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SCALING AND SCALABILITY IN VOLATILE GLOBAL MARKETS

An Exploratory Study of Rapidly Internationalizing Finnish SMEs

ABSTRACT

While small- and medium-sized enterprises (SMEs) appear to have the necessary resources and skills to scale their operations to reach international growth, something seems to hold them back. This study investigates how they navigate through the challenges of international scaling. Our findings are based on an exploratory case study of 12 Finnish SMEs representing diverse industries. The collected qualitative dataset combines interviews with secondary data. These findings indicate that the scalability of a product or service offering is a prerequisite for international scaling. When developing a scalable offering, the balance of overall efficiency and customer-specific adaptation is crucial. On the other hand, international scaling requires that an entrepreneurial team be able to coordinate rapid growth internally and within their company's network, secure sufficient finance for growth, support knowledge transfer and nurture an entrepreneurial culture in the growing company. However, international scaling takes place within boundary conditions, including volatile and immature global markets, unlimited demand and competition for the best talent and finance. Our study contributes to the existing literature by broadening our interpretation of scaling to view it as a multidimensional, contextual and temporally varying process. Furthermore, we bring conceptual clarity to the discussion on scaling in the international entrepreneurship literature and highlight the need to understand scaling as a nonlinear process during the international expansion of an SME.

Keywords: scalability, scaling, rapid international growth, SME internationalization, international entrepreneurship, entrepreneurial internationalization

1. INTRODUCTION

The number of small- and medium-sized enterprises (SMEs) operating in international markets has been growing. Simultaneously, the process of internationalization has accelerated due to, for example, increased start-up establishments and digital entry opportunities. Politicians, governmental bodies and academics regard SMEs as significant sources of wealth and employment at national and global levels and encourage them to expand their operations overseas. However, national differences exist, and statistics show that not all SMEs are internationally oriented, despite the small size of the domestic market. For example, international orientation is quite rare among nascent ventures in Finland, especially compared to firms in other European countries (Suomalainen et al., 2016). Why is that? What is preventing companies from growing internationally?

Unfortunately, existing International Business (IB) research does not provide clear answers to these questions. Since the 1970s, three main theories have set the stage for contemporary IB research: the OLI framework (Dunning, 1973), internalization theory (Buckley & Casson, 1976) and the Uppsala internationalization model (Johanson & Vahlne, 1977). This tripartite has investigated international expansion from different perspectives. The OLI framework explains *why* and *where* firms expand overseas (especially why they invest). Internalization theory considers *what* by rationalizing the most efficient organizational form in which to expand, and the Uppsala internationalization model clarifies *how* firms enter international markets (Santangelo & Meyer, 2017). The Uppsala model (the original from 1977 and later revisions until Vahlne & Johanson, 2020) captures the incremental internationalization commitment-learning process but does not explain how a company grows in the nexus of internal and external influences from a start-up to a multinational. On the other hand, the focus of International Entrepreneurship literature has been the earliness and speed of internationalization (Knight & Cavusgil, 2004; Oviatt & McDougall, 1994), with considerably

less interest focused on post-entry and continued internationalization (Ibeh et al., 2018; Morgan-Thomas & Jones, 2009; Prashantham & Young, 2011; Welch & Paavilainen-Mäntymäki, 2014).

Therefore, there is a gap in the existing literature, as few studies have followed the international growth of SMEs over time and hence, we know relatively little about what happens after a company has started to rapidly expand its international operations. Consequently, this study investigates *how SMEs navigate the challenges of international scaling*. For the purposes of our study, we define scaling as a company's ability to quickly develop and economize its core business processes to increase revenues faster than costs (Monaghan et al., 2020; Monteiro, 2019).

The limited variety of available established theoretical lenses has not prevented scholars from engaging in pluralistic research and studying the relationship between management, internationalization and international growth in SMEs. For example, scholars have focused on how international growth has been influenced by founder/CEOs' and management teams' previous experiences (Cassar, 2014; Reuber & Fischer, 1997; Westhead et al., 2005), company knowledge resources (Fernhaber et al., 2009), managerial orientations (D'Angelo & Presutti, 2019; Jantunen et al., 2008; Odorici & Presutti, 2013) and internal contingencies (Demir et al., 2017; Niittymies & Pajunen, 2020; Shepherd et al., 2015; Pellegrino & McNaughton, 2017).

Five key dimensions have been found to underpin the high growth of firms: human capital, human resource management, strategy, capabilities and innovation (Demir et al., 2017). However, existing research is silent about the requirements of scaling for the product, service or solutions a company is offering, with some exceptions focusing on replicability (Jonsson & Foss, 2011; Tippmann et al., 2022), despite the long tradition of research on the benefits of scaling (Carson, 1985; Maclaran & McGowan, 1999). Understanding scaling is both essential

and relevant for companies on the verge of international growth. Such studies are emerging (recent examples include Monaghan et al., 2020; Monaghan & Tippmann, 2018), but so far, their focus has been on the growth of large multinational companies or digitally operating companies, largely ignoring the international growth of established SMEs.

