

Internationalization as a Business Model Design Process

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Abstract

Digitalization is transforming the dynamic of entrepreneurial opportunity pursuit to the extent that traditional theories of internationalization may no longer effectively explain firms' internationalization patterns. To test alternative perspectives, we introduce a business model design lens to the study of entrepreneurial internationalization in the digital age. Drawing on a multiple case study research of six new ventures, we induct a three-layer model of internationalization process, which distinguishes between digital, ecosystem, and country layers. While the country layer is extensively studied in traditional internationalization models, the digital and ecosystem layers are new. Our case evidence shows that the digitalization of the firm's context enables it to extend interactions beyond domestic borders already at the value discovery stage, thereby enabling internationalization in the formative stages of business model design process. The internationalization layers also demonstrate how new ventures that start as global, narrow their foreign market scope at later states.

Keywords: new venture internationalization, digitalization, business model design, internationalization process, global digital business.

1. Introduction

Although the speeding-up and scaling effects of digitalization have long since been recognized, there has been relatively little exploration into how digital technologies shape the *content* of internationalization process of new firms. International entrepreneurship researchers have extensively explored *how quickly* the internationalization process unfolds, but there has been less exploration of *how* it unfolds in the digital age, and how digitalization, the process by which digital technologies are applied in society and in the economy such that they become infrastructural (Tilson, Lyytinen, & Sørensen, 2010), have changed the *content* of the new firm internationalization process. As information technologies have become part of the fabric of societies, they will upend conventional ways for organizing for

value creation, delivery, and capture (Vadana, Torkkeli, Kuivalainen, & Saarenketo, 2020).

There have been numerous explorations into the internationalization of digital new ventures, internet firms, or e-business firms (e.g., Brouters, Geisser, & Rothlauf, 2016). However, such studies have tended to 'box' the phenomenon by treating digital new ventures as a special type of new venture, whose internationalization patterns do not necessarily apply to 'non-digital' or 'traditional' businesses. Boxing the phenomenon risks ignoring that digital technologies are infrastructural and shape the internationalization of *all* firms.

Another overlooked aspect is that in new ventures, internationalization occurs in parallel with building the business itself. Digitalization facilitates a firm's cross-border interactions with multiple stakeholders. The view of a firm as an activity system that creates, delivers, and captures value, is therefore relevant for studying new venture internationalization in the digital age (Zott, Amit, & Massa, 2011). To better understand the process of new venture internationalization in the digital age, it is therefore useful to adopt a business model design lens. Hence, we ask: *How does new venture internationalization unfold as a business model design process?*

Given the dearth of theorization on digital-era internationalization, we use theory-elaboration method to address the research question. We study the business model design process of six internationalizing new ventures over time to capture cross-border boundary-spanning activities and transactions. We inductively develop a process model of new venture internationalization, where firms leverage digital technologies and infrastructures to discover and implement their business models as value co-discovering, co-creating, co-delivering, and value appropriating cross-border interaction systems. We contribute to the international business literature by proposing a holistic view of entrepreneurial internationalization in the digital age.

2. Theoretical Background

Firm internationalization always takes place in a historical and technological context that determines

what firms can do. Context allows us to set “situational and temporal boundary conditions” in management theory (Bamberger, 2008, p. 840). Contextualization refers to “linking observations to a set of relevant facts, events, or points of view that make possible research and theory that form part of a larger whole” (Rousseau & Fried, 2001, p. 1). By considering the context, we can better assess the applicability of theory and increase the robustness of our findings, which contribute to enhancing the field’s relevance (Coviello, Kano, & Liesch, 2017). Given that digitalization is a key driver of business model innovation (Zellweger & Zenger, 2022), a business model design lens can help us better capture the process in the new context .

2.1. Digitalization and internationalization

The development of information and communication technologies alleviated those constraints and was explicitly cited as a key driver of the international entrepreneurship phenomenon. New firms were now able to initiate the process earlier in their lives. Importantly, however, these changes were mostly considered to affect the *initiation* and subsequent *speed* of the internationalization process, rather than its content – i.e., what they actually did. In the new venture internationalization stream, digital infrastructures are still largely considered to influence the speed with which young firms can take successive internationalization steps, without necessarily altering the content, or even the sequence of those steps. Because the international new venture framework (Oviatt & McDougall, 1994) emerged in the mid-1990s, when the internet remained a consumer-centric one-way medium, its assumptions on the content of the internationalization process continued to carry echoes from the context of internationalization in the 1970s (Autio, 2017).

The transformative effect of digital technologies on firms strategy has been widely recognized in the literature (Birkinshaw, 2022). This includes the ability of digital products to generate increasing returns to scale as many customers can use it at the same time, in contrast to industrial production. Digitalization also reduces transaction costs due to disintermediation, as well as improves operational effectiveness of the firms by substituting human labor. These features lead to horizontalization of the value chain, moving away from vertical integration (Birkinshaw, 2022). Digital technology has also accelerated the growth of ecosystems – groups of independent firms coordinating informally to provide value to customers (Jacobides, Cennamo, & Gawer, 2018).

Hence, digitalization has brought about many changes in the way entrepreneurial ventures organize, and how entrepreneurial businesses pursue

opportunities, both domestically and internationally (Zellweger & Zenger, 2022). Because digital technologies are infrastructural, they provide a flexible platform upon which to re-think how firms should organize their operations for value creation, delivery, and capture. Therefore, new theoretical lenses that actively embrace digitalization as a key force shaping the context are needed. We argue that a business model design lens can enhance our knowledge in this domain.

2.2. Business model design

The business model concept has been usually defined as the firm’s operational architecture for the creation, delivery, and capture of customer and economic value (Snihur & Zott, 2020). We define the business model as the “design or architecture of the value creation, delivery and capture mechanisms employed” by a firm (D. J. Teece, 2010, p. 191).

A business model lens is well suited for the study of new venture internationalization in the digital age for several reasons. First, business models are increasingly becoming recognized as a construct that combines both a supply-side and a demand-side view of a firm by assuming that firms create value for all exchange partners and not just for shareholders (Massa, Tucci, & Afuah, 2017). Therefore, a business model lens can offer a fresh and holistic view on the internationalization process (Cavallo, Ghezzi, & Guzmán, 2019).

Second, this lens captures the currently dominant feature of digitalization – i.e., the fact that digital technologies are able to support highly complex and consequential interactions among different parties regardless of time and place (Yoo, Boland Jr, Lyytinen, & Majchrzak, 2012). This feature enables firms and other organizations to rethink how they organize their operations and interactions with others for the creation, delivery, and capture of value, making digital technologies and infrastructures a potent enabler of business model innovation, both domestically and in cross-border settings (Autio, Nambisan, Thomas, & Wright, 2018; Snihur & Zott, 2020).

Further, digitalization drives servitization, or the encapsulation of physical assets and products (if any), in a service interface (Spring & Araujo, 2009). This trend emphasizes the salience of concurrent interactions among stakeholders, as opposed to sequential productive actions and subsequent transactions for value creation. In this service-dominant view, all stakeholders are connected and value creation occurs through the network every time an exchange takes place, and not just at the end of the value chain (Akaka, Vargo, & Lusch, 2013). Business models explain how organizations interact with various stakeholders and how they create and exchange value with them.

Finally, a business model design lens resonates with the currently dominant practice of new venture creation – lean entrepreneurship practice – which emphasizes frequent experimentation and the associated incremental discovery of a robust and scalable business model, as opposed to the linear and sequential approach implicit in received internationalization frameworks (Chesbrough & Tucci, 2020; Ghezzi & Cavallo, 2020).

3. Method

3.1. Research design and setting

To address the ‘*how*’ research question that involves the investigation of complex phenomena, such as business model design and internationalisation process, it is best to employ an exploratory approach (Hennart, 2014; Massa & Tucci, 2013; Yin, 2013). Qualitative longitudinal case studies allow to examine how a phenomenon evolves over time (Langley, 1999) and help to develop rigorous and context-sensitive theory (Marschan-Piekkari & Welch, 2011). By doing so, we also respond to the recent call for a more in-depth analysis of the interplay between internationalisation and digitalisation that qualitative methods may capture, taking a longitudinal perspective (Bergamaschi, Bettinelli, Lissana, & Picone, 2020).

We use a multiple case study research design because it is considered to be more robust compared to a single-case study, and enables replication logic similar to multiple experiments (Yin, 2013). In addition, case studies allow to cover both the phenomenon of interest, i.e., internationalisation and its context, i.e., digitalisation (Yin, 2013). A multiple case study research design has previously been used to study questions related to rapid international growth (Tippmann, Monaghan, & Reuber, 2022). A multiple case study research design allows for “replication logic,” where each case serves as a replication, a contrast, or an extension to the emerging theory, similar to multiple experiments (Yin, 2013).

We focused on entrepreneurial firms, that are at the early stage of designing their business models and have a global vision. The central organisational process is internationalisation, defined as a firm's initiation and maintenance of economic, yet not necessarily monetary, interactions with counterparties beyond national borders. Such a view includes any kind of interaction that involves value exchange or co-creation and is not limited to sales. This definition is quite different from the conventional definition of internationalisation as the firm’s *physical entry* into a foreign country for the primary purpose of enabling sales (Bingham & Eisenhardt, 2011).

