we regularly moved our reasoning between the data and the relevant theory. By first building a preliminary conceptual framework based on the reviewed literature, we were able to build "preconceptions" (Dubois & Gadde, 2002, p. 555) that we later tested through the analysis and interpretation of the empirical evidence gathered. When analyzing the data, we followed the three steps suggested by Miles and Huberman (1994): (i) data reduction, (ii) data displays, and (iii) conclusion drawing/verification. In the data reduction phase, we gathered and synthesized primary and secondary sources of information for each firm in single

documents highlighting the history of the firm and its internationalization process. We then arranged and displayed the data in tables following the born-global-digitals' growth and the challenges encountered. Finally, we noted that patterns of similar challenges appeared for each of the analyzed firms, and we therefore presented the main bottlenecks faced over time in figure form. In the following section, we present the data testifying to the bottlenecks of these firms. After matching the empirical reality with our initial preconception (Dubois & Gadde, 2002), we further developed our conceptual framework that led to our elucidating practical and theoretical solutions that born-global-digital firms could use to overcome the challenges.

4. Born-global-digital Bottlenecks

In the following section, we present empirical evidence from three internationally located born-global-digital firms. The case studies offer explanatory examples of what we conceptualize as forms of technical, strategic, and cultural bottlenecks that born-global-digital firms can encounter during their approaches to internationalizing their digital services.

4.1. Technical Bottlenecks

The empirical data collected revealed several technical bottlenecks. In the case of BRSoft, we found differences regarding the typology of clients and their technical readiness that impeded international sales. That is, the technology provided was not always compatible with the client's technology. The business director explained the situation:

Usually, with a small client who wants an app, we help a lot with the entire design. We present the technical assessment explaining what kind of technology would be the best fit for the project in terms of development, speed, and maintenance costs. We have a different kind of conversation compared to big companies, which normally have technical staff, like a CTO or a technology manager. There are a lot of technical decisions that are already made. So, we have to understand if the technology we have fits the requirements of the client, especially when they are used to a certain type of technology. If it is something very different from what we are used to in terms of technology, frameworks, and engines, we are honest with them and explain our limitations. So, sometimes we can't go ahead [with the project].

The CEO of NZSoft explained that by offering the software only through the browser, the firm overcame

technical bottlenecks, which also translated into cost reduction for their small firm. He commented on this aspect:

Because we're only doing it as a browser, we have fewer support issues. We're not worried about how someone's computer is configured. At the end of the day, if they've got a browser and they can connect to the Internet, they can use our application. It makes life a lot easier for us. We're a small company out of Wellington, so the less support we need to deliver, the better.

Although some of the technical issues were overcome through this strategic decision, we found that technical bottlenecks originating with the customers and relating to the renewal ratio of the software hindered the firm's growth. The bottlenecks necessitated hiring a member of staff to maintain a high level of engagement with the clients and provide ongoing technical assistance. The CEO explained the technological impasse as follows:

We had customers who licensed the service, and then they wouldn't use it for different reasons such as they did not understand it. Then when it came time for them to renew it, they'd go, 'We've never really used it, so why should we pay for it again?'

FISoft had technical bottlenecks related to the cloud-based platform service. The service was located on a server in Finland. However, when the firm internationalized to countries like Japan and Australia, and the volume of data transferred between the server and customers increased, the service became very slow to use for distant users. To overcome this technical bottleneck, FISoft moved its service to the Microsoft Azure cloud platform. This improved the user experience significantly as the service was now located closer to the end-users and could handle larger amounts of data. The CEO gave the following example:

When we got the first customer from Australia, we hosted it from a server located in Finland as we did to all customers in Europe. However, the service was running very slowly in Australia as it was so far away geographically, and they needed to transfer a lot of data. Moving to Azure solved this problem.

This empirical evidence strongly indicates that technical bottlenecks found on different sides (e.g., the customer-side or the firm-side) of the transaction can slow expansion and growth into foreign markets, causing delays and cost inefficiencies. Accordingly, born-global-digital firms need to be alert to such hindrances and address them strategically.

4.2. Strategic Bottlenecks

In its early days, FISoft experienced strategic bottlenecks related to its 3D engine software. The company built its platform using a 3D software engine originally developed by another firm. However, that firm was then acquired by a big player in the market, whose new owner decided to end the development work for the 3D software engine. This created sudden turbulence that FISoft had to overcome quickly to remain in business. The CEO of FISoft commented:

Another firm bought the firm who developed the 3D software engine that we were using. They just stated that there would be no future updates for the engine. We were in the situation that we needed to find a new engine and quickly move to another provider and start building our platform on it.