Consequently, our understanding of the international growth of SMEs is biased, and as studies focusing on *scaling enabling international growth* are scarce, explanations of the SME international growth process are incomplete. This study attempts to increase further knowledge of management's role in scaling up SME operations for the successful commencement of international growth and sustaining international growth in the longer run to complete the picture in the nexus of International Entrepreneurship, strategic management and organizational research (Wiklund et al., 2009). From a conceptual perspective, this study also offers a delineating synthesis to clarify the use of terms related to scaling. Finally, from a theoretical perspective, this study updates the agenda of International Entrepreneurship research by bringing the roles of scalability and scaling during the development of international entrepreneurial SMEs into the discussion.

The study is structured as follows: following the introduction, we provide an overview of the existing knowledge on scaling, offer our synthesis of the literature and present our research design. We then draw the paper to a close with the findings and conclusions sections, making suggestions for further research.

2. OVERVIEW OF PRIOR KNOWLEDGE ON SCALING

Given the limited number of studies on scaling, it is perhaps not surprising that scholars have not yet developed a common understanding of what scaling is (Coviello, 2019). In line with Shepherd and Patzelt (2022), *we understand organizational scalability as the propensity of a venture and its entrepreneurial team to situationally optimize its operations. Here, scaling refers to a company's ability to quickly develop and economize their core business processes* to increase revenues faster than costs. The ability to scale up is reflected in increasing revenues and the extension of the customer base beyond the domestic market. On the other hand, firms may need to be able to scale down if necessary to remain resilient in the face of market changes.

Research on the economies of scaling (e.g., Carson, 1985) has a long tradition in attempting to optimize company inputs and outputs to grow, balance supply and demand and leverage competitiveness. Zhang et al. (2015) identify that the most scaling-amenable business processes are those related to the identification and engagement of customers and value chain linkages. Similarly, Bocken et al. (2016) associate scaling with an increase in customer base, expansion of company offering and maximization of revenues. Hafner and Pidun (2022), in turn, discuss how SME managers' company-specific deep expertise and tacit knowledge enable, rather than hinder, global scaling.

Recently, scaling has gained increased interest among scholars with a specific focus on scaling in digital business models (Lund & Nielsen, 2018; Piaskowska et al., 2021; Stallkamp et al., 2022; Tippmann et al., 2022; Westerlund, 2020) and digital servitization (Kolagar et al., 2022); global scaling activities (Reuber et al., 2021); rapid scale-ups of new firms for survival (Bailetti et al., 2020; Bailetti & Tanev, 2020; Chetty & Campbell-Hunt, 2004; Picken, 2017); speedy scaling over efficiency, or blitzscaling (Kuratko et al., 2020); and service innovation scaling (Di Pietro et al., 2018). In many studies, scaling, scalability and scale-ups have been almost

treated synonymously with international growth and growth in general (Demir et al., 2017). For example, some authors equate the terms ‘high-growth firms’ and ‘scale-ups’ (Aernoudt, 2017; Coutu, 2014; Zhao et al., 2019). However, this practice has also received criticism by, for example, noting that scaling is not a self-evident trait of all high-growth firms (Carucci 2016; Monteiro, 2019).

In other words, scaling is not only about high growth. Scalability also requires that a company be up to it – this phase in a company’s life cycle is usually characterized by the transformation of people, processes and places (Coviello, 2019). Scaling is not a choice between, for example, growth and no growth, but it can be interpreted as a ‘stepless control’, where the extent of company processes and operations can be adjusted or optimized based on the situational circumstances, market uncertainties and strategic emphases of the time (Kuratko et al., 2020). This adjustment may require scaling to not only be assessed as a linear, unidirectional process. Indeed, in some studies, the fluctuation between scale-ups and scale-downs is acknowledged as an indication of resilience (Linnenluecke, 2017). Scaling down has been seen as a strategic choice to ensure continuity, efficiency, performance and resilience (Linnenluecke, 2017; Sousa et al., 2021; Surdu et al., 2019) instead of a failure (Benito, 2005; Vissak et al., 2020).

Until now, scaling has been approached from various perspectives, and while the number of studies has increased, the unclarity around the definition and meaning of scaling has also become more prominent. To clarify the use of scaling-related concepts and definitions, we conducted a concise, delineating literature review (cf. MacInnis, 2011) of the most recent and relevant sources addressing scaling in a business context. Through this review, we attempted to grasp how the concepts of ‘scalability’, ‘scaling’ and ‘scale-up’ have been defined in existing discussions, as well as how they are interlinked (see Appendix 1). We concluded that the existing literature has taken three different views on this phenomenon: (1) scalability as an attribute, (2) scaling as an activity and (3) scale-up as an achievement (see Figure 1). In our

empirical study, we focused on the first two aspects – scalability and scaling – as they are related to our research question.

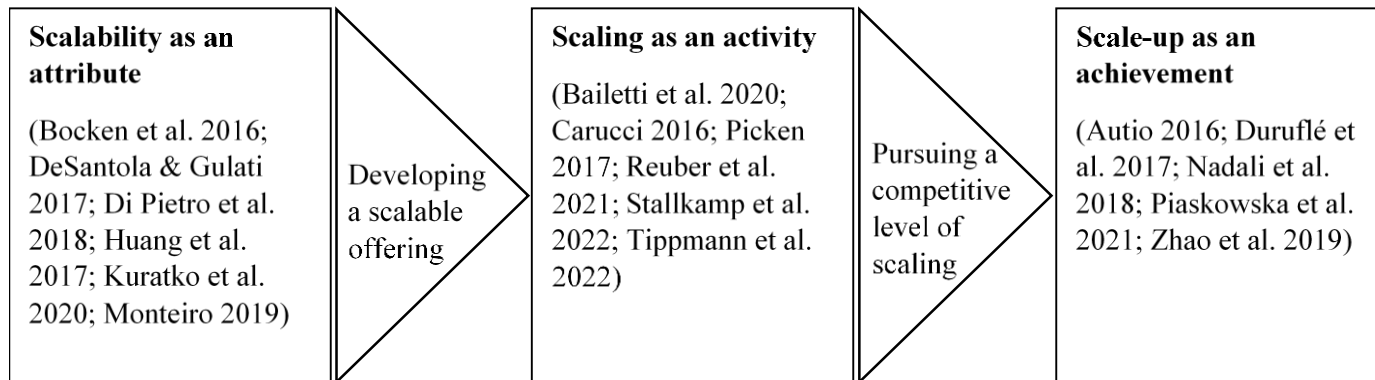


Figure 1. Delineation of scaling-related concepts (adapted from Picken, 2017)

3. RESEARCH DESIGN

This study focuses on how SMEs navigate the challenges of international scaling. To explore this question, we conducted a multiple-case study to refine the existing theory (Eisenhardt et al., 2016). This type of exploratory approach is recommended when prior knowledge of a phenomenon is limited (Edmondson & McManus, 2007). Qualitative case research enables us to provide a contextualized explanation of SME scaling (Welch et al., 2022), thus providing us with a more complete and richer understanding of the phenomenon.

We searched for theoretically salient cases without aiming to generalize to a larger population (Eisenhardt, 1989). First, based on our literature review, we defined a scale-up firm as an SME with either scaling experience or clear plans for rapid future growth. We then searched for such companies from public sources, particularly business media. Next, we focused on companies

that had already been successful in expanding their business internationally or had plans to expand globally at a fast pace.

To capture the potential influence of context on the international scaling of SMEs, we selected 12 cases based on ‘constrained variation’ (Eisenhardt, 1989), in other words, representing different industries and ages (see Table 1¹). The case companies include industrial, knowledge-intensive and service companies. Some are still in the start-up phase, whereas others are already established companies. Some are making their first foreign entry, whereas others are already in the post-entry phase. Our cases are ‘classic case studies’ (Dyer & Wilkins, 1991), as they provide rich descriptions of the internationalization of these firms in their natural contexts. We aimed to produce in-depth case narratives that offered a deep understanding of scaling from the case companies’ viewpoints.

Table 1. Overview of the case companies

	Name	Founded	Headcount*	Turnover (2020; MEUR)	International markets**
Industrial	Company Pill	2008	160	11	Nordics, (rest of Europe)
	Company Room	2019	15	1	(Middle East, Central Europe)
	Company Leaf	2011	60	3.1	Europe, East Asia, North America, Middle East
	Company Algae	2019	19	0.06	(Caribbean)
Knowledge-intensive	Company Logistics	2012	50	8.7	Europe, (Middle East, East Asia)
	Company Robot	2015	200	19.1	Europe, North America
	Company EMobility	2017	200	0.7	Europe, (Asia-Pacific)
	Company School	2017	10	0.4	Middle East, South and Southeast Asia
Service	Company Maths	2017	17	0.4	Asia, Latin America

¹ To protect interviewee confidentiality, the companies have been anonymized using pseudonyms that reflect the nature of their businesses.

	Company Event	2007	77	5.2	Europe
	Company Phone	2015	3	0.2	South Asia, Europe
	Company Signed	2017	13	0.3	Europe
<p><i>*Headcount refers to the number of staff that the companies employed at the time of the interviews. It should be noted that many of the companies also employ freelancers and other external workers who can occasionally account for a significant proportion of their workforce.</i></p> <p><i>**The use of parentheses indicates that the company did not, at the time of the interviews, have major activities in the market but had, for example, earlier inactive connections to be reactivated or was in the process of expanding into that market.</i></p>					

Our dataset originated from several sources: archival materials including external (media) and internal (corporate) sources, social media and semi-structured interviews with the entrepreneurs. Data collection began with a systematic search for archival material from the case companies, and it continued throughout the process. The interviews were conducted over Zoom from March to May 2022 and accommodated the uncertainties and changes in international markets induced by the Ukrainian crisis and the ongoing recovery from the Covid-19 pandemic. In addition to assessing the contemporary situation of the case firms, the interviews also took a retrospective perspective on firm scaling operations to obtain a longer-term process view with explanatory background information. The length of the interviews varied from approximately 45 minutes to one hour. They were audio-recorded with the interviewees' permission and transcribed verbatim for content analysis.

