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# Tackling business model challenges in SME internationalization through digitalization

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ABSTRACT

Many SMEs aim for business development by diversifying their offerings to fit global markets. However, internationalization has consequences for all aspects of a company's business model. Even though internationalization poses many business model challenges, the recent development of digital technology is a key enabler of resource-efficient internationalization and business development, an innovation that SMEs find accommodating. Thus, the purpose of this paper is to analyze how digitalization can help to surmount the business model challenges associated with SME internationalization. This paper builds on an exploratory case study of 29 SMEs who have an internationalization strategy and are from sparsely populated areas in Finland and Sweden. For the data analysis, the first-order codes of different business model challenges of SME internationalization have been merged into second-order themes. The final step of the analysis involved ascertaining the overarching dimensions of these business model challenges. This paper identifies business model challenges related to value creation, delivery, and capture throughout the internationalization process. In addition, a framework is developed that matches digitalization activities with the business model challenges. Because there is no "one fits all" solution, this study matches specific digitalization activities with business model challenges that SMEs face when attempting to operate in international markets. These findings are important because they dissect digitalization into executable activities that SMEs find manageable.



## Introduction

Small and medium-sized enterprises (SMEs) play a vital role in the industrial production and economic development of countries (Glonti, Manvelidze & Surmanidze, 2021; Kula & Tatoglu 2003). Many SMEs aim for business development by diversifying their offerings as well as their markets (Cassia, De Massis & Pizzurno, 2012; Lin & Ho, 2019). Developing ways to overcome business boundaries and operating in the international market are among the most promising approaches to secure success in the long term (Kuivalainen, Sundqvist, Saarenketo & McNaughton, 2012). In the struggle to obtain new global markets, digitalization has leveled out some of the advantages that SMEs operating in metropolitan areas have previously had over SMEs based in rural areas. For example, digitalization has paved the way for SMEs operating in rural areas to establish global business contacts through online marketing efforts. Furthermore, digitalization has enabled rural SMEs to implement effective shipping logistics so that their metropolitan counterparts do not have a competitive advantage in logistics (Glonti et al., 2021). However, SMEs typically face several internationalization barriers, such as a product-centric focus, resource limitations, lack of market knowledge, and the traditional mindset of entrepreneurs and managers (Galdino, Rezende & Lamont, 2019).

Operating on an international market differs significantly from the traditional way of doing business and will, in most cases, require a change in the company's business model (Child et al., 2017). The business model of a SME is well-adapted to the local ecosystem and builds on the specific conditions in the region of origin (Asemokha, Musona, Torkkeli & Saarenketo, 2019; Kolagar et al., 2022). However, internationalization has consequences for all segments of a company's business model. By definition, a business model describes how a company creates, delivers, and captures value (Teece, 2010). For SMEs that consider entering international markets, it is especially important to understand the challenges and consequences for the business model in order to succeed. There is a gap in research on business model challenges where value creation, delivery, and capture are covered solely on a holistic level.

Even though internationalization poses many business model challenges, the recent development of digital technology is a key enabler of resource-efficient internationalization and business development, an innovation that SMEs find accommodating (Autio, 2017;

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Kraus, Palmer, Kailer, Kallinger & Spitzer, 2018). Parida, Sjödin and Reim (2019) define digitalization as using digital technologies to innovate novel business models and to provide new value-generating opportunities in industrial ecosystems. However, the term digitalization is used generically as the common solution to all business development initiatives (Joensuu-Salo, Sorama, Viljamaa & Varamäki, 2018; Lee & Trimi, 2018). Some studies focus on a specific aspect of how digitalization can support internationalization (Dethine, Enjolras & Monticolo, 2020), but these insights are principally of use to large companies. In terms of the international activity of SMEs, there is a lack of specific matching, identifying how certain business model challenges can best be tackled by certain digitalization activities (Pini, Dileo & Cassetta, 2018). It is important to understand how digitalization can benefit all areas of the business model and, therefore, increase the value that is created, delivered, and captured.

Based on the research gaps identified, the purpose of this paper is to analyze how digitalization can help to overcome business model challenges in SME internationalization. Building on an exploratory case study of SMEs with an internationalization strategy operating in sparsely populated area, this paper identifies business model challenges associated with value creation, delivery, and capture during internationalization. In addition, a framework is developed that matches digitalization activities with the business model challenges identified. This approach has important implications for both theory and practice.

This paper will first provide a theoretical background to SME internationalization and to business models and digitalization. The methodology is described in section 3. The presentation of our empirical findings then follows. In section 5, our findings are discussed, and the framework is developed. The paper ends with our conclusions that highlight the study's theoretical contribution, its managerial implications, and suggested areas for future research.

## Theoretical background

### *SME internationalization*

A considerable body of research has examined how small and medium-sized enterprises (SMEs) recognize and exploit the range of opportunities embedded in international markets (Lu & Beamish, 2001). Calof and Beamish (1995) have defined internationalization as the process of adapting a company (including its strategy, structure, and resources) to operate internationally. In this definition, not only are the dynamics and revolutionary nature of internationalization considered but also behavioral and economic aspects. Operating in the international market offers SMEs many opportunities, such as access to larger markets, access to technological advantages, upgrading of technical levels, risk reduction, and access to finance (Bradley, Meyer & Gao, 2006; Saunila, 2019).

Managers and entrepreneurs endeavor to recognize the opportunities available in international markets and use access to these global markets as a strategic tool to enhance their business competitiveness and growth. Not surprisingly, the essential factors in the international success of SMEs are of great importance to both researchers and business owners (Love & Roper, 2015; Orero-Blat, Palacios-Marqués & Garzón, 2020). Zahoor, Al-Tabbaa, Khan and Wood (2020) have analyzed key antecedents – that is to say, factors that precede the international success of SMEs. Based on their review, entrepreneurial competence, inter-personal or inter-organizational collaboration, relational embeddedness, horizontal or vertical collaboration, environmental uncertainty, and institutional capital were identified as antecedents of international success. Here, collaborative activities, such as governance mechanisms, collaboration management capabilities, and knowledge spillovers, may serve as a major source of competitive advantage acting as the mediating factors between the antecedents and the international success of SMEs (Reim, Sjödin & Parida, 2019).

The internationalization of SMEs is subject to common constraining challenges, such as limited human, financial, and informational resources (Rogers, 1990; Welsh & White, 1981), a lack of legitimacy abroad (Sapienza, Autio, George & Zahra, 2006), and limits to short-term resilience (Bradley et al., 2006). Hence, the firm's weak resource base is likely to render the decision to enter international markets particularly challenging for a manager or an entrepreneur. Despite the steady role of SMEs in economic development and the part that developing countries play in the growth of world trade, few studies have been conducted on SMEs internationalization efforts (Schmitt et al., 2020).

### *Business models and digitalization*

Business models describe how a company creates, delivers, and captures value (Teece, 2010). Therefore, the literature has argued that business models are essential to commercialize digital technology (Grubic & Jennions, 2018; Parida et al., 2019; Porter & Heppelmann, 2015). Digitalization is described as the use of digital technologies to innovate a business model and provide new value-generating opportunities in industrial ecosystems (Parida et al., 2019; Rajapathirana & Hui, 2018). This stresses the central role of business model innovation in commercializing digital technologies, and each business model component (value creation, delivery, and capture) needs to be considered carefully (Gil-Gomez, Guerola-Navarro, Oltra-Badenes & Lozano-Quilis, 2020; López-Cabarcos, Ribeiro-Soriano & Piñeiro-Chousa, 2020).

Value creation refers to the offers that a company makes to a customer (Lafont, Ruiz, Gil-Gómez & Oltra-Badenes, 2020). Digitalization commonly creates value by advancing and adding services to existing products (Cenamor, Sjödin & Parida, 2017; Criado-Gomis, Iniesta-Bonillo, Cervera-Taulet & Ribeiro-Soriano, 2020; Hasselblatt, Huikkola, Kohtamäki & Nickell, 2018). However, it is hard to identify the specific value that is added through digitalization, and it is often difficult for customers to appreciate the extra value that they obtain from the new offers. Similarly, many companies offer digital services that are not demanded by the customers (Cenamor, Parida & Wincent, 2019; Kiel, Arnold & Voigt, 2017; Kohtamäki, Parida, Patel & Gebauer, 2020). Value delivery – the second business model component – includes all aspects and operations that are needed to provide value to the customer. With digital technology, many activities related to delivery will change. Optimization inside the company and improvements in external relationships require significant changes in the method of operating but it will also open the way to many benefits (Gorissen, Vrancken & Manshoven, 2016; Häfner, Wincent, Parida & Gassmann, 2020; Ricciardi, Zardini & Rossignoli, 2018). The last component, value capture, describes the way a company makes money. This depends on revenue and costs. Digitalization can lower the costs of operation, but it can also create income from new sources. This would obviously deliver an overall positive effect on a company's profits. (De Crescenzo, Ribeiro-Soriano & Covin, 2020; Domingo, Piñeiro-Chousa & López-Cabarcos, 2020; Sjödin, Parida, Leksell & Petrovic, 2018). However, business model innovation comes with many challenges, and the literature lacks an understanding of the business model challenges related to each business model component (value creation, delivery, and capture). Undoubtedly, this knowledge is crucial in order to utilize digitalization in an efficient way.

Particularly in the context of the manufacturing industry, digital technologies can assist SMEs in managing their limited resources, such as access to skilled employees. In an empirical study conducted in the United States, Yli-Viitala and her co-authors (2020) found evidence that digital technologies are changing the perceptions of manufacturing jobs as being dirty and unattractive to relatively

appealing due to their novel high-tech aspects, as experienced in additive manufacturing. Thus, digitalization can help to make manufacturing jobs a more attractive career choice and assist the company in mitigating the challenge of finding a new workforce (Skare & Soriano, 2021). The continuous observation of technology and business trends and their analysis is another aspect of digital organization. Developing a digital business model and promoting digital culture are priorities for digital management and leadership. However, there is a research gap in understanding the digitalization activities that facilitate the SMEs journey into international markets. Therefore, the purpose of this paper is to analyze how digitalization can help surmount business model challenges in SME internationalization.

## Research method

In this paper, an exploratory multiple case study of 29 SMEs from Finland and Sweden was conducted. The intent of the SMEs was to move along the road to internationalization with the support of digital technology. This research design was a good fit because there is currently little insight into how SMEs change their business models to suit internationalization and digitalization. The literature focuses mainly on large companies without considering resource limitations. Thus, data from in-depth multiple case studies can contribute by offering multifaced, complementary insights (Eisenhardt, 1989; Yin, 2003) – for example, the business model challenges that SMEs face during internationalization and the digitalization activities that they can introduce to meet these challenges.

At the beginning of the study, four different groups of SMEs were selected as targets – namely, i) **energy technologies** (e.g., products and technologies for heating, turbines, sustainable technologies, automation; including subcontractors to energy companies; six respondents in total); ii) **manufacturing and engineering** (seven respondents); iii) **services that support the manufacturing industry or the communities** (e.g., software companies; seven respondents); and iv) **process industry** (e.g., food, breweries, mining, forestry; nine respondents). Drawing on a public business database that included sector, region, and contact details, appropriate companies were selected. Interviewees were selected from the company representatives based on three criteria: i) the participant should be a senior decision maker (i.e., chief executive officer (CEO); ii) the participant should be employed in an SME; and iii) the participant should be from an enterprise located in sparsely populated areas of Finland and Sweden. The final sample of manufacturing SMEs covered several manufacturing industry areas in targeted sectors, such as manufacturing of beverages, food products, central heating radiators and boilers, fabricated metal products, and electrical equipment. Moreover, the firms in the value chain of manufacturing SMEs included services providers, such as computer programming, mechanical and process engineering activities, and related technical consultancy. Here, the reliability and validity of the results are ensured by the diversity of survey respondents, which includes a wide range of manufacturers and diverse perspectives from service providers. A purposive (non-random/non-probability) sample was employed for the interviews with the respondents who were selected on the aforementioned criteria. Potential interviewees were informed by e-mail of the opportunity to participate in the study. The study draws on 29 semi-structured interviews with company representatives from Finnish and Swedish manufacturing firms, including firms in their value chain. When examining the influences of various types of business model challenges in SME internationalization, 17 interviews were conducted in Finland and 12 interviews in Sweden with top management company representatives. In the case of SMEs, there is typically only one decision maker (usually the CEO) who is able to answer questions on international business development and digitalization. In order to avoid the problem of single-respondent bias, information from SMEs' official websites was included.

The interview protocol followed the semi-structured interview guide that was used to elicit background information on the interviewed SME, such as a short description of the company and its offering. This format made it possible to explore interesting areas in greater detail, which had emerged from the general introductory questions. The subsequent set of questions was used to elicit perceptions on the significance of international development in the business. For instance, the questioning sought to extract responses on the key drivers (plans) of business development and the main barriers obstructing implementation, with the aim of identifying the dynamics between them. Then, questions were asked on their organization's activities and strategies for internationalization. The last set of questions explored the usefulness of digital technology as a support for internationalization. The face-to-face interviews lasted between 30 and 90 min. Two researchers, one from Finland and one from Sweden, interviewed the company representatives. Each audio recording of the interview was transcribed, and the interviewee was asked for the permission to use the interview in the present study. To analyze the data, codes based on the content were added to the transcriptions (Elo & Kyngäs, 2008). These codes were merged into first-order categories (Gioia, Corley & Hamilton, 2013), of different business model challenges in SME internationalization. Based on the analysis of the first-order categories, second-order themes were identified. The final step of the analysis produced the overarching dimensions of the business model challenges (Nag, Corley & Gioia, 2007). Fig. 1 shows the data structure.

## Empirical findings

The data structure in Fig. 1 resulting from our interview data analysis shows the business model challenges in internationalization. However, our findings also reveal that these internationalization challenges can be tackled using digitalization strategies – or at least mitigated by them. In this section, we first discuss the challenges identified, which were related to either value creation, value delivery, or value capture. This is the input to the framework described in section 5, which pinpoints the digitalization activities that can successfully meet the internationalization challenges.

### *Value-creation-related challenges*

In order to internationalize, SMEs need market information about the target country. A typical example of a **lack of international market knowledge** is the *shortage of suitable customers in international markets*. Needless to say, internationalization will be difficult without suitable foreign customers. The reason may be a mismatch between the product and the foreign customer or simply a mismatch in the size of the firms. The CEO of a Finnish software company explained the challenge of finding a customer of suitable size as follows: "...if [the foreign] companies are micro and small sized, there is no customer base for us. The systems we are providing to are so big, that they are not suitable for small ones."

The small size of the firm may be an obstacle to its internationalization, as noted by this Swedish company representative: "We are normally considered too small.... we need to have some kind of balance with the size of the customer and the size of ourselves."

A challenge that SMEs face is *limited information to analyze or locate the international market.* Indeed, many studies stress the importance of having good market research since its lack may be a principal reason why many SMEs fail when going international. The respondents failed to see how digitalization could resolve this issue for SMEs that have modest market research resources. With digital tools, searching for contacts in terms of agents, importers, and retailers in international markets should be straightforward.

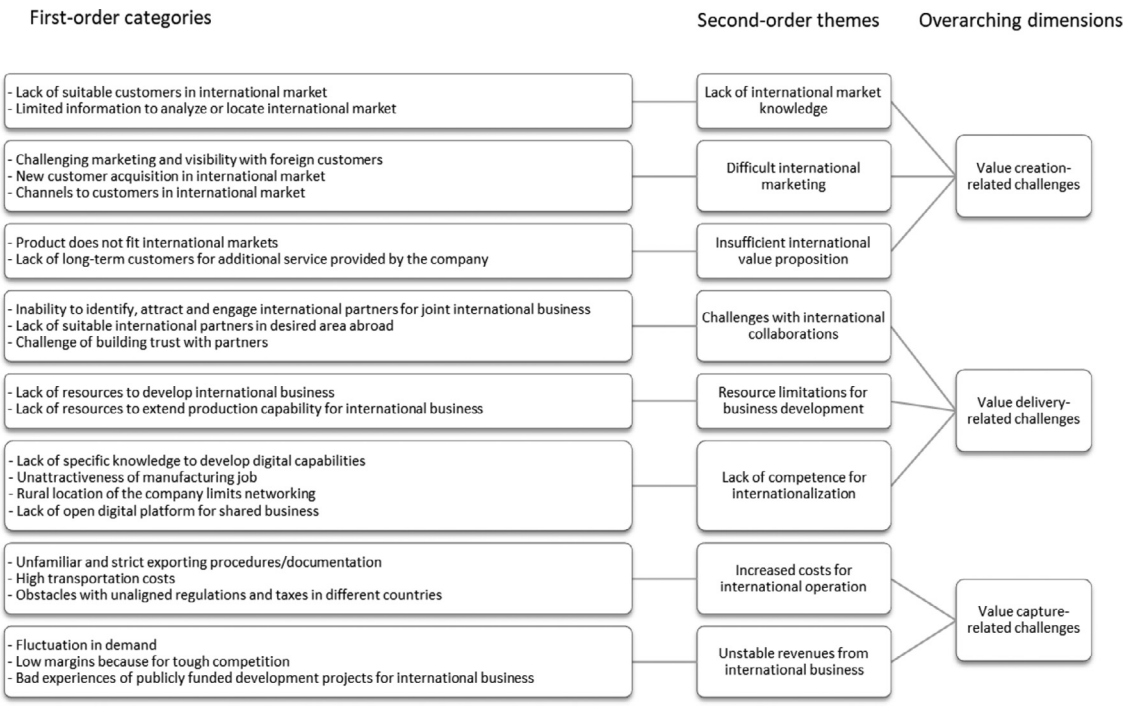


**Fig. 1.** Data structure.

*Marketing- and awareness-related challenges* are examples of the **difficult international marketing** context that SMEs face in foreign markets. Companies that invest in marketing tend to have the best visibility and sales prospects in foreign markets. Despite putting resources into marketing, it takes time to obtain international recognition, as noted by the representatives of two interviewed firms: "The barrier [to internationalize our business] is the limited recognition we have as we are a young company. It takes time. It is difficult to sell if we are not yet known." and "Our biggest marketing issue, I would say, is to get our customer that don't know us as a company to really grasp what we can do and the product features that our product can do... So, it's really a struggle to get the new customers to understand that we can help them."

SMEs see capturing customers' attention and engaging them as difficult because *new customer acquisition in international market* represents another challenge for internationalization. International marketing has a cost even in digital media, although that lost is less than traditional means, such as newspaper advertising. Obtaining improved visibility in the midst of international competitors who have similar offerings is a challenge in digital media and requires new skills to use tools such as Google Marketing Platform.

Moreover, many manufacturing SMEs have found that *channels to customers in international markets* is a challenge for internationalization. They referred to difficulties in establishing connections to distribution networks and the market availability of products, among others.

**An insufficient international value proposition** is an obvious shortcoming in a *product that does not fit international markets*. This was mentioned several times by SMEs as a challenge in internationalization. In addition to the product-to-market fit, this challenge involves uncertainty in using raw materials to which technologies are applied. The CEO of the Finnish SME manufacturing central heating radiators and boilers described this uncertainty as follows: "Global trends are bottlenecks [for our international business development]. The climate-change debate is a double-edged sword. There will be demand for [increasing] the use of biomass. One branch [of opinion] says that the use of the forest needs to be increased. Another branch says that forests should not be used. Where does the conversation turn?"

One key aspect of digitalization is that it enables the development of novel product–service systems – that is to say, providing new services based on physical products. In theory, these digital services could be delivered cross-border. However, from the respondent firms, it was apparent that not every international customer wants additional sophisticated services on top of the basic products. Thus, the *lack of long-term customers for additional services provided by the company* is a clear challenge in internationalization. The combination of products and services must be designed by keeping customer need in mind in the targeted international market. The CEO of a Finnish food manufacturing company explained this challenge in a straightforward way: "We would have more [services] to offer than what is needed [by the international customers]."

### *Value-delivery-related challenges*

New partners are needed to successfully internationalize. A typical example of the **challenges in international collaboration** is the *inability to identify, attract, and engage international partners in joint international business ventures.* In particular, many SMEs mentioned the challenge of the *lack of suitable international partners in desired areas abroad.* A Swedish firm summarized this practical challenge well as follows: "The biggest challenge is to find good partners, and if you start a company, it is to find the right people."

The challenge may be related to suitable size, compatible operational mode and company culture, stability in the relationship with key contact people, or capabilities of the foreign partner. The CEO of a Finnish food manufacturing company explained the challenge of finding a suitable international partner as follows: "If other companies [as potential partners] are far from our size or situation, then we are kind of put in the position of a mentor. In that case, we will get nothing from there. [...] The partner doesn't have to have as much staff as we do, but it needs to be more advanced [than us] and get the job done." Yet another challenge is that of *building trust between*

*partners*, as noted by this Swedish firm: "It's hard for a small company to establish that trust with every customer which is on an expert base."

**Resource limitations for business development** are seen as constraints on the internationalization of SMEs. Based on the interviews, the *lack of resources to develop international business* can take the specific form of lack of employees, and lack of production capacity or capabilities. Resources are needed for internationalization and, if the resources are tied up in maintaining the existing business, the challenge is obvious, as noted by this Swedish firm: "We need to get more personnel. If we would really make a push for the product sales internationally [then more personnel is required]." The CEO of a food manufacturing company explained that they are able to train the production workers themselves. However, she felt finding people for top management positions was extremely difficult: "The factory side is relatively easy to staff. We have experience in the work orientation. Top management is more challenging. Getting responsible persons into top management will be a challenge for growth."

In addition to the challenges of finding experts and top management, many SMEs argued that the *lack of resources limited their ability to extend the production capability for international business*. Here, the CEO of the Finnish beverage manufacturing company describes the challenge as follows: "Capacity determines how many productions can be kept running at one time."

**Lack of competence in pursuing internationalization** is a critical challenge when there is *a lack of specific knowledge to develop digital capabilities.* Here, the CEO of a fabricated metal products manufacturing company describes the digital-capabilities-related challenge: "The world is evolving: in [the manufacturing] industry, 3D printing, new methods, digitalisation, etc. [emerge]. Keeping up with them [is a challenge]." Likewise, the CEO of the engineering solutions company describes the challenges related to digital capabilities as follows: "New [business] requires new kinds of expertise: from the perspective of the platform economy, from the perspective of virtual reality, from the perspective of project management. We need service design, concept [creating skills]."

Some interviewees were concerned about the *unattractiveness of manufacturing jobs* in trying to attract new competences to industries that are preceived as traditional. Potential workers may regard manufacturing jobs as dirty, noisy, and laborious. Such negative perceptions of the manufacturing industry has a serious impact on manufacturers because students avoid entering educational programs that would provide the necessary skills. The skills gap widens as young people avoid manufacturing education and employment at the same rate as the current workforce retires. The CEO of a fabricated metal products manufacturing company describes the challenges as follows: "When following the [public] debates, there is little talk about basic workers. Everyone wants to be youtubers or famous in social media. We serve one another. Who does the basic work? This aspiration will only grow in the future. As a company, we cannot influence these [issues] ourselves. The challenges are so immense."

Many SMEs raised the challenge of the *rural location of the company and its limiting effect on networking.* The company may be located in a sparsely populated rural area away from science parks or clusters, limiting access to skilled collaborators and, therefore, placing constraints on internationalization efforts. Although digital technologies enable remote conferences, digital networking need more practice in traditional industries.

*Lack of open digital platforms for shared business ventures* was seen as a challenge for SMEs as they endeavored to internationalize. Especially, administering the open platform, processing the data obtained, and sourcing the essential data from the database for a particular business were seen as challenging, as the CEO of a Finnish central heating radiators and boilers manufacturing company described: "Who would administer [an open digital platform]? There should be an impartial platform into which people would enter information. It would be fed data by bodies and people who would not even be immediately able to take advantage of it. With big data [the key issues include]; who mines tha data, who gets the essential thing out of it. Impartial platform…" The interviewee earmarked the need for publically implemented and adminstered digital platforms that many businesses could use in joint business ventures: "I will not embark [on implementing the platform] alone".

*Value-capture-related challenges*

Examples of sources of **increased costs for international operation** are *unfamiliar or strict exporting procedures and documentation.* The challenge of managing the increased costs of internationalization was obvious to some manufacturers, as exemplified by the experiences of these two firms: "[Crossing] national borders always mean customs procedures, and taxation-related matters [for beverages]. This sets certain physical limits on how you can operate." and "There are new challenges every year with different legalizations for different countries, and the cost tends to increase to develop a product because there are so many certifications that you need to do, which means that you cannot only sell a few hundred of the device. It's not feasible. We need to get some volume to what we sell. That's the main challenge in the future."

Similarly, the CEO of a Finnish software company describes the strict procedure and documentation needed for its digital health care service to enter an international market as follows: "The overall assessment is many pages long. It might be rejected immediately because it appears so lengthy." This CEO argued that procurement decisions concerning their health care service in an international market may require a policy-level authorization as stated below: "If we talk about our system, finding it good or bad [for the needs of a foreign market] can also be a political decision."

*High transportation costs* are a central obstacle to the internationalization efforts of many manufacturing companies selling physical products, as exemplified by this Swedish firm: "Don't expect that the value of your product will increase because the cost for transportation is very high. Transportation doesn't add any value to your product. You must calculate your prices so that you can cover for freight even from [Northern Sweden]." This quote also exemplifies the challenge of *low margins because for tough competition*.

Furthermore, *obstacles with unaligned regulations and taxes in different countries* were mentioned several times as a challenge for SMEs, as exemplified by this Swedish firm: "Until the middle of last year, Britain had a good legislation for industrial processes with welding, but they came with new laws that made them much more strict than today."

An example of **unstable revenues from international business** is the challenge that comes from *demand fluctuation.* For instance, the CEO of a Finnish fabricated metal products manufacturing company explains the challenge of demand fluctuation as follows: "Flexibility is required. Even now, we have a lot of overwork this year. [Our business] is cyclical."

The respondents did not suggest solutions as to how digitalization could help mitigate the effects of demand fluctuation. For example, machine-learning-based solutions that help to predict future demand are not in their field of view. Another potential solution for mitigating the negative effects of a cyclical business is a digital collaborative tool that presents the order backlog status to all employees, who could then collectively plan how to fill the gaps in production capacity.

Many of the responding companies have had *bad experiences of previous publicly funded development projects for international business.* For example, the companies felt that they had been left without any concrete benefits from the projects, as the CEO of the food products manufacturing company described: "Often when public actors talk about internationalization, the discussion stays on a very abstract level. I don't need market information [or] market research. I am

interested in the practical conclusions. [...] There is too much abstract, academic spin that I get no grip of. We do not have time for that."

## Discussion/Framework

The empirical findings indicate that the cross-case analysis of the case companies provides detailed insights into how digital activities can support the internationalization of SMEs. In this section, the digitalization activities are presented in greater detail, and connections are made to the business model challenges they can mitigate. Fig. 2 shows the framework that matches the business model challenges and digitalization activities that enable SME internationalization.

*Digitalization activities to tackle value-creation-related challenges*

The value creation challenges were related to international market knowledge, international marketing, and international value propositions (see Fig. 2). Concerning how digitalization activities can tackle these value-creation-related business model challenges in SME internationalization, we identified the following key issues.

First of all, digitalization in the form of being present on the Internet with at least a company website is essential to run an international business. Moreover, manufacturers can increase their visibility and accessibility using search engines. The more potential customers are directed through search engines to a company's website, the more visibility the company gets as noted by these Swedish and Finnish firms: "We launched that website. . .. That was when our internationalization really started I could say and from then on. I also bought some Google Ads to get some hits and to make it searchable, and we got some good results." and "We've defined keywords for the German, English, and Swedish markets. By using Google to search for certain keywords, potential customers are directed to our business website."

In addition, there are many social media mobile software applications available that allow users to post and rate the products and services they are using. From the manufacturer's perspective, the applications can be very beneficial. They can be used as a tool to analyze customer preferences in international markets and to increase the visibility of the products in order to acquire new customers. In fact, these third-party applications may act as a channel to customers as well. Here, the CEO of a Finnish beverage manufacturing company describes how the application is utilized: "Untappd is a beer scoring app. The app usually has good comments about what was good in our beers and what was wrong. We have 85 different beers out there and a total of 16,000 scorings. Usually, ratings come every day. If some beer has received really bad ratings, then we know there is no need to manufacture that beer again."

*Digitalization activities to tackle value-delivery-related challenges*

The value delivery challenges were related to international collaborations, resources limitations, and competence (see Fig. 2). On how digitalization activities can tackle these value-delivery-related business model challenges in SME internationalization, we identified the following key issues.

First, digital technologies are appreciated because they enable remote monitoring of business activities in any part of the world. Remote monitoring enables SMEs to save resources and allocate them more rationally, as noted by the CEO of a Finnish central heating radiators and boilers manufacturing company: "Moving from place to place takes time. There is plenty of sitting in the car. If we can remotely monitor our equipment base, we will save resources."

The recently improved global network bandwidth has enabled video streaming as a viable digital tool to monitor in real-time the commissioning activities in a remote site – for example, on the other side of globe, as noted by this Swedish firm: " Internet access on remote sites was quite poor five, ten years ago, was quite poor quality. It was going up and down and was not too fast and so on. Sending video streams was not possible. I would say that the quality and the usage of those tools have improved very much over the last five years, which has opened up a possibility for us to do remote commissioning because we can have a stable and fast connection to those sites."

One identified key challenge in internationalization is access to a skilled workforce. Digital technologies have made it possible to advertise open positions to potential employees all over the world. In common market areas, such as the European Union, the workforce

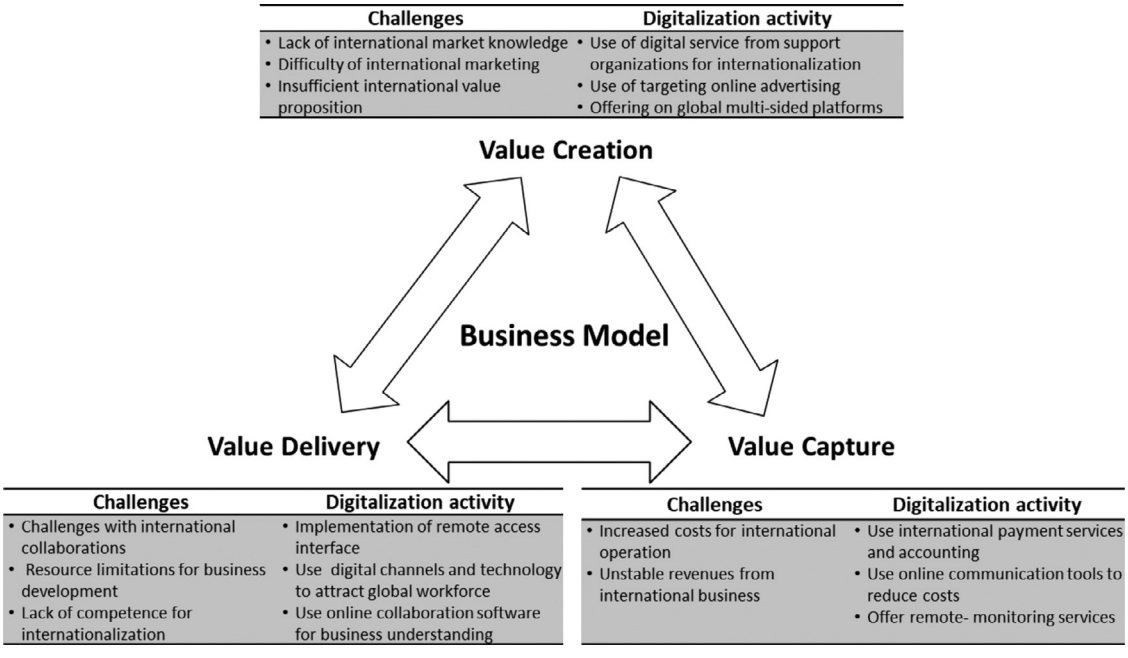


**Fig. 2.** Framework to match business model challenges and digitalization activities in SME internationalization.

can freely travel across national borders in pursuit of interesting job offers. Moreover, due to the advance of digitalization, perceptions of manufacturing jobs are shifting from negative to positive. This can be viewed as a strength that will serve to attract new employees. Online collaboration software can be used to increase understanding of the current business. Data can be collected by digital means from all sources of the business activity, and this data can be analyzed to improve the product or service offering.

*Digitalization activities to tackle value-capture-related challenges*

Value capture challenges were related to increased costs for and unstable revenues from international business (see Fig. 2). Concerning how digitalization activities can tackle these value-capture-related business model challenges in SME internationalization, we identified the following key issues.

Although digital technologies have made international invoicing more efficient, there is a demand for firms to offer reliable digital means by which customers can make their financial transactions, as suggested by this Swedish firm: “The problem is that [the customers] would like to pay for this product typically with PayPal or like a card Visa payment or anything like that. We don’t support that because we have only invoicing, that is a part of our digitalization journey to have at least for samples some payment solution for prototypes."

Fully digital currencies, such as Bitcoin, may further facilitate international business transactions when trust in these new forms of payment increases. Digital technologies still have scope for further assisting business activities on a daily basis, such as automating customer care and customer relation management, as noted by this Swedish firm: “We have no system to remind me that I should ask the customer three weeks after we sold this product. If it all went well, and if we could do something else and he’s happy." Just a couple of decades ago, communicating across borders was expensive (by telephone) or slow (by traditional mail). Digital technologies have made international business communication inexpensive and enabled new ways of delivering product information (e.g., videos, 3D models) and carrying out business negotiations (video conferencing).

Along with an improved network bandwidth, digital sensors on production machines have enabled the precise monitoring of instrumentation remotely. Thus, remote monitoring can be offered as a new service for the customer that purchased a physical device. A recent change has also occurred in customer attitudes that allow remote monitoring of their systems by a foreign company providing the system, as noted by this Swedish company: “Remote monitoring of systems, that was kind of a sensitive issue five years ago because nobody wanted any data to leave their site. It was quite difficult to get the permission to do remote monitoring of systems, and also the technology wasn’t there, really. You didn’t have the stable connections. It was a little bit difficult, but today, since a lot of people are talking about big data and digitalization and doing stuff with the data, they have to be less restrictive about how at least data is leaving their site. It’s opened up those possibilities.”

We see that, as the digital technology has matured, the opinions of customers change and become more accepting of remote monitoring services. Customers trust the new technologies enough to provide access to the device manufacturers to remotely monitor their systems. The benefits of remote monitoring, such as preventive maintenance of the systems and reduced down time, can translate into improved profit margins.

## Conclusion

Earlier research concentrated on the potential of digitalization for business development from a large company perspective, assuming that competence and resources could easily be organized (Porter & Heppelman, 2015). Thus, SMEs in particular saw themselves forced to move towards a digital-enabled presence on the global market without knowing how to embark on the journey (Hervé, Schmitt & Baldegger, 2020; Joensuu-Salo et al., 2018). The necessary changes to the business model created major challenges in trying to succeed with digital-enabled internationalization. Therefore, this study’s purpose has been to analyze how digitalization can help overcome business model challenges in SME internationalization and to pinpoint the numerous theoretical and managerial implications.

The theoretical contributions of the paper relate mainly to the business model and digitalization literature. First, this paper systematically analyzes the business model challenges that emerge from the internationalization of SMEs. Previous literature had noted the importance of business model innovation for internationalization (Bouwman et al., 2019) but without providing any insights into the challenges that internationalization poses for a company’s business model. This study analyzes the challenges related to all three components of a business model. For value creation, the challenges are related to a lack of international market knowledge, difficult international marketing conditions, and insufficient international value propositions. For value delivery, the challenges are related to international collaboration, resource limitations for business development, and a lack of competence and skilled employees for internationalization. With value capture, the challenges are related to the increased costs of international operation, and unstable revenues from international business activity.

In addition, this study identifies and matches digitalization activities with business model challenges that SMEs face when attempting to operate on international markets. Previous literature has identified digitalization as a key enabler of internationalization (Dethine et al., 2020), but it has done so on a very general level without specifying which business model components are supported and how certain challenges could be addressed. All companies do not face the same challenges and, therefore, do not need all the digital technologies that are available. Because there is no “one-size-fits-all” solution, this study seeks to match specific digitalization activities with the business model challenges they address. These findings are important because they dissect digitalization into executable activities that are manageable for SMEs. Furthermore, the paper makes a contribution to the implementation of digitalization activities by taking a SME perspective on business model challenges in internationalization that can be supported by digital technology. Most empirical studies on internationalization and digitalization are based on large companies (Lenka, Parida & Wincent, 2017). However, to really change the way of doing business, it is important to supply SMEs with guidance on how to actively utilize digitalization to their advantage. This study specifically highlights the challenges facing small companies with limited resources and focuses on digitalization activities that can be implemented even with limited competence in digitalization.

The managerial implications of this study are several. This paper is not just for the benefit of leaders in SMEs with an internationalization strategy but it should also be read by companies struggling to find an intelligible approach to digitalization. Managers responsible for market development must look for the business model challenges that are inherent in such development. Each company needs to carefully analysis the entire business model and adapt it to internal and market-related issues. The digitalization activities identified can help to overcome the challenges and give some insight into how other companies have used digitalization to become successful in the international market. In addition, all companies that collaborate with SMEs can obtain a unique understanding of the business model challenges that internationalization entails for small companies located outside the main metropolitan regions.

This study makes an important contribution to the research field, but it also carries certain limitations. These limitations can be seen as starting points for further research in the future. SMEs in sparsely populated areas in Sweden and Finland were analyzed. However, the

study comprised 29 cases from regions that were similar geographically, and the analysis was executed without particular consideration of the industry to which they belong. Therefore, business model challenges and digitalization activities could be analyzed in future research in a way that highlights differences between industries. Additional qualitative or quantitative studies, preferably in other regions, should be undertaken to validate and further develop our findings. In addition, the business model challenges and digitalization activities that we identified are not complete and can be enriched through future studies. Clearly, digitalization activities are not the only ingredients for success with internationalization and, consequently, our framework could be further extended by exploring other potentially relevant activities.

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## JEL classification

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