The CEO of NZSoft described a challenge the firm faced, which we categorized as both strategic and cultural in nature. He stressed how the firm could address many technical issues remotely, however, at times the firm needed to enlist local agents to make successful deals in foreign markets. In fact, some of the countries in which NZSoft internationalized, such as Indonesia, had regulations requiring that local customers buy from local agents. Such regulations force a born-global-digital to have resellers and local partners. The CEO explained the issue:

We have a company we work with in Singapore. They are our local agent. That is who the customer can ring and talk to if they need to. Same time zone, just down the road. Very much a local representative. They largely bring new opportunities to us, and we'll work on selling that, but they'll also process the paperwork. In some countries—Indonesia would be one example—the government can't buy from us. They have to buy through a local agent. In some cases in some countries, we are forced to do that. Other countries, it suits us to do that.

This evidence shows that although it is possible for born-global-digital firms to have a global reach soon after their inception on paper, strategic bottlenecks often related to institutional challenges and diversities can hinder that approach or limit their geographical expansion. The situation calls for less-digitalized methods and the involvement of third parties, which may limit a firm's ability to extend its international reach in a timely manner. Accordingly, we argue that while digitalization enables the growth of entrepreneurial firms (Tumbas et al., 2017), there might still be a need to develop further pivotal capabilities and internalizing resources to support internationalization; capabilities and resources that can reduce an over-reliance on key international players and ultimately overcome strategic bottlenecks.

4.3. Cultural Bottlenecks

Examining cultural bottlenecks revealed that differences in the language spoken can create barriers to the penetration of a firm into foreign markets. The CEO of NZSoft illustrated how simple it is for the firm to adapt the software it sells to foreign markets by simply creating a translated interface for those countries. However, the CEO was very aware of the benefit of having people speaking the local language or even dialect when trying to grow extensively in international markets and secure a larger market share. He explained their expansion plan in the US and the cultural difficulties the firm found:

I have two people in the USA who work for me full-time. Having two people there has really made the difference. Time zones, local people, local accents, local colloquialisms... I ring up, and people laugh at me because of my funny accent, which is fine, but when an American rings up, they're speaking to a fellow American. It does make a difference.

This example testifies to the fact that digital technologies enable rapid internationalization; however, cultural bottlenecks can arise and they can only be resolved following the intervention of key people. Furthermore, cultural bottlenecks can affect not only customers but also to the management and staff of the born-global-digital firm. The business director of BRSoft explained this issue:

One of the richest examples of learning was probably that arising after we decided to go after clients in the USA because it is a different culture, a different level of commitment that you have. And you have to explain to the staff, to the team that you are not being measured by Brazilian standards anymore. You are being measured by US standards. And they do not tolerate when you are late or if you deliver something that does not function well, is not stable, or has a lot of bugs. So, it was very interesting to see the evolution of [the employees] too.

FISoft experienced cultural bottlenecks related to the adoption of new technologies in different countries and markets. For instance, in Asia, and especially in Japan, end-users are more willing to use new technologies like augmented or virtual reality than their counterparts in the EU or USA. The CEO explained this aspect:

In Japan, even old ladies use VR helmets to navigate in virtual showrooms and to see what an apartment would look like after a renovation.

Our empirical evidence showed that although the digital product offering commercialized by born-global-digital firms is instantly available to foreign markets, and although consumer differences across countries are increasingly reduced by the effects of globalization (Shaheer & Li, 2018), cultural

differences still play a role. We believe that cultural bottlenecks are important for born-global-digital firms that must make an informed decision when selecting the foreign markets where they want to internationalize and expand further.

In the following section, we outline possible and practical gateways that could be available to such firms to reduce bottlenecks. We also provide theoretical explanations that researchers might apply to examine the phenomenon further.

5. Practical and theoretical solutions to bottlenecks hindering born-global-digitals.

5.1. Solutions to Technical Bottlenecks

As the previous literature and our empirical findings indicate, born-global-digital firms may encounter several technical bottlenecks. A classic example is the lack of an adequate broadband network in the host country market (Ojala et al., 2018) or incompatible technology. Such situations can severely limit the opportunity formation process of these entrepreneurial ventures. Our empirical evidence establishes that a lack of fit between the technology offered by the service provider and the acquiring firm can translate into a missed business opportunity and eventually stall business growth. Such a criticality could be overcome either by offering a wider set of technological solutions or by partnering with firms that have the technical capabilities required by the expanding firm. Therefore, a possible solution to overcome technical bottlenecks might be networking with partners in foreign markets and leveraging their resources, such as access to a higher broadband speed or similar technological solutions. Accordingly, possible applicable business theories could include the resource-based view of the firm (RBV, Barney, 1991) and the network approach. The network approach has comprehensively explained how born global firms establish connections with foreign partners (Johanson & Vahlne, 2009). Those connections are a resource used to gather knowledge about foreign markets and identify international opportunities (Coviello, 2006; Johanson & Vahlne, 2009; Wiedersheim-Paul et al., 1978). We believe these theoretical streams can also be extended to explain the phenomenon of born-global-digital ventures and how exactly they build relationships in international markets to overcome technical bottlenecks and other liabilities connected to international expansion (Coviello, 2006).