Altogether, the interview transcriptions formed an original primary dataset of approximately 200 pages of raw text for the purposes of this study. We also had secondary data on the case companies, including press releases, reports, website information, news articles and advertising material from the companies, resulting in a set of nearly 100 documents. The availability of secondary data varied among the companies.

Our analysis began with systematic coding of the transcribed interviews using NVivo software, which facilitated the interaction between theory and data and secured the systematic analysis

of the data (Sinkovics & Alfoldi, 2012; Sinkovics et al., 2008). The codes used were based on our literature review, including factors facilitating scaling and scalability and related challenges. Novel codes were added to include themes emerging from the data. Based on the initial coding, aggregate factors affecting the scalability and scaling mechanisms of the case companies were formed, and they were further analysed. Parallel to this coding, archival material was used to complement and contextualize the picture and to check the details. We followed an iterative comparative case analysis process, first identifying broad themes within each interview and then across interviews to arrive at overall patterns (Eisenhardt, 1989; Miles & Huberman, 1994).

4. FINDINGS

Our case companies were comparable to the extent that they were established with the objective of globalizing their products and/or services and all aimed at rapid international growth. At the same time, the cases varied in terms of their industry contexts, the development stage of their internationalization and their growth to date (see Table 2).

Table 2. International growth of the case companies

Company	Scale (no. of markets)	Speed of internationalization	Illustrative quotes from interviewees to describe their future growth aspirations
Company Pill	>5	Rapid internationalizer	'In 5 years, we are globally the number one in this niche market, and in 10 years, we have conquered many such markets, which are not yet ready'.
Company Room	<5	Born global	'Our products are universal. The Finnish market, with five million people, will not be enough. Next year, we will have our major opening and from then full on ahead'.
Company Leaf	>10	Rapid internationalizer	'In 5 years, we will be 10 times larger than today. North America is the main market, but Finland, Sweden, German-speaking countries in Europe and French-speaking countries in Europe have grown significantly'.

Company Algae	<5	Rapid internationalizer	‘Our business has been international from the start, and the problems we are solving are global’.
Company Logistics	>10	Born global	‘In five years, we will dominate the Finnish market, and it works as an important reference for international markets. We are a very interesting partner for internationally operating companies, and we have a strong international presence through our international network. In 10 years, we have become the most valuable company in our business in Finland, and our system has been fully integrated into other platforms’.
Company Robot	>10	Born global	‘We have searched for customers across industries from the start, and the aim of the first phase was to become a leading company in our business in the Nordic countries. We are already the market leader in selected segments in Sweden, the UK and the US’.
Company EMobility	>30	Born global	‘We are a born global company, and our current presence in European markets is strong. Future growth lies in Asia and North America, which we are opening this year’.
Company School	>10	Born global	‘We need to scale up quickly. There is no limit; there are millions of potential customers, and you can be as big as you want. In the long run, we aim for a turnover of tens of millions. Perhaps not in five years, but in the future’.
Company Maths	>10	Born global	‘The starting point is that we want to continue multiplying every year, which in practice means that we need to find partners faster and support them so that they succeed better. ...The world has not been conquered yet. There are millions of potential users; we have a lot to contribute around the world’.
Company Event	>20	Rapid internationalizer	‘When we started, we had a 25–25 plan: by 2025, we would have a turnover of 25 MEUR. Well, there has been some headwind, and we have had a pause in growth, or it has taken longer than expected. We aim for 16 MEUR by 2026, which means that we would multiply it by 2.5’.
Company Phone	<5	Born global	‘I think our company should be one of the five top choices of customers in our focus area, whether it is in Asia or Europe’.
Company Signed	>20	Born global	‘We started as a born global company. In five years, we will be a major player in Europe and North America. At the moment, our focus is on Nordic countries and Benelux, but then we are in all markets and have also entered the US’.
<i>‘Born global’ refers to companies that started their rapid internationalization within the first three years of operation, whereas ‘rapid internationalizer’ refers to firms that started the process after three years of operations.</i>			

An in-depth analysis of the case companies revealed that they share similar experiences but also differ in terms of international scalability and scaling. It is understandable that the strategies they have applied to navigate the related challenges have also varied. They all operate in volatile

global markets, which, at the time of the interviews, were often still ‘under construction’ in terms of regulations and/or customer needs.

Scalability – the prerequisite for scaling

The focal point of operations in all the companies was their product/service offering around which their business had been formed. The products and/or services offered are typically innovative and technologically advanced, and the case company often plays a significant role in market creation. The companies operate in a relatively narrow niche market with global demand, and to serve customers, their offerings are co-created with them. Product/service development is a continuous process built on feedback received from the market.

Our product has been designed to be internationally scalable from the beginning. ... We had sold the service before we had coded anything. At all times, we have communicated the idea to the market, reacted to responses and built [the service] accordingly. (SIGNED)

The starting point was that we develop what the market needed. (EMOBILITY)

From day one, we have been very sensitive in listening to potential customers. We have not developed anything that would not fit customers’ needs...we have developed the products in collaboration with international customers. (SCHOOL)

Although their offerings are designed for global markets, a major challenge for scalability is the need for customer/market-specific adaptations. It seems that, particularly during the early phases of internationalization, the case companies were eager to meet all the needs of customers, but quite soon understood that this was not a viable strategy.

If someone wants to pay in USD, we offer you USD. If somebody wants to pay in euros, we have that option. And if somebody wants to use our service in the morning, earlier than us, it’s possible! If somebody wants to use it late at night, it’s possible! If somebody wants help in nonworking hours, it is possible! Everything is possible; that’s our intention! In the beginning, we made sure that all of these checkboxes were ticked. (PHONE)

Customers can customize the offering themselves if they so wish. We give full access to their designers to build the brand there. Six or seven years ago, we offered tailoring to

any customers. In the beginning, we did quite a lot of it if the deal was dependent on it. (EVENT)

Each customer is different, and we need to tailor the package according to their needs. At the same time, we need to know what we can standardize so that it is easy to copy elsewhere. Each country and culture is different, and each customer is unique. The balancing – being profitable and scalable – has been a challenge at which we have succeeded. (EMOBILITY)

To find a balance between profitability and a localized product, which is needed for successful scaling, many case companies rely on modularity in their product offerings. Additional flexibility is achieved through international partner networks. Modularity and collaboration with local partners are vital for manufacturing companies, but also of importance to other types of companies.

Tailoring was not the optimal way. It was fine in Finland, but the minute we went overseas, it was very challenging and, in practice, not profitable. Therefore, we changed the strategy and focused on the models that sold best. Now we have 6–7 products that you get in two colours. It's a bit like Ford's Model T. You get some features, but in principle, the modules are the same. (LEAF)

We search for solutions that we can offer in partnerships. We have four product or solution modules, and we search for a local partner with the incentive to sell the solution to the local market. (LOGISTICS)

We are working on a next-generation product. We are aiming at a modular product that is scalable, and we will have a flagship and medium- and low-end version of it. (PILL)

Another scalability challenge for the case companies is the global demand for their offerings. Although it may seem to be a positive push for them to enter international markets, it creates considerable challenges, particularly for manufacturing firms. For them, building scalability takes time, and it is also a risky investment.

We need to create demand in a very, very determined way. The flipside is that when we create a new category, the market is unlimited. (LEAF)

When we move outside this country, customer expectations grow. In the next phase, we need to increase our production capacity. It is critical for our internationalization, as

without it, we cannot serve international customers. ...Our biggest challenge, at the moment, is that even if there were more demand overseas, we cannot respond to it. (ALGAE)

We aim to get global accounts, as our customers have operations around the globe. If we get a positive customer experience, it can expand [widely]. Instead of selecting a market, we may grow through a global account that has immediate potential. But this highlights the importance of scalability. If we think of Japan, Australia or the US, we just do not have the production capacity to complete a successful rollout there. We need to prepare for that – increase the production capacity of our factory. If we get explosive demand, it is the worst possible start if we sell ‘no’ for six months. That’s unthinkable. (PILL)

All the case companies seem to understand what is required for international scalability. However, their ability to meet these requirements varies, reflected in their international performance and speed of internationalization.

Scaling – developing business processes for rapid international expansion

In addition to the scalability of a business, we are also interested in a company’s ability to develop its core business processes so it can support successful and sustainable international expansion. Our data indicate that the case companies share a number of factors that allowed them to scale up successfully.

The management of a fast-growing business is an art. Besides creating systematic processes for reporting and management, top management also needs to manage the partner network and support the entrepreneurial culture within their company. While rapid growth also requires the recruitment of new talent, which facilitates the work of an entrepreneur and increases professionalism in running a venture, it is accompanied by additional dilemmas related to knowledge transfer and community building.

It is quite difficult ... You need a pizza menu, which is as short as possible, and yet has 120 different types of software integrated into it so that the customer can choose. And at the same time, you need to manage the partnerships. It is bloody difficult. (EVENT)

When the company grows, it is not enough to run everything in a single Excel file. Now, we really need different departments and someone who takes care of the finances and someone who is responsible for sales. When you have worn all the different hats yourself in the beginning and done everything yourself, it is now nice to have experts, more competent people. You cannot scale up if you are not systematic – you need to create some order, reporting, monitoring. (EMOBILITY)

When the team grows, the ways of working no longer fit. It is not efficient or sensible. ... How can we spread the company culture when we recruit new people? ... [The new recruits] have experience and thoughts. How can we make them commit to our mission and our way of working? ... The members of the small core team understand each other well, but the new recruits do not have the context or the tacit knowledge, and it changes the team dynamics. We need to be really sensitive and to include the new team members, but also change the existing operations if needed. (MATHS)

In most of the case companies, the top management team has prior experience of international business, which helps in navigating these challenges. From the start, they have also recruited talent globally and built their teams on a global basis. On the other hand, continuous scaling up and down creates pressure to retain existing talent and recruit new talent. Suitable talent is a scarce resource, and a small, new start-up is not always the most sought-after position for top talent.