3.1. Sampling and data sources

The research sample includes six entrepreneurial firms based in London, UK that harness digital technologies and infrastructures in their business models. We selected firms with different business models that included physical products, software as a product, and digital platforms. We collected both retrospective and real-time data (Bingham & Eisenhardt, 2011). The ventures were three to six years old at the start of data collection, which contributes to the precision of recall of relevant events (Huber & Power, 1985). We used: (1) semi-structured interviews with founders and managers; (2) archival data, such as websites, press releases, media articles; and (3) emails, messages, phone calls, and follow-up interviews to track the business model design process in real time and fill gaps in narratives. Table 1 summarizes the key characteristics of the cases and data sources.

Table 1. Key characteristics of cases and data sources

Company	Description	Offering	Founded / no. of employees	Interviews & informants
<i>Watch</i>	Producing wearable technology – customizable smart watches	Physical product	2014 4 emp.	4 interviews (120 min) two co-founders 2018-2019
<i>Plastics</i>	Developing a new standard in biodegradable and compostable plastics	Physical product	2015 21 emp.	5 interviews (280 min) CEO, VP Sales & Marketing 2020
<i>Genetics</i>	Personal DNA-based recommendations for grocery shopping	Physical product and SaaS	2015 60 emp.	4 interviews (280 min) CEO, CSO, Operations Director, Commercial Director 2020
<i>Designer</i>	Software tool for designers, using virtual reality	Software solution for users	2014 22 emp.	3 interviews (90 min) co-founder 2018-2020
<i>Recruiter</i>	Platform for recruiters and candidates; creates profiles using AI	Platform business	2017 13 emp.	2 interviews (80 min) co-founder 2019-2020
<i>Scholar</i>	Platform for scholars to easily access research articles on mobile phones	Platform business	2017 21 emp.	7 interviews (350 min) two co-founders, Head of Business Development 2019-2020

The informants were venture founders and co-founders, as well as top managers, who were actively involved in their firm’s strategies as key decision-

makers. The interviewees were asked open-ended questions, supplemented by follow-up questions for a deeper examination and clarification of answers.

The tracking of two of the cases (*Watch* and *Designer*) started in early 2018. Then we started tracking *Recruiter* and *Scholar* in late 2019, followed by *Genetics* and *Plastics* in early 2020. The firms were tracked on average for one year, ranging from five months (*Genetics*, *Plastics*) to over 1.5 years (*Watch* and *Designer*). The data analysis started at the beginning of data gathering and evolved following new interviews. When the emergent framework ceased to change after adding new interviews was no longer offering new insights, we concluded that theoretical saturation had been achieved.

We focused on the development of the firms from inception, capturing all iterations of value proposition, revenue model, interactions with various stakeholders within and outside national borders, including customers, suppliers, partners, and competitors.

3.2. Data analysis

All the interviews were coded focusing on the internationalization process, by assessed the ventures' business model design processes, including value discovery and creation, value delivery, and value capture over time, particularly considering cross-border interactions. As we were following the cases over time, this allowed not only to use central internationalization-related constructs, but also to apply different levels of analysis, including analyze the business model design process of the firms, translate the process via the central constructs, and interpret the findings with reference to existing literature. We triangulated this information with archival data, to confirm the sequence of events.

We began with an in-depth analysis of the cases. We synthesised data into individual histories (Bingham & Eisenhardt, 2011; Eisenhardt, 1989). The interviewees reviewed the case histories. These histories illustrated the order and chronology, and the rationale of the events for each firm's internationalisation. At this stage we did not rely on a particular theory or hypothesis and analysed cases accordingly, which is appropriate for theory generation using case analysis (Eisenhardt & Graebner, 2007). This helped identify theoretical constructs and processes for each case. Then we turned to cross-case analysis to compare the emerging insights and explore patterns and constructs (Eisenhardt & Graebner, 2007). Comparisons were first made between different pairs of cases, and as patterns started to emerge, other cases were added. The process involved moving between theory, data, and the literature to refine and clarify findings. The emerging patterns helped to develop data structure with provisional theoretical

concepts, which were refined using replication logic. This iteration helped clarify findings and formulate the theoretical framework (Bingham & Eisenhardt, 2011).

While focusing on the internationalisation process, we assessed the ventures' business model design processes, including value creation (i.e., value proposition design), value delivery, and value capture over time, particularly considering cross-border interactions.