Furthermore, we recommend that born-global-digital firms adopt a dynamic approach to tackle the challenges introduced by technical bottlenecks. The literature on dynamic capabilities expresses the situation best (Teece et al., 1997). By developing their capabilities and bundling an extensive array of resources, they can acquire, integrate, and recombine competencies (Teece, 2012; 2014) that eventually help them respond to environmental challenges such as technical bottlenecks and generate new value for the firm.

5.2. Solutions to Strategic Bottlenecks

Earlier international business literature has shown that newcomers to international markets may be exposed to threats of opportunism or bounded reliability (Verbeke et al., 2019). In digital endeavors, foreign partners' retention of strategic resources or assets can cause strategic bottlenecks to born-global-digital firms. Our case evidence showed that a born-global-digital seeking to internationalize a software solution that could have been easily sold online had to rely on local partners because some institutional regulations of the foreign country necessitated their presence, which added a further layer to the value chain. A way to overcome these obstacles may be partnerships established with key players in foreign markets through active networking. A theoretical approach to this could be represented by the international networking approach described by the Uppsala school of internationalization (Johanson & Vahlne, 2009). This approach stresses the relevance of establishing a network of connections with international business partners in foreign markets to become embedded in foreign networks (Johanson & Vahlne, 2009). Nevertheless, we believe this view warrants further examination by future studies as some fundamental assumptions like trust-building and bilateral interdependence could be undermined (Monaghan et al., 2019) by the very nature of the digital value offerings commercialized by born-global-digital firms. In fact, in the case of immediately and globally available services such as online gaming platforms or services having a subscription-based business model, the exchange of the value offering happens immediately. That exchange thus shrinks, if not erases, the bilateral interdependence that traditionally characterizes business transactions and the bilateral investment of time and resources by the contracting parties. Therefore, born-global-digital firms must carefully consider which players can become reliable partners and help avoid strategic bottlenecks, control strategic resources in foreign

target markets, and support the international growth of the born-global-digital firm.

A further issue to consider is that the use of digital infrastructures for both production and commercialization may drastically reduce the need to rely on business partners in local markets. That can force born-global-digital firms to become heavily dependent on the international services offered by tech giants and their digital infrastructure. This situation may lead to oligopolistic/monopolistic behaviors in the market. Our empirical findings related to FISoft demonstrate this problem as that firm became too dependent on one giant service provider.

While we recognize the challenges involved, we would encourage born-global-digital firms to leverage a hybrid approach to networking involving diversifying their business relationships with players of various sizes and owing resources of a different caliber. Further, we would encourage such firms to strategically plan their marketing and sales activities utilizing various channels of internationalization and promotion (Berry et al., 2010; Fraccastoro, 2021a; 2021b) to overcome the liabilities typical of rapid internationalization (Gabrielsson et al., 2008) and strategic bottlenecks.

5.3. Solutions to Cultural Bottlenecks

Existing literature and our empirical findings indicate that born-global-digital firms encounter various types of cultural bottlenecks, not only when producing their digital value offerings but also when selling internationally. Although digitalization has the power to smooth differences of gender, ethnicity, and age by embracing global and more unified communities of users and consumers, cultural bottlenecks relating to other aspects can still impact firms that digitalize and internationalize rapidly.

Earlier research reveals that characteristics of digital artifacts—such as distributedness, product agnosticism, editability, and reprogrammability (Henfridsson et al., 2018; Kallinikos et al., 2010; 2013; Yoo et al., 2012)—make markets immediately global for digitalizing firms that internationalize (Ojala et al., 2020). However, it is also shown that cultural differences between the firm's home market and the target market can diminish the positive effects stemming from such characteristics on a firm's internationalization process (Ojala et al., 2020). Cultural issues thus act as bottlenecks in the process of the global expansion of digital firms. Therefore, it is important to acknowledge these bottlenecks and plan internationalization strategies to help bypass them.

Specifically, we propose that studying the ongoing trends in the digital endeavors of the target country

markets and the cultural preferences of that country could help the firms mitigate such uncertainties. Furthermore, we suggest that from a practical perspective, the management of born-global-digital firms can constantly invest in developing their value offerings through, for instance, the improvement of software interfaces allowing for language modifications to existing offerings like platforms and websites. Such improvements would accelerate the availability of their products and services to culturally distant customers. Another practical aspect that these firms might consider is to leverage the benefits of independent certifying authorities that can verify the quality and trustworthiness of their value offerings. Similarly, they could use online payment certification systems to secure international transactions and, at the same time, confer trustworthiness on the business in the eyes of skeptical foreign buyers.

In addition, we propose that born-global-digital firms could run online advertising and marketing campaigns through inexpensive and widely used communication channels, such as online blogs, search engine optimization, pop-up ads, and social media networks. In this regard, we believe that these firms could leverage online ratings and reviews to establish themselves in foreign markets and create online trust, which could indirectly lower the impact caused by cultural bottlenecks. Research has shown that online users providing independent and reliable information, recommendations, and feedback on products and services from buyers can enhance positive word-of-mouth and help firms increase their sales to new buyers/consumers (Godes, 2011). This effect is especially relevant when spurred by social media networks, which can boost early product adoption and firm profitability (Hennig-Thurau et al., 2015). However, born-global-digitals must be alert to the risks involved in leveraging online word-of-mouth to diminish cultural boundaries. When publishing a promotional message in online domains or responding to a comment by a buyer, they may generate messages whose content and style may be difficult to interpret, given the cultural differences of the online users writing them (Liefeld, 2004). Thus, we encourage internationalizing firms to leverage online word-of-mouth. However, it is important to remember that when setting the bases for effective international marketing strategies in an online endeavor, country of origin and local market values play an essential role.

Born-global-digital firms can also adopt what previous literature refers to as the global consumer culture positioning (GCCP) strategy. The GCCP strategy builds on the assumption there is an emerging global culture of consumption, which results from an “increasing interconnectedness of varied local cultures

as well as through the development of cultures without a clear anchorage in any one territory” (Hannerz, 1990, p. 237). The GCCP differs from a standard international marketing strategy and is best accessed through the soft-sell approach (Alden et al., 1999). Specifically, a soft-sell approach based on images and indirect and subliminal messages can help firms build indirect associations with the brand and their value offerings (Okazaki & Taylor, 2010). Those associations could help firms avoid misinterpretations attributable to cultural differences.

Table 3 provides a summary of the three main bottlenecks encountered by born-global-digital firms and offers a practical and theoretical solution that managers and academics could leverage when interpreting this business phenomenon and other building theoretical insights.

Table 3. Solutions to born-global-digital Bottlenecks

Typology of Bottleneck	Practical Solution	Suggested theory or concepts
Technical	-Rely on foreign partners' resources; -Develop own resources and capabilities.	-RBV (Barney, 1991); -Network embeddedness (Granovetter, 1985)
Strategic	-Strategic partnerships with key players -Combination of different channels of internationalization	-International network approach (Johanson & Vahlne, 2009). -Multichannel approach to internationalization and marketing (Berry et al., 2010, Fraccastoro, 2021a) -Dynamic capabilities (Teece et al., 1997)
Cultural	-Planned approach to bypass the bottleneck; -Invest in the development of value offerings; -Leverage online rating systems and users' reviews; -Use various channels of communications and marketing.	-Online word-of-mouth; -Country of Origin (Jaffe & Nebenzahl, 2006); -Global Consumer Culture Positioning(Hannerz, 1990).

6. Conclusions.

This paper categorizes and describes three bottlenecks: *technical*, *strategic*, and *cultural bottlenecks*, which can hinder born-global-digital firms' approaches to developing their digital services

and internationalizing into foreign markets. We conceptualize the bottlenecks and provide practical and theoretical alternatives that can be leveraged to bypass the impediments caused by these bottlenecks. Accordingly, the research contributes to the growing body of literature dealing with born-global-digital firms (Gabrielsson et al., 2021; Monaghan et al., 2019; Rollins et al., 2022), which then is embedded in the broader academic discourse dealing with digital entrepreneurship and born global firms (Gabrielsson et al., 2008; Nambisan, 2017).

Because this research area is still in its infancy, our research necessarily applied a qualitative approach, which, limits the generalizability of our results. We therefore suggest that future research in this field could continue to explore the three forms of bottlenecks using qualitative methods to clarify how and why these bottlenecks appear and to isolate the most successful approaches implemented by born-global-digital firms to bypass them. Such an approach would greatly help future research since technical, strategic, and cultural challenges have not yet been systematically studied in the context of born-global-digital firms. Moreover, there is also room for quantitative research providing more generalizable results. This research approach would help investigate the spread, frequency, and impact of those three bottlenecks on the performance of born digital firms.

7. References.

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