We wanted international teams, and this means that the stiff Finnish culture just does not work. We need to create a company culture that integrates the international dimension. Fortunately, this has been easy for us, as our whole team has been very open and positive about it. We appreciate each other as experts and achievers, and the diversity is a richness for all of us. (MATHS)

We have existed for about two and a half years, and during that time, almost all the personnel have changed. We had to scale down for a while, then we restarted and now we have a new set of people onboard. It is a huge change in a short time, and we are still working on this. It takes time, surprisingly a lot of time. (ROOM)

We need the solid, top-notch competence of the customers' businesses. ... The problem is that we are an agile start-up and finding suitable people has been really, really difficult. (SCHOOL)

Recruitment is a major challenge. We compete for the same resources as everybody else, so for me it is clear that we will need to fight over developers. (SIGNED)

Prior experience is also helpful in defining the focus of a company and formulating a viable strategy for international expansion. All of our interviewees stressed the importance of a focused strategy that allows the efficient use of limited resources without spreading them too thinly.

When you create demand, it makes sense to focus on selected markets and segments. Think about who the potential customers for our solution are, instead of going about it in a scattershot manner around North America. (LEAF)

Based on the recommendations of our investor, we have had a very strong focus on Nordic countries. We want to do this well first. We get inquiries from all around the world, but we have formulated our strategy so that we want to be market and customer experience leaders in the Nordics before we expand to new segments and geographic markets. For the other markets, we have developed a market screening tool that allows us to evaluate where the best product–market fit is. (PILL)

We offer our pilot concept – a trial period of four weeks – for free to any customer anywhere in the world. We have tens of these pilots running, and they work for us as market research. This provides us with first-hand experience of a market and access to customer interactions. (MATHS)

The case companies differ in their solutions related to international presence, which is a prerequisite for the scaling of international operations. Many of the case companies rely on partner networks, which allow them to operate flexibly and scale up or down if needed. However, it is clear that some of the more experienced companies have realized that control via ownership is sometimes needed or at least preferred.

We are a team in Finland, and we do not have local knowledge. This means that we need a local partner in Thailand, India, Chile, Mexico, Oman or elsewhere. We do not want to have a local office and recruit people there. We ally with local people who already know how to do business there. (MATHS)

Every country unit has a country manager, and these units have a lot of autonomy. They are independent companies, and the country manager is responsible for sales and customers. ... We are operating in a matrix in which the service production and related resources are centralized [in Finland], so, for example, the country manager in Denmark collaborates with the manager responsible for consulting here. This ensures

that we stick to the budget and that the business develops in a common direction. (ROBOT)

In 2019, we got venture capital, and we created a growth strategy. Then, we had Finland as an independent company, a subsidiary in Sweden and the Netherlands and France operated on a franchising principle – they were independent entrepreneurs. In the new strategy, we decided to have a local B2B sales and marketing organization in each country, and there we operate in the local language, which would be our competitive advantage. However, we wanted to have a bit more control over the Netherlands and France, and in the future, they will be our subsidiaries. In 2020, we acquired them. At the moment, we need to scale down the unit in the Netherlands because of COVID-19. We still have the subsidiary and customers, but we handle them from Finland. (EVENT)

As the quote from EVENT shows, ownership and related access to growth finance are important enablers for scaling. However, the case companies differ in terms of their ownership strategies – some of them welcome outside investors and related finance, while others prefer to expand with cashflow only or benefit only from public funding available for SME internationalization. The choice of ownership strategy naturally influences a company's ability to scale up its international operations. There is also a notable difference between manufacturing firms and firms offering intangible services, with scaling for international operations requiring considerable financial investments in the former.

Our previous investor was a Norwegian venture capitalist, and they had limitations on how much to invest in each company. Our rapid growth created a huge need for investment, and in our case, it meant that we could not invest in R&D as much as we would have wanted. This [new investment] came really at an optimal time, as we have started to grow so fast that they could not have kept this company. Now that we have a new owner, we allocate more than 30 percent to R&D. ...This changed our agenda immediately. We are looking at global markets and thinking about where to expand outside the Nordic countries. ...It also allows us to concentrate on the business instead of constantly searching for funding. (PILL)

I have some previous experience of venture capital and, in my opinion, its greatest value lies in the phase when you already have the scalable business model and then you can think whether you want to take in the funding that allows you to multiply the scale of business times 100. With organic funding, it would be too slow or much slower, but not necessarily impossible. (MATHS)

The founders made the initial investment, and we also worked for free for the company in the beginning. That created a cash flow that, together with available public funding, supported our market research and R&D. We have followed the cash flow constantly.

In the beginning, we monitored it on a weekly basis, and it has also guided our decisions. We aim for moderate growth. I think that the fact that we do not have millions in venture capital helps us to focus and make informed decisions. (SIGNED)

Our findings paint a picture of ambitious and advanced entrepreneurial firms with partly shared and partly different challenges in their paths to global markets. The concepts of scalability and scaling were clearly relevant in interpreting their rapid international expansion and future growth aspirations.

5. CONCLUSIONS

To address a gap in our understanding of the rapid international growth of entrepreneurial firms, we investigated how Finnish SMEs navigate the challenges of international scaling. Our findings indicate that the scalability of a product or service offering is a prerequisite for international scaling. When developing a scalable offering, the balance between overall efficiency and customer-specific adaptation is crucial. On the other hand, international scaling requires that an entrepreneurial team be able to coordinate rapid growth internally and within the company network, secure sufficient finance for growth, support knowledge transfer and nurture an entrepreneurial culture in their growing company. However, international scaling takes place within boundary conditions, including volatile and immature global markets, unlimited demand and competition for the best talent and finance (see Figure 2).

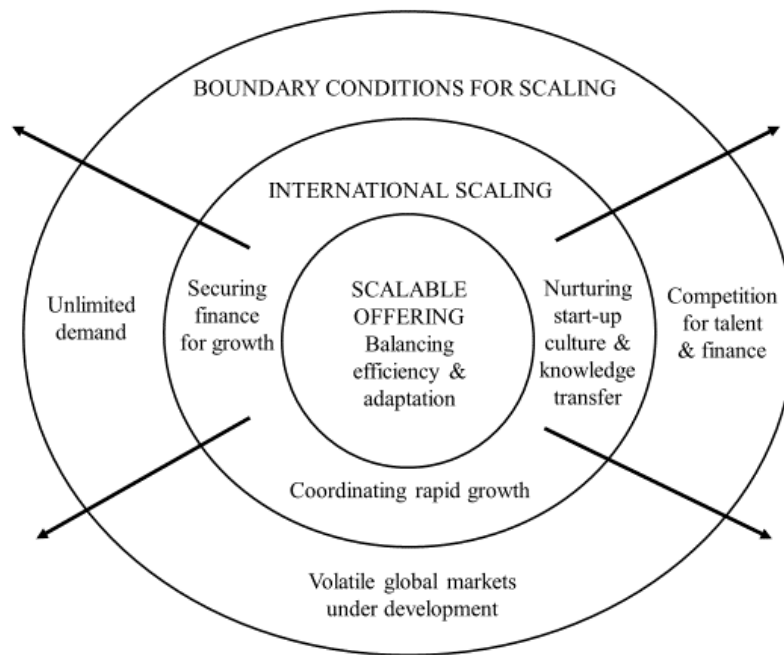


Figure 2. Dimensions of international scaling of SMEs

Internationalizing SMEs operate in an environment that is increasingly volatile, uncertain, complex and ambiguous (VUCA), affecting the international growth patterns of these firms. Furthermore, their operations are increasingly embedded in global value chains that are under continuous evolution and turbulence, and SMEs need to demonstrate considerable resilience and uncertainty tolerance to remain valuable partners (Kano & Oh, 2020). A good understanding of the market and institutional environment, combined with network competence, supports successful SME internationalization (Torkkeli et al., 2018) and facilitates overcoming the boundary conditions of international scaling.

Although existing research on scaling discusses the scalability of a product from the viewpoint of replication (Reuber et al., 2021; Tippmann et al., 2022), the underlying dilemma of scalability is based on the fundamental question of all international business: how can we find the balance between global efficiency and local responsiveness (cf. Bartlett & Ghoshal, 1989)? Therefore, it is not surprising that some of our findings on scalability are similar to those highlighted by Reuber et al. (2021) in their editorial on global scaling and multinationalization.

However, our study shows that in the context of SMEs, scalability extends beyond replicability, and the related growth process is multi-layered.

International scaling is based on the strategic choice of an entrepreneurial team; it is not accidental or based on a business model only, as argued by previous studies (Hennart, 2014). The process combines elements of management, leadership and finance, and its understanding requires considering the nature of a product/service offering, the capabilities and experience of an entrepreneurial team and the collaborative network in which a company operates (see, e.g., Ruokonen et al., 2006). In other words, understanding international scaling calls for contextualized explanation.

Our study makes several contributions to the existing international entrepreneurial literature. To start with, we introduce a more contextualized explanation of international scaling by investigating the phenomenon among SMEs representing a variety of industries. Prior studies on scaling have mainly focused on digital firms (Huang et al., 2017; Monaghan et al., 2020; Piaskowska et al., 2021; Stallkamp et al., 2022; Stampfl et al., 2013; Tippmann et al., 2022; Westerlund, 2020; Zhang et al., 2015), while ignoring the phenomenon in other types of firms. Our study directs attention to an often-ignored group of firms with a tangible product.

Additionally, we build on existing frameworks of factors related to international scaling (e.g., Reuber et al., 2021) and provide a more nuanced view of the facilitators and challenges of international scaling, thus broadening our interpretation of scaling as a multidimensional and temporally varying process. Separation of scalability as an attribute and scaling as an activity allowed us to provide a richer description of the phenomenon, as well as create a hierarchy between the two concepts and clarify their interlinkages. Furthermore, we bring conceptual clarity to the discussion on scaling in the International Entrepreneurship literature and highlight

the need to understand scaling as a nonlinear process during the international expansion of SMEs.

Our study is one of the first empirical studies to focus on the factors that influence the scalability and scaling mechanisms of internationalizing SMEs. Prior research typically focuses on the start-up phase, but our findings indicate that future research would benefit from studies that compare companies of different ages, ownership structures and industries. Compared with limited earlier research on scaling – which has focused on multinational corporations or been conceptual – we brought new insights that had been previously overlooked. We hope that our study can serve as a conversation starter that inspires future research on the international scaling of SMEs.

This study also has managerial implications. It stresses the importance of a scalable offering, balancing efficiency and responsiveness and coordination capabilities as the key elements of scaling for rapid international growth. Furthermore, it provides an overview of the challenges with which entrepreneurial teams of scale-up firms struggle daily and offers solutions that have been successfully applied when scaling for international growth. For example, in the continuous race for talent, our case companies have been able to attract new recruits by offering them the meaningful work-life balance, flat organization and open communication of a start-up culture and a job in a company that solves some of the wicked problems of the world. Overall, our study offers entrepreneurs insights into how to optimize their international operations in a volatile global environment and how to develop related core processes.

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Appendix 1. Scaling-related definitions based on our literature review

Author/s	Definition
Scalability	
Bocken et al. 2016	“...we define scaling up as “increasing the number of customers or members of a business as well as expanding its offer and maximising its revenues until it reaches millions of people.” (p. 295)
DeSantola & Gulati 2017	“While colloquially referred to as scaling, considerations for the internal organization involve not only how to achieve replication at scale but also how to attend to the increased scope of activities that typically accompany growth” (p. 4)
Di Pietro et al. 2018	“Scaling up here refers to an empirical phenomenon describing an innovative service ecosystem’s ability to grow by attracting new customers and other actors (e.g. Den et al., 2010; Uvin and Miller, 1996; Harnish, 2014). It includes adjusting to and learning from new market and social conditions, such that it can create enough revenue and profits to enable sustainable growth. Scaling up implies spreading, diffusing, disseminating, and self-adapting an innovative service ecosystem to new market conditions.” (p. 147)
Huang et al. 2017	“We define rapid scaling as a generative process by which a venture’s user base increases significantly between two points in time” (p. 302)
Kuratko et al. 2020	“...blitzscaling: funding a venture for extremely fast growth and prioritizing speed over efficiency in an environment of uncertainty.” (p. 109) “...three distinct features of blitzscaling: rapid growth, growth on a global scale, and scaling toward a first-mover advantage.” (p. 110)
Monteiro 2019	“As a result, a scale-up can be defined as an HGF whose accelerated cycle of growth and wealth creation is fundamentally based on the scalability of its business model. This does not mean that a scale-up company never has market power, e.g. through building a strong brand. The point to be emphasized is that the growth of the firm is based, essentially but not exclusively, on the scalability of its business model.” (p. 103) “Consequently, a scalable business model is one that is characterized by activities or transactions that can be replicated in such a manner that the firm is able to increase its revenue at a rate faster than its costs, thus gaining scale.” (p. 103)
Scaling	
Bailetti et al. 2020	“new companies that are committed to scale, that is, to growing the amounts they are worth rapidly. For example, a company that grows its value from \$0 to \$1 billion in less than ten years is a company that scaled.” (p. 14)
Carucci 2016	“Growth means adding revenue at the same pace you are adding resources; scaling means adding revenue at a much greater rate than cost.” (p. 3)

Picken 2017	“In our view, the entrepreneurial innovation process proceeds through four stages (startup, transition, scaling, and exit)...In the scaling phase, the entrepreneur must add significant resources and leverage processes and partnerships to grow the business within the framework of the validated business concept and a sustainable business model. The objective becomes rapid growth in order to achieve competitive scale and establish sustainable market leadership.” (p. 588)
Reuber et al. 2021	“Global scaling – defined as a logic of multinationalization that seeks rapid growth through the replication of a global business model across foreign markets.” (p. 1031)
Stallkamp et al. 2022	[Scaling defined as ability] “to rapidly attract users and increase output with near-zero marginal costs” (p. 95)
Tippmann et al. 2022	“global scaling, defined as a “logic of multinationalization that seeks rapid growth through the replication of a global business model across foreign markets” (Reuber et al., 2021, p. 1031). Core to this definition are three elements...persistent high growth, a global business model & a replication strategy” (p. 4)
Scale-up	
Autio 2016	"In contrast [to startup], a scaleup is a new venture that has crossed the Growth Chasm and settled upon a scalable business model." (p. 8)
Durufié et al. 2017	“we apply the term 'scale-up companies' or 'scale-ups' to entrepreneurial companies that are past their initial exploratory phase, have found their initial product/service offering and market segment, and are entering a growth phase where they seek significant market penetration” (p. 1)
Nadali et al. 2018	“Lean Startup methodologies are to validate a business model hypothesis as scale up methodologies is to identify the right counterparts and execute growth opportunities. It defines a scale up as a development-stage business, specific to high-technology markets, that is looking to grow in terms of market access, revenues, and number of employees, adding value by identifying and realizing win-win opportunities for collaboration with established companies.” (p. 2351)
Piaskowski et al. 2021	“...define scale-ups as high-growth firms at an intermediate stage of organizational development (situated between the start-up and mature firm stage in the organizational life cycle), which pursue strategies that prioritize the attainment of economies of scale.” (p. 1)
Zhao et al. 2019	“Both startups and scaleups [employing under 10 people and having turnover less than €2M] are differentiated from other small businesses by their high growth ambition and very scalable business models. However, what differentiates scaleups from startups is their market validated business model which startups are still just in the middle of creating.” (p. 8)