In Table 2, brief timelines are provided. **Error! Reference source not found.** shows the evidence of international orientation of the ventures, and their internationalization strategy. The important observations are that two of the ventures – *Plastics* and *Genetics* – were founded by well-experienced and well-connected people, which helped in securing funding and hence accelerated the pace growth. In the case of *Scholar*, the venture was founded within an accelerator that provided continuous support. *Watch* and *Designer* were founded by students or graduates who had little experience or connections. Therefore, it took them longer to grow. *Recruiter* took a different path – the founders chose to conduct comprehensive market research prior to starting the venture, which helped them select the best strategy and business model early, without the need to pivot.

Table 2. Timelines of the ventures

<i>Watch</i>	2014 – founded in London by two research students; Oct 2014 – won small grant from Intel to develop product using their technology; did not win the final; Jan 2015 – were invited by Intel to 'Consumer Electronics Show, were offered technology and manufacturer contact by Intel's competitor Apr-Jun 2015 – started working with manufacturer in Taiwan; Oct 2015 – launched a crowdfunding campaign, which was very successful; 2016-2017 – got the product ready for the market; End 2016 – the manufacturer in Taiwan refused to continue working with them; lost the main software partner that was acquired by Google; Early 2017 – started working with a new manufacturer in China; sent 100 units to customers for testing and feedback; Mar 2018 – shifted to B2B model; started conducting pilot studies with foreign companies; Mar 2018 – tried to raise 2nd round of funding; focused on construction industry in European region only; May 2019 – filed for bankruptcy
<i>Plastics</i>	End 2015 – launched in London 2015-2018 – R&D focus; set up manufacturing in France; 2018 – grew network with large corporations, potential clients; launched in North America first, then in East Africa, in order to learn regulations, price points, etc.; 2019 – operated in about 20 countries; in talks with the Indian government about a large facility in the country. Concentration increasingly focused on Asia, which has many countries struggling with plastic waste; Mar 2020 – entered commercially to the UK market; Mid-2020 – sales in the UK, Spain, Portugal, Taiwan, and Kenya; testing in India to launch soon. Ongoing negotiations with manufacturers in China and the US; Oct 2020 – British Standards Institute introduced a new standard for biodegradable plastic, sponsored by Plastics

<i>Genetics</i>	2015 – launched by two academics; 2016-2018 – actively developed the product, focused on R&D, design; Early 2018 – received about 20 patents, covering the technology and business model, including in the US and China; participated in the Consumer Electronics Show in the US; End 2019 – opened a flagship shop in central London; opened pop-ups in a major retail chain in the UK; Early 2020 – participated in the Consumer Electronics Show in the US; employed about 60 people; planned to expand into cosmetics sector; considering entering the US market; (Mid-2020 – shifted focus and capacity into developing Covid-19 tests using the same technology)
<i>Designer</i>	2014 – launched in London by design graduates using grants; initially a software and hardware product, then focused on software only, adapting to existing VR sets (dropped hardware); global from day one; 2016 – crowdfunding campaign failed, which helped to discover the viability of B2B model vs. initially considered B2C model; Feb 2018 – closed first funding round; started working with automobile companies; Sep 2018 – partnered with hardware providers; employing both B2B and B2C models; Apr 2019 & Sep 2020 – secured funding to enable a scale up the platform to become entirely hardware-agnostic
<i>Recruiter</i>	2017 – founded in London by experienced professionals, on the back of a comprehensive market research (interviewed around 600 employers, 400 candidates and 17 recruiters); created a website (minimum viable product) to raise funds (pre seed) to develop the product; grew candidate profile database (globally, though only English-speaking) using digital marketing tools; focused on technology and creative industries (biggest markets); 2018 – worked with beta testers – recruiters within founders’ network or cold outreach, to get feedback; started with London based companies, most of which are global; 2019 – started working with online education providers (revenue sharing agreements); Aug 2020 – raised significant funds to scale; have a database of over 30K candidate profiles
<i>Scholar</i>	2017 – launched in London, in an accelerator; Dec 2017 – organically acquired 12K users; localized the App Store listing into 25 languages; 2018 – entered China via becoming listed in Huawei’s app store; 2019 – started to focus on business model and monetization: advertising proposition with publishers (from user proposition and growing user base); Nov 2019 – made channel partnership with Clarivate; End 2019 – stepped into pharmaceuticals, biotech firms, chemical reagent vendors, and higher education institutions; 21 employees (and 5 contractors in India); while still building value proposition; 2020 – 1.7m users; became available in all 5 Chinese app stores; End of 2020 – partnership in China (the biggest market, 30% of user base) for digital marketing support

Table 3. International orientation and strategy of the ventures

Company	International orientation (representative quotes)	Strategy to enter new markets
<i>Watch</i>	“We sell worldwide, globally.” (Head of Product)	B2C sales via digital platforms; B2B contracts
<i>Plastics</i>	“[W]e started to work in Europe because we are here in Europe. And mid last year [2019], we tried to expand [globally].” (CEO)	Hiring representatives with the industry network in foreign markets; gaining legitimacy via official bodies, partnerships with big players

<i>Genetics</i>	“I don't want to spend years trying to make everything work in the UK because it is a disruptive technology [...] We think it's really important to ‘carpet-bomb,’ otherwise we lose the opportunity.” (CEO)	Active promotion via participating in consumer shows, gaining visibility, making partnerships with local retailers
<i>Designer</i>	“We are completely global since day one. Since it had been always software it's straightforward to become an international company and have customers around the world.” (CEO)	B2C sales via digital platform (website, crowdfunding campaign page); B2B contracts with companies
<i>Recruiter</i>	“We addressed a worldwide challenge, but we didn't set the business to operate globally. There're a lot of foreign companies establishing business in London. So, we ended up in international business instantly.” (CEO)	Growing user base organically; B2B contracts with companies
<i>Scholar</i>	“[I]t was a very, very early decision to go as broad as possible internationally.” (CEO)	Growing user base organically; B2B contracts; hiring representatives in foreign market

The most striking observation was that some ventures internationalized long before establishing their business models or even value propositions. Such internationalization was often unintentional and related to the widespread availability of digital technologies, and entrepreneurs actively experimented with their offerings.

Having gained global market exposure, the new ventures actively experimented with their business models and then focused on specific country markets as they developed their understanding of growth potential and the required commitment. This dynamic contradicts traditional stage models of internationalization, which assume incremental steps that lead to an increased level of internationalization. Our cases began with instant exposure to global markets, followed by narrowing their focus on certain country markets. This finding potentially elaborates the international new venture literature by illustrating the dynamics of a global venture that has not yet been described.

4. Findings and Discussion

A key contribution of this study is the distinction between three layers of internationalization that set up the context for entrepreneurial internationalization, and accounting how the digital, ecosystem, and country layers interact and shape this dynamic (Figure 1).

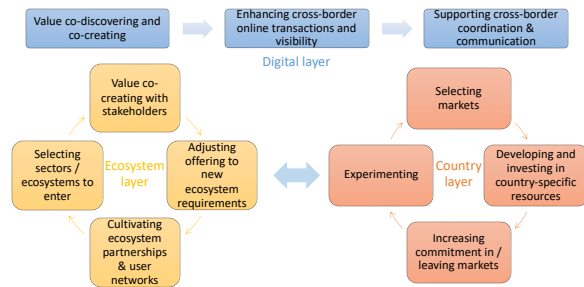


Figure 1. Emergent framework for new venture internationalization in the digital age as a business model design process

We found that, the digital and ecosystem layers exercised an important effect on entrepreneurial internationalization, and they help unblock many constraints that restrict entrepreneurial agency in the traditional, country layer of internationalization. The digital layer exercises an important constraining influence on entrepreneurial internationalization by enabling entrepreneurs to expand their interactions beyond national borders already in the value discovery phase. It also enabled the entrepreneurs to gradually put in place the ecosystem interactions required for value creation and delivery, enabling entrepreneurs to build the requisite momentum required for consolidating the interaction system. Only after sufficient momentum was built, the entrepreneurs focused more on the country layer and making investments to finalize the international operation. Although event sequences varied across cases due to idiosyncratic factors, the activities in the generalized process model of international business model design by the firms flowed from the digital layer through to the ecosystem layer, eventually reaching the country layer.

Hence, we propose that instead of a single context of internationalization (i.e., the country market), there are three interacting contexts: (1) the digital layer (the web and its interaction services); (2) the ecosystem layer (broadly, a given sector but not necessarily an industry in the traditional sense of a specific product market and its associated vertical supply chain); and (3) the country layer (as per the traditional view of internationalization). These layers can be observed by analyzing the process of business model design over time.

We observed that all the firms, regardless of the nature of their offering and business models, initially focused on designing their value proposition; however, value proposition in many cases continues to evolve through the consecutive stages of new venture internationalisation processes. The business model evolves through experiments in multiple countries. Based on the analysis of the cases, we inductively developed a new perspective on new venture internationalisation in the digital age by suggesting a

multi-layered approach to the internationalisation process. The layers are discussed in more detail below.

4.1. Digital layer

The digital layer was found to initially occur during value proposition design process but was also prevalent during value delivery and capture processes. The data structure is presented in Figure 2.

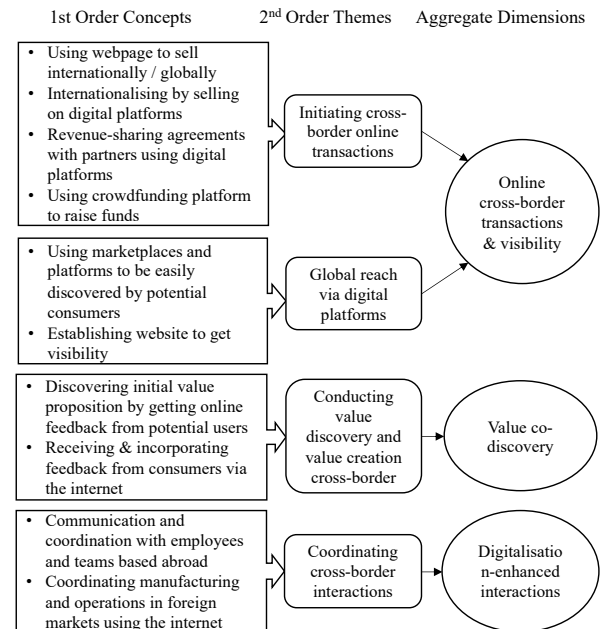


Figure 2. Data structure for digital layer

The digital layer provides a shared digital context where parties can interact without physical proximity. This alleviates trust and opportunism problems. The ventures were able to set up production facilities in foreign markets, sell their products globally, and work with others using revenue-sharing agreements, which did not require contracts because digital platforms provide trust mechanisms to support cross-border transactions.

The digital layer also reduces asset specificity and the need for a large upfront investment in a foreign market, hence allowing more scope for experimentation. The ventures were able to enter foreign markets through placing their product on a digital platform. The resources available on such platforms were not country-specific (with some exceptions, e.g., smartphone app stores in China). Therefore, it was easier to access them, allowing to manage more explorative interactions.

Thanks to digital technologies, the relative ease of conducting cross-border transactions allows new ventures not only to enter foreign markets, but to also test and experiment in different country markets. (Hennart, 2014). The shift towards increased

experimentation has led to the rise of ventures with agile business models that are constantly adjusting to the external environment (Ghezzi & Cavallo, 2020). Due to digitalization, crossing national borders no longer necessarily involves the physical movement of resources. Rather, internationalization occurs in a digital context that does not coincide with country borders.

4.2. Ecosystem layer

With the increasing prevalence of ecosystems, firms are seen as a part of larger networks or ecosystems (David J Teece, 2014; Vahne & Johanson, 2017). An ecosystem is defined as “a community of moderately co-specialized actors, often (but not always) organized around a digital platform, within which different actors interact to ‘co-create’ mutual benefits, i.e., ‘value’” (Autio & Thomas, 2020, p. 107). The supply chain is no longer the only channel through which foreign demand can be accessed.

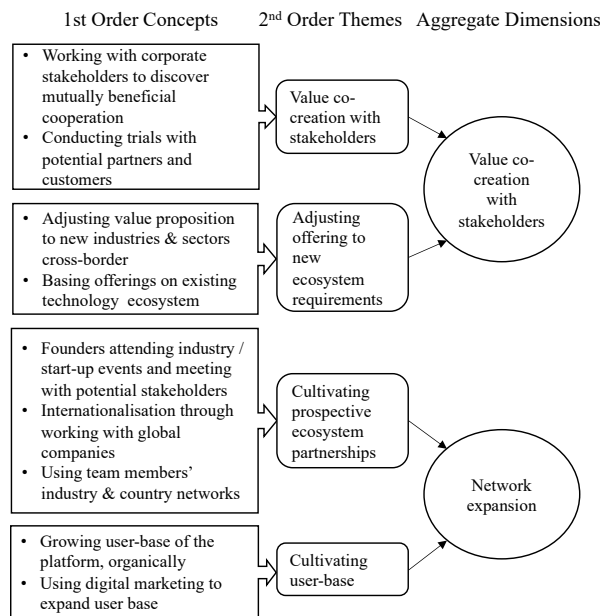


Figure 3. Data structure for ecosystem layer

Both digital and industry ecosystems played a crucial role in internationalization. *Watch* had been added in Intel, and later its competitor's ecosystem, by providing them the technology to build the watch. These were non-contractual, non-monetary interactions. Including a new product into the technology corporation's ecosystem would create network externalities and increase the value for consumers, as well as benefit *Watch* by providing the technology for free to build their product. This context was important for the ventures, especially during value proposition design and the co-creation processes, as well as for

finding value delivery channels and using digital ecosystems for value capture. Entering a technology start-up ecosystem also helped some ventures to find investors, partners, and customers. The ventures participated in competitions to secure funding (e.g., *Watch*, *Recruiter*, *Designer*), in industry events (e.g., *Watch* and *Genetics* in the Consumer Electronics Show in the US), and in industry conferences. Other ventures capitalized on their team's industry network.

As for digital platform ecosystems, the ventures employed platforms for smartphones (*Scholar*, *Genetics*), or other devices (e.g., virtual reality headsets for *Designer*) as largely country-agnostic value delivery channels, that allowed them to access consumers globally. Thanks to the generativity of digital infrastructures, the ventures were able to co-create value with various parties using digital platforms. Sharing the same borderless ecosystem alleviated agency problems and liabilities of foreignness and outsidership (see Figure 3 for data structure).

To enter an ecosystem, the venture would usually need ecosystem-specific knowledge, which commonly refers to a sector or an industry. However, there are exceptions – closed markets in which digital platforms are restricted by country borders, such as Chinese smartphone applications systems. In this case, regardless of digital technologies, an internationalizing venture would have to use a local agent to enter the market and gradually increase commitment to expand there (e.g., *Scholar*). The ecosystem's borders here coincide with country borders, and ecosystem-specific knowledge would also be foreign market-specific.

4.3. Country layer

During value delivery and value capture processes, the country context may become important, especially for ventures offering non-digital products. In this layer, foreign market-specific knowledge is crucial.

The country layer first occurred when the new ventures with a physical product established their manufacturing in foreign markets (e.g., *Plastics*, *Watch*, *Genetics*). However, at that stage country-specific knowledge was less important because there were no sales in those markets. The ventures started learning about foreign markets, when they exported their products to those markets (*Watch*), worked with foreign or international firms (*Designer*, *Watch*, *Recruiter*), hired local representatives in foreign markets (*Scholar*, *Plastics*), and visited those markets to test local demand and considered establishing a presence (*Genetics*). Firms were also working with foreign companies that would help them to enter and scale in a foreign market (e.g., *Scholar* in China, *Plastics* in various markets). In addition, due to language and cultural barriers, as well

as differences in time zones, some ventures chose to increase their commitment in less distant markets. For example, *Genetics* chose to enter the US market first, because of fewer cultural and language barriers. The data structure for country layer of internationalization is presented in Figure 4.

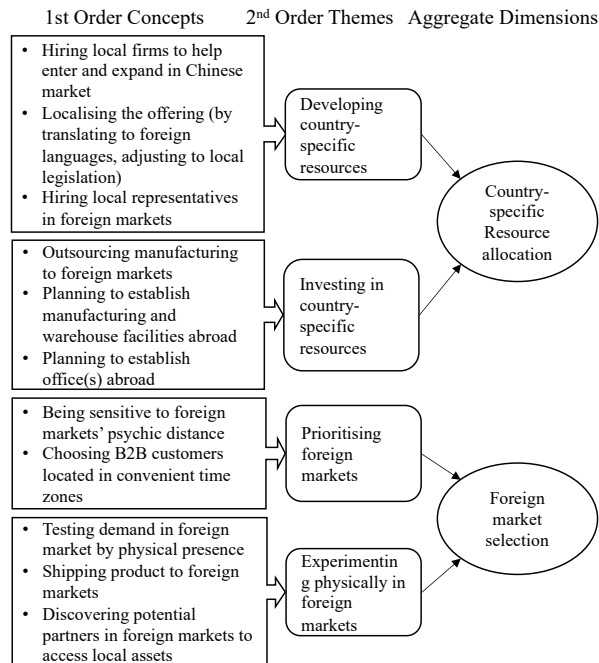


Figure 4. Data structure for the country layer

Ventures that offer physical products need to utilize the country layer of internationalization for value delivery. For example, after selling its products globally, *Watch* had to learn country-specific requirements to ship products to customers. *Plastics*, due to the nature of their offering, must meet legal requirements and gain approval at country level before foreign customers are able and/or encouraged to buy. However, this is not a case of the liability of foreignness – rather, introducing a new technology in the industry with no well-defined standards. As for digital ventures, they were found to expand international operations in the country layer at later stages, if at all, after entering those markets digitally and designing their initial business model (e.g., *Scholar*, *Recruiter*).

4.4. The emergent framework

Based on the data analysis, we developed a framework to highlight the key elements of the new ventures' internationalization processes to reflect the dynamic and iterative nature of the business model design process in the digital age. The framework indicates the three layers of internationalization that exist within the digitalized environment, links between

the layers. New ventures with low asset and location specificity are more likely to internationalize early using the digital layer, while ventures with high asset and location specificity tend to internationalize more within the country layer.

The firms with high asset and location specificity focused on their value proposition design in the home country, while the other ventures, due to lower asset and location specificity, were able to pursue cross-border value co-discovery with other stakeholders by leveraging the digital layer. They actively engaged with potential consumers to test, iterate, and modify the offering based on received feedback. These ventures then entered existing international platform ecosystem(s) (firms with a low location-specific offering) due to the need to access complementary assets, set up a global production value chain (physical product providers), or grow their global user base (platform-based businesses).

All the ventures were found to actively engage in network building. The ventures with high asset and location specificity, due to the nature of their products were not able to utilize global digital platforms for outward internationalization. They instead built networks in foreign markets and tested demand in those markets. Thus, *Plastics* hired top managers with extensive networks in sustainability and the petrochemicals industry, and *Genetics* capitalized on the founder's extensive network, as well as the networks of their board members. *Plastics* also employed local actors in foreign markets who could connect the venture with potential stakeholders (governments, laboratories). *Genetics* tested their networks in foreign markets for potential demand to decide on entry location and timing. These ongoing discussions with multiple stakeholders aim to facilitate value co-creation.

After experimenting and building networks in different country markets, the ventures with high location and asset specificity (*Plastics* and *Genetics*) choose the markets to focus on by increasing commitment in those markets before initiating commercial activities there. Both *Plastics* and *Genetics* have prioritized the country markets they plan to enter and have already started increasing their commitment in those markets by investing in network relationships, trust building. On the other hand, *Watch*, while having low location specificity, after realizing the costs of over-expanding too early, focused on their B2B business model and the industries and markets the founders had knowledge of, while also considering time zones to ensure effective online communication and product support. *Scholar* widely internationalized from the onset, however they realized the potential of the Chinese market and therefore started increasing their commitment by partnering with local companies,

looking for network expansion opportunities and considering adding Chinese language content.

While the three identified internationalization layers are distinct, they are constantly interacting and often overlap. For example, the closed digital platform ecosystem in China represents all three layers of internationalization, therefore implies the importance of entering the digital platform, co-creating value with stakeholders of the platform, and learning about and increasing their commitment to that market. Non-country-specific digital platforms are within both digital and ecosystem layers, and country-specific industry networks refer to ecosystem and country layers. Another important implication is that digitalization is part of the business environment and therefore affects all three layers, not just the digital layer.

5. Implications and Conclusion

The new ventures with lower asset and location specificity tend to initiate international activities in the digital layer, at the value discovery and creation stage of business model designing process, taking advantage of digital platforms and infrastructures for cross-border value co-discovery and co-creation. The new ventures have also actively utilized the ecosystem layer, expanding their networks to gain knowledge, and taking advantage of network externalities to grow their user base. Internationalization literature often refers to learning in relation to the idiosyncrasies of foreign markets and to the process of internationalization (Surdu & Narula, 2021), however this study observed that learning is dynamic, evolving, and ecosystem-specific, as opposed to simply being foreign-market related.

At a later stage of internationalization process, new ventures can decide to adjust their product for certain country markets, and even establish a physical presence there. In contrast to the extant theories, the presented findings suggest that digitally enhanced ventures focus on foreign market learning at a later stage after initial internationalization, when they seek to expand in those markets. On the other hand, the new ventures with higher asset or location specificity tended to begin the process of internationalization within the country layer, often utilizing the ecosystem layer to test assumptions, experiment, and find partners in the target markets. The digitalization layer, while playing a role in these new ventures' efforts to learn about foreign markets and build cross-border networks, was found to be utilized later in internationalization process. Once a venture is ready to enter and expand in a foreign market and make related investments, it can establish an online presence in that market.

This study has several limitations. The qualitative research design implies that the presented findings reveal new theoretical mechanisms for the phenomenon of interest, but may not reflect population patterns (Yin, 2013). While the research design was appropriate for the purpose of uncovering the mechanisms of internationalization processes, quantitative, variance-oriented studies are needed to examine the findings in larger datasets. The limitations related to the peculiarities of multiple-case study research, namely sampling and any potential generalizability of the findings, open opportunities for future research that should aim to further investigate internationalization processes in the digital age by considering both ventures' business models and the digital context in which they operate. Furthermore, this study covers only a limited length of firms' ongoing internationalization and the implications for the later stages of international expansion. The study includes new ventures with different types of business models; however, they are all located in London, UK. It would be useful to study ventures based in a different context, as the UK capital provides high levels of digitalization, a concentration of networking opportunities for ventures, as well as a diverse workforce in terms of cultural and professional backgrounds. Hence, a different environment could potentially result in different dynamics.

The current study contributes to international entrepreneurship research by offering a comprehensive view on the effects of digitalization on internationalization, and by offering a framework to explain the process of new venture internationalization in the digital age through a business model design lens (Bergamaschi et al., 2020; Snihur & Zott, 2020; Vadana et al., 2020).

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