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Appiah, Emmanuel Kusi; Galkina, Tamara; Gabrielsson, Peter

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Published in:
International Business Review

DOI:
[10.1016/j.ibusrev.2023.102176](https://doi.org/10.1016/j.ibusrev.2023.102176)

Published: 01/12/2023

Document Version
Publisher's PDF, also known as Version of record

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Please cite the original version:
Appiah, E. K., Galkina, T., & Gabrielsson, P. (2023). Liminality and developmental process of learning advantage of newness of early internationalizing firms. *International Business Review*, 32(6), Article 102176. <https://doi.org/10.1016/j.ibusrev.2023.102176>



Liminality and developmental process of learning advantage of newness of early internationalizing firms[☆]

Emmanuel Kusi Appiah^a, Tamara Galkina^b, Peter Gabrielsson^{c,*}

^a International Business, School of Marketing and Communication, University of Vaasa, P.O. Box 700, FI-65101 Vaasa, Finland

^b Department of Management Studies, Aalto University School of Business, Ekonominkaio 1, 02150 Espoo, Finland

^c International Business, School of Marketing and Communication, University of Vaasa, Wolffintie 34, P.O. Box 700, FI-65101 Vaasa, Finland

ARTICLE INFO

Keywords:

Early internationalization
Learning advantage of newness
Liminality
Adaptive behavior

ABSTRACT

Extant internationalization studies have devoted limited attention to the dynamics of the learning advantage of newness (LAN), which we, in response, investigate through the process approach and the novel lens of the concept of liminality. We conduct a longitudinal multiple-case study of five Finnish internationalizing firms. We inductively derive a process model that shows how the underlying liminal factors, such as international opportunity scaffolding activities, learning from communities, and rituals, contribute to the development of learning advantage of newness. Originating in anthropology, the liminality perspective offers a novel perspective on LAN of early internationalizing firms. We also provide directions for future research and recommendations for practitioners.

1. Introduction

Early internationalization is a highly complex, risky and ambivalent process (Oviatt and McDougall, 2005; Knight and Cavusgil, 2004), whereby new firms soon after foundation enter foreign markets (Knight and Cavusgil, 2004). Such firms are known as international new ventures (INVs) (Oviatt and McDougall, 1994). From the time of early internationalization up to occupying an established position in foreign markets, early internationalizing firms experience a betwixt and between state of *liminality*, which is marked by ambiguities, uncertainties, and risks (Prashantham and Floyd, 2019). During such periods of initial internationalization, early internationalizing firms are neither at the internationalization intent state nor have they yet attained a stable internationalization state. They may encounter various deficiencies, such as liability of newness and liability of foreignness, which challenge their survival and growth (Zahra, 2005; Zhou, Barnes and Lu, 2010). At the same time, evidence shows that early internationalizing firms are more innovative, and can benefit from the learning advantage of newness (LAN) to attain rapid international growth (Autio, Sapienza and Almeida, 2000). LAN is the advantage that early internationalizing firms have in learning new competencies necessary for commercialization, long-term survival and value creation in foreign markets (Autio et al.,

2000). Arguably, entrepreneurial firm LAN is not a new field of research, and is still growing. The extant works pay scant attention to the development of LAN from a process-based perspective. Only Fuerst and Zetting (2015) apply a dynamic approach; however, they do not provide a holistic picture of LAN development. Rather, they focus on how interactions with network partners contribute to the creation of international market knowledge. Therefore, we still know little about how LAN is formed (Bai, Liu and Zhou, 2020), and developed into an advantageous capability for early internationalizing firms.

The theorization of the LAN argument supposes that early internationalizing firms lack the related knowledge to assimilate and use new knowledge (Autio et al., 2000). In contrast, we argue that international learning is effective when the firm has a stock of prior knowledge and experience at the individual and firm levels (Wu and Voss, 2015; Zahra, Zheng and Yu, 2018). Therefore, we propose that a stock of knowledge and experience forms part of the development of LAN, in the style of path dependency. While the conceptual work by Prashantham and Floyd (2019) has established theoretical complementarity between the early internationalization process and liminal transition, the potential of the liminality theoretical lens drawn from social anthropology to enrich our knowledge of LAN formation has not been fully exploited. The liminality perspective draws attention to the opportunities and risks that are

[☆] Submitted to the International Business Review in September 2022. Revised and resubmitted in March 2023. Revised and resubmitted in June 2023.

* Corresponding author.

E-mail address: peter.gabrielsson@uwasa.fi (P. Gabrielsson).

simultaneously heightened during transitions, influencing how young firms learn (Prashantham and Floyd, 2019). It also offers the possibility to examine how entrepreneurial firm practices, for example learning, evolve during transitions (Gross and Geiger, 2017). Drawing on the processual approach to early internationalization, and the liminality lens (Turner, 1969), the objective of this paper is to explore the development of LAN, focusing on the underlying mechanisms in the formation processes. We do so by conducting a multiple-case longitudinal study of five early internationalizing firms. Liminality has originally been studied at the individual level; however, in the context of SMEs “the entrepreneur epitomizes the small firm and its physical and human resources, the individual and the organization as units of analysis coincide” Johannisson (1998p. 300). Hence, our study is in line with other research looking at liminal processes at the firm level (see e.g., Gross and Geiger, 2017).

Our work makes several important contributions. *First*, longitudinal studies, in general, have frequently been called for in internationalization studies, because the time dimension in internationalization has been largely neglected (e.g., Coviello and McAuley, 1999; Welch and Paavilainen-Mäntymäki, 2013), and calls for process-based studies remain relevant (Zucchella, 2021). In response, we advance the existing knowledge on LAN by adopting a dynamic longitudinal approach, and offering a process model of LAN development. *Second*, our study contributes to the international business (IB) and international entrepreneurship (IE) literatures on the capability development and learning of early internationalizing firms, highlighting the underlying mechanisms that support LAN development during their liminal transitions along internationalization (Autio, George and Alexy, 2011). We explore how certain firm-specific liminal activities promote LAN development. The study builds on Prashantham and Floyd's (2012) conceptual ideas to present the first empirical study, to the best of our knowledge, on liminality in IB. We view LAN development from the novel perspective of liminal transition, which can be explained through the concepts of *communitas*, and *rituals*.

2. Theoretical background

2.1. Early internationalization as a liminal process

Using the lens of social anthropology, liminality is a transition from one social status to another (Van Gennep, A, 1960; Turner, 1969), for example, from childhood to adulthood. The subject is considered no longer a child nor yet an adult. Liminal moments are times of tension, extreme reactions, and great opportunities for identity development where personal habits are maintained while new ones are adopted (Turkle, 1998). Also, in liminal moments there is no script for the individual to follow. Thus, the individual transits a realm that has few or none of the attributes of the past or coming state (Turner, 1987). In a similar vein, early internationalization can be described as a highly liminal process. The entrepreneur decides to commence internationalization at or shortly after the firm's inception, but with no internationalization experience; or limited internationalization experience based on prior knowledge and experience built on habits derived from socialization as children and adolescents, and continuing through their early work experiences (Aldrich and Yang, 2013; Costa, Frederiks, Englis, Englis & Groen, 2022; Oviatt and McDougall, 2005; Wu and Voss, 2015; Zahra et al., 2018). While maintaining prior knowledge, entrepreneurs also develop knowledge built on habits derived from opportunity scaffolding activities in the newly established firm. As a concept from social anthropology, opportunity scaffolding is best clarified as the liminal aids to learning provided by yourself and others to help individuals transit from a liminal phase to a new state (Prashantham and Floyd, 2019; Vygotsky, 1962). It comprises the following activities: self-reflective learning, consultative learning, and peer learning. Self-reflective learning is the “process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies

meaning in terms of self, and which results in a changed conceptual perspective” (Boyd and Fales, 1983; p. 100). Consultative learning refers to the process in the liminal stage where individuals or firms learn from mentors, training programs, and organizations (Prashantham and Floyd, 2019). Peer learning is the process that occurs at a liminal stage, whereby individuals or firms learn from their counterparts, similarly to vicarious learning (Posen and Chen, 2013; De Clercq, Sapienza, Yavuz & Zhou, 2012).

At the firm level, early internationalization can be described as a highly liminal process where the firm is neither at the early internationalization intent state nor at the state of stable internationalization (Prashantham and Floyd, 2019). The early internationalization intent state is the decisive phase where the firm decides to internationalize. In contrast, the state of stable internationalization is referred to as the matured or break-out phase, where the firm considers itself matured to plan a global market positioning, and expands to new continents to leverage economies of scope based on accumulated foreign market experience (Gabrielsson, Kirpalani, Dimitratos, Solberg & Zucchella, 2008). Navigating through the state of early internationalization intent to stable internationalization is marked by deficiencies, such as liability of newness and liability of foreignness, which are known to be strong contributors to failure among early internationalizing firms (Zahra, 2005; Zhou et al., 2010). The liabilities of newness relate to the deficiencies in host country local business knowledge. The liabilities of foreignness equate to the costs a firm operating in a foreign market incurs that a local firm would not, due to a lack of familiarity with local language(s) and cultural norms, and an absence of legitimacy and credibility (Hymer, 1976; Zaheer, 1995).

Extant studies show that the firm's adaptive behavior constitutes an essential part of early internationalization (Autio et al., 2000; Sapienza et al., 2006). Here, that behavior is the firm's responsive ability to accustom itself to emerging changes and opportunities in foreign markets. Those involve the processes of market trends analyses, sensing and making necessary innovations and improvements to offerings, business structures, management style, operations, business models, and strategies (Okanga and Groenewald, 2016). According to Winter (2003), there are two sources of change or adaptation: 1) ad hoc problem solving, and 2) dynamic capabilities. Ad hoc problem solving does not depend on routines—behaviors that are largely non-repetitive, and appears as a response to novel challenges from the environment (Winter, 2003). In contrast, built on evolutionary thinking, dynamic capabilities are collections of routines that form the basis of firms' behavioral continuity (Nelson and Winter, 2002). Research on routines has largely focused on macro level analysis (i.e., the firm level neglecting the individual level action and interaction) (Felin and Foss, 2005; Winter, 2013). Accordingly, it is important to know how the individual level knowledge and experiences of actors in early internationalizing firms aggregate into the coherent behavior of the entire firm to enable responsiveness to emerging changes. We found that the literature on early internationalizing firms showed INVs tend to depend on the prior knowledge and experience of entrepreneurs to muddle through the initial stages of internationalization (Autio et al., 2000; Oviatt and McDougall, 2005; Zahra, Zheng and Yu, 2018).

Research on liminality has addressed the mechanisms that enable transition from one state to another. For example, Turner (1969) examined the *communitas* and *rituals* that emerge to support the transitioning process. *Communitas* means a sense of common goal and communion (Turner, 1969). It describes personal social bonds or solidarity that may occur in groups where members are interdependent and focused on common objectives (Letkemann, 2002; Turner, 1969). *Communitas* provides connections, support, legitimacy and acceptance to liminal entities in a society (Turner, 1995). For example, “adolescents in hunter-gatherer communities receive useful guidance and direction to practice the killing game from elders” (Prashantham and Floyd, 2019, p. 517).

Rituals are symbolic social actions that occur in the context of

specific occasions where a group's values and identity are publicly demonstrated with formality and seriousness (Islam and Zyphur, 2009; Rook, 1985; Smith and Stewart, 2011; an den Ende, van Marrewijk, 2014). They include events to celebrate organizational success, retirement dinners, or a dinner for new employees (Islam and Zyphur, 2009). The ritualization of actions in the organizational setting can be explained in terms of some key characteristics, which include removal (i. e., geographic distance, symbolic change, activity differentiation, cognitive contextualization, and social informality), the use of liturgy (i. e., ordering of activities), and the involvement of ritual specialists (i.e., facilitator of activities) (Johnson, Prashantham, Floyd & Bourque, 2010). Communitas and rituals are rather less developed in early internationalizing firms, which are very much in the process of formation, thus allowing the various international contexts to more easily influence the firm's adaptability, and in turn become the source of the development of communitas and rituals over time. Due to the absence of or fewer home-based routines to "unlearn", less political power grounded in home-based activities, and fewer relational obligations to external (domestic) partners (Autio et al., 2000; Zahra et al., 2018), early internationalizing firms have the potential to engage with communitas to access social capital, which aids in knowledge acquisition and creation (Prashantham and Floyd, 2019; Prashantham, 2005).

2.2. Learning advantage of newness

In research on early internationalization, one of the dominant organizational learning theoretical frameworks utilized by scholars is Huber's (1991) organizational learning framework (De Clercq et al., 2012; Tuomisalo and Leppäaho, 2018). The Huber (1991) framework links individual knowledge and knowledge acquisition to firm-level learning (De Clercq et al., 2012; Zahra and Hayton, 2008; Zahra, Ireland and Hitt, 2000). According to the framework, learning in firms encompasses the process of knowledge acquisition, information distribution, information interpretation, and organizational memory. First, knowledge acquisition is the process by which knowledge is derived. It is acquired from five main different forms of organizational learning: experiential learning, vicarious learning, searching, grafting, and congenital learning (Huber, 1991). Studies on knowledge acquisition in

early internationalizing firms have demonstrated the applicability of these forms of organizational learning. For example, Fuerst and Zettinig (2015) showed that in interacting with network partners, INVs use congenital learning, searching, vicarious learning, and grafting to create knowledge. Bruneel, Yli-teno and Clarysse (2010) found that young firms compensate for their lack of firm-level international experience by learning from founding members' prior experience (congenital learning), and from key partners (vicarious learning). Second, information distribution is the process of sharing information, whereas information interpretation is the process of giving meanings to the shared information. Finally, organizational memory is the means by which knowledge is stored for future use (Huber, 1991).

One of the significant theoretical concepts derived from the lens of organizational learning in early internationalization research is LAN, which focuses primarily on the learning attention and effort that are devoted to acquiring new market knowledge (Autio et al., 2000; Sapienza et al., 2006). Building on Oviatt and McDougall's (1994) insights on the advantages of new ventures in learning about foreign markets, and on Penrose's (1959) resource heterogeneity assumption where experiential knowledge is a key resource, Autio et al. (2000) used panel data from the Finnish electronics industry to conceptualize LAN as the advantage due to new ventures compared with existing firms, to learn and acquire new knowledge from the foreign market (Autio et al., 2000). According to Autio et al. (2000), new ventures tend to have fewer deeply embedded routines, and face less cognitive complexity and structural rigidity, which provides them with the leverage to learn (Autio et al., 2000; Fernhaber and Li, 2010; Zahra, Zheng and Yu, 2018). The LAN's theoretical logic has been used in a number of studies (see Table 1). The earlier studies have attested that LAN is contingent upon certain organizational, environmental and strategic contextual triggers (Zahra et al., 2018; Zhou et al., 2010; Sapienza et al., 2006; Autio et al., 2000). Our view on the extant literature distinguishes between internal and external triggers. Internal triggers include organizational (e.g., age at entry), cognitive (e.g., non-existent domestic routines and practices), structural (e.g., flat organizational structures), strategic intent (e.g., learning intent and motivation to internationalize), entrepreneurial proclivity (e.g., proactiveness, risk-taking, and innovativeness), and social (e.g., building foreign ties). The external trigger relates to the cultural

Table 1

Key empirical research on LAN and positioning of our article.

Study	Empirical	Type of the longitudinal study	Theory Used	Industry Sector	Triggers of LAN	How LAN Develops
Autio et al. (2000)	Quantitative	Prospective studies (Panel data/5-year data points)	Knowledge-based view	Finnish internationalizing firms in the electronics industry	Yes	No
Blesa, Monferrer, Nauwelaerts, and Ripollés (2008)	Quantitative	n/a	Internationalization theory	Spanish and Belgian INVs across industries	No	No
Bruneel et al. (2010)	Quantitative	n/a	Organizational learning theory	Belgian young technology-based firms in technology industry	Yes	Yes
Fernhaber and Li (2010)	Quantitative	Repeated cross-sectional studies	Neo-institutional and learning theory	US based publicly held new ventures across industries	No	No
Zhou et al. (2010)	Quantitative	Prospective studies/2-year data points	Entrepreneurial proclivity and network dynamics of reconfiguration	Chinese INVs across industries	Yes	Yes
Schwens and Rudiger (2011)	Quantitative	Retrospective studies	Learning theory	Technology industry	No	No
Fuerst et al. (2015)	Qualitative	Retrospective and Prospective studies/10-month data points	Effectuation theory	INVs in Columbia and Medellín across industries	Yes	No
Bai et al. (2020)	Quantitative	n/a	Social capital theory	Internationalizing SMEs across industries	Yes	Yes
Positioning our study	Qualitative	Both prospective and retrospective with 4-year data points	Liminality	Finnish INVs cleantech	No	Yes (process model)

Note: Repeated cross-sectional studies refers to study samples that are largely or entirely different on each sampling occasion; prospective studies rely on the same sample over a time period; retrospective studies are on an already experienced events about a sample by inquiring about the past (Caruana, Roman, HernándezSánchez & Solli, 2015).

dissimilarity between home and host markets (Zahra et al., 2018; Autio et al., 2000). In terms of methods, our view of the extant literature reveals that the earlier studies have explored LAN from both quantitative and qualitative perspectives. However, the larger share of such studies is inclined to a quantitative perspective. This limits to some extent our understanding of the underlying mechanism in the formation of LAN. Furthermore, the received studies have approached LAN across industries focusing on several outcomes, such as the growth and survival trade-off, growth and profitability, international positional advantages, and positive performance outcomes utilizing different theoretical lenses (De Clercq et al., 2012). For example, Bai, Liu and Zhou (2020) utilized social capital theory to explore how social capital linked to the underlying LAN contributes to the international performance of young entrepreneurial firms. Fuerst and Zetting (2015) utilized effectuation theory to explore the dynamic process of knowledge creation through the interaction with network partners. The employment of diverse theories has shown that the study of LAN is not limited to a specific theory, thus providing us with the leeway to employ liminality theoretical lens in our study.

The above discussion shows that the extant research on LAN formation has predominantly focused on identifying its triggers, but does not unpack the actual process of LAN development. It is unsurprising that Oviatt and McDougall (2005) noted “the learning advantages of newness represent a counterpoint to the widely accepted concept that there is a liability of newness for young firms...and deserve additional empirical testing and conceptual development” (p. 549). One study that stands out, by Fuerst et al. (2015), provides insights into the dynamics of knowledge creation for internationalization through network partners. They showed that by interacting with partners, new ventures start with congenital knowledge followed by a focused search process leading to vicarious learning and grafting for rapid international expansion. While their process model is important because it explains the different types of international market knowledge acquisition through interaction with network partners, and how specific relationships with network partners came about and developed, it focuses predominantly on networks and does not provide an integrative picture on LAN development. Hence, we have scant understanding of the specific mechanisms and interactivities of the emergence and evolution of LAN from a processual perspective. Juxtaposing our research with extant studies (see Table 1), we look to uncover the development of LAN through a process model. We now describe the methodology and empirical procedures of our study.

3. Methodology

3.1. The rationale behind the empirical study

This study adopts a longitudinal multiple-case study approach. The received literature shows that longitudinal studies provide insights on the sequences of events and processes while they happen (Stevens and Dimitriadis, 2004). In our study, the longitudinal multiple-case study approach allows us to identify the processual developmental changes in the formation of LAN in the context of liminality. Given our case study approach, we consider the contextualized explanation method (Bhaskar, 1998) the most appropriate for theorizing. It involves tracing processes in their natural contexts, and acknowledges the existence of reality independent of our perceptions (Bhaskar, 1998; Welch, Piekkari, Plakoyiannaki & Paavilainen-Mäntymäki, 2019). The method also challenges the possibility of a fully inductive or deductive process of theory development (Welch et al., 2019). In line with other studies (e.g., Denis, Lamothe and Langley, 2001), our approach is partly deductive (theory inspired) and partly inductive (data inspired). The importance of this approach is reflected in its enabling the researcher to develop novel insights from the data, without necessarily denying or reinventing prior concepts (Denis et al., 2001).

3.2. Case selection

We followed purposeful sampling principles (Patton, 2015), and developed the following criteria for case selection. *First*, the firm must be undergoing an internationalization process moving from a state of no activities in foreign markets toward realized and stable international operations. *Second*, we set an age criterion for selected firms to be no more than eight years old (McDougall, Shane, and Oviatt, 1994), to minimize validity issues related to recall bias, and ensure similarities across the firms. *Third*, the criterion for an early internationalizing firm was that the firm made its first foreign market entry within three years of its inception (Autio et al., 2000). We specifically did not require a certain degree of internationalization, in order to ensure we could follow firms in the process of liminality and see whether they overcame the liminal state. We conducted some preliminary investigations regarding firms that would meet our criteria, and approached seven firms of which five agreed to take part in the study. This number of selected cases satisfies Easton's (2010) definition of a case study as one that “involves investigating one or a small number of social entities or situations about which data are collected using multiple sources of data” (p. 119). In line with this definition, our emphasis lay on selecting a limited number of cases in a specific setting in an attempt to expose the causal processes and mechanisms that contribute to the development of LAN. Therefore, we selected five cases, recognizing the notion that adding more cases does not add depth to findings, referred to by Sandelowski (2008: p. 875). All the selected firms were from Finland and the cleantech sector, ensuring homogeneity across the case firms. We selected Finland because it is a small open economy with a tradition of firm internationalization; the majority of its young firms operate in foreign markets (Luostarinen, 1994; Knight and Liesch, 2016). Our choice of the cleantech sector was also warranted by the importance of organizational learning in clean innovations (Laurens, Le Bas, Lhuillery & Schoen, 2017). This empirical setting provides a good understanding of how theoretical constructs of interest influence firm behavior when the country- and sector-specific variations are kept to a minimum. The case firm names have been changed to preserve anonymity: Fire, Luminary, Lean, and Ultrasound reflect their area of business. Table 2 provides a brief description of the case firms under investigation.

3.3. Data collection

We collected data from both primary and secondary sources. Some of the data were retrospective and some based in real time. We aimed to understand the underlying mechanisms that supported the formation of LAN. Therefore, we gathered primary data in four rounds from the same interviewees during a four-year period, to identify past and ongoing learning-related events and activities. Further, we employed in-depth face-to-face semi-structured interviews in the first two rounds. Our focus was on how and why such events and activities occurred as they did. We go beyond describing events to identifying the mechanisms driving these events (Langley, 1999). Due to the coronavirus pandemic, we conducted the last two rounds of interviews via Zoom. The interviewees were the most knowledgeable members of the organization on the investigated processes. Secondary data included information from the firms' webpages, and blog sites, and were used for interview preparation and the verification of facts obtained during the interviews. Table 3 exhibits the primary data collection process. The interviews were audio-recorded with the informants' permission, and subsequently transcribed verbatim. In addition, we transcribed interim summaries which we recorded during every interview. The summaries covered the observations we made during the interviews, and were considered invaluable aids for our analyses and ensuring the quality of our procedures. They have supported us in developing reflexivity in recalling the context and content of our observations, and their interpretations (Saunders, Lewis and Thornhill, 2016).

Table 2
Background of Case firms.

Firm	Fire	Luminary	Lean	Ultrasound	Lightening
Year founded	2015 (operations began 2016)	2011	2012	2014 (operations began 2015)	2015
Area of operation	fire systems supervision, commissioning, delivery of spare parts	design, manufacture, and export of luminaries	delivery of energy competences and company development of solutions based on lean principles	ultrasonic cleaning of industrial equipment	design of industrial lighting systems
Founder(s)	1 person	1 person	1 person	2 persons	2 persons
Foreign operations	Ethiopia, Togo, Zambia, Mozambique, Cameroon, Curaçao, Jordan, Thailand, Indonesia, Thailand	USA, Norway, Germany, UK, Thailand, Australia, China, Malaysia, South Africa	Japan, Sweden, Czech Republic, Germany, Belgium, Norway	Thailand, Japan, The Netherlands, Switzerland, Spain, Sweden, USA	Sales representatives in Sweden, Norway, Denmark, Estonia, Latvia, Lithuania, UK, and in process of negotiation with Australia and Chile
Share of foreign sales within 3 years of establishment	95%	85%	33%	25%	Sales agreement made with foreign companies in 2017, but waiting for country-related licenses before delivery

Table 3
Data Collection Process.

Data Collection	Description of data collection	Luminary	Lean	Ultrasound	Fire	Lightening
1st round interviews	Date/Position	08/10/2018, CEO/Entrepreneur	08/10/2018, CEO/Entrepreneur	11/10/2018, CEO/Entrepreneur	15/11/2018, CEO/Entrepreneur	26/09/2018 Entrepreneur
	Venue	Company's premises	Company's premises	Company's premises	Company's premises	Company's premises
	Length of interview	1 h 24 min	1 h 52 min	1 h 29 min	2 h 15 min	2 h
	Transcribed pages	28 pages	40 pages	30 pages	50 pages	35 pages
2nd round interviews	Date/Position	11/02/2019, Same person	07/05/2019, Same person	02/04/2019, Same person	26/04/2019, Same person	10/05/2019 Same person
	Venue	Company's premises	Company's premises	Company's premises	Company's premises	Company's premises
	Length of interview	40 min	1 h	1 h 8 min	1 h 15 min	1 h 32 min
	Transcribed pages	10 pages	20 pages	25 pages	30 pages	27 pages
3rd round interviews	Date/Position	21/08/2020, Same person	25/08/2020, Same person	15/09/2020, Same person	18/09/2020, Same person	15/09/2020, Same person
	Venue	Zoom	Zoom	Zoom	Zoom	Zoom
	Length of interview	45.22 min	1 h 4 min	39.31 min	45 min	35 min
	Transcribed pages	11 pages	18pages	10 pages	13 pages	11 pages
4th round interviews	Date/Position	24/03/2022, Same person	18/03/2022, Same person	15/03/2010, Same person		16/03/2022, Same person
	Venue	Zoom	Zoom	Zoom		Zoom
	Length of interview	20 min	25 min	25 min		30 min
	Transcribed pages	8 pages	10pages	8 pages		10 pages
Interviews in total	Length of interview	3 h 9.2 min	4 h 21 min	3 h 31 min	4 h 15 min	3 h 5 min
	Transcribed pages	57 pages	88 pages	73 pages	93 pages	46 pages
Secondary data		Presentation slides, videos, company's website (records of foreign operations)	Internal documents, company's website (records of foreign operations)	Internal documents, company's website and blog (records of foreign operations)	Presentation slides, videos, company's website (records of foreign operations)	Presentation slides, videos, company's website (records of foreign operations)

3.4. Data analysis

The data analyses employ an embedded case study design, containing two sub-units of analysis (Yin, 2003), namely the firm and the entrepreneur. This allowed us to understand how LAN development is affected by the entrepreneur and by the firm. Our coding process used two types of coding. First, we assigned a priori codes derived from the literature to some of the data; we identified self-reflective learning, consultative learning, learning from communitas, and rituals (see Table 4). All the codes with similar meanings were grouped together into broader, higher-level categories based on the literature (Miles and Huberman, 1984). Second, we assigned open codes, letting the raw data

suggest emerging themes on a case-by-case basis, reviewing the interview extracts line by line. Moving from open coding to more abstract coding into theoretical categories and subcategories, we combined the emerged codes into groups with similar attributes, forming first-order concepts. Following Gioia, Corley and Hamilton (2013), the first-order concepts were combined into second-order themes, further abstracted into aggregate dimensions (see Table 5). Our intention with this method was “to have the basis for building a visual representation” (Gioia et al., 2013; p. 20) for cross-case analyses, and to show how we inductively progressed from raw data to concepts and themes in conducting the analyses (Gioia et al., 2013). The methodology provides a valuable means for analyzing process data. However, it does not incorporate the

Table 4
Data structure and findings (deductive approach).

A priori Code	Categories	Quotes from the interview
Self-Reflective Learning	Interpreting and reflecting on the firm's activities	<p>"Every Monday morning at 10 am we have...meetings where we share everything that's going on in cases. Every single unit...expressing potential future matters." ULTRASOUND (ENTREPRENEUR/2nd round interview).</p> <p>"We usually have meetings where we share ideas and reflect on the performances of our foreign distributors." LUMINARY (ENTREPRENEUR/2nd round interview).</p> <p>"We have a regular structure of weekly meetings where information obtained from...ongoing activities is shared...we have continuous development, where actions can be called for and tasks be given in regular meetings..." LEAN (ENTREPRENEUR/2nd round interview).</p> <p>"...With regard to my pool of outside engineers, I communicate with them...to get feedback and reflect on the ongoing activities" FIRE (ENTREPRENEUR/2nd round interview).</p> <p>"...Anytime I attend an event, I reflect on how the ideas shared will support the development of my company. In these programs you share ideas." FIRE (ENTREPRENEUR/2nd round interview).</p> <p>"I also attended a course. Although the training was short, I was able to make personal notes. Reflecting on the notes enabled me in my fact-finding trip to China. For example, the business culture in China." LEAN (ENTREPRENEUR/2nd round interview).</p>
	Interpreting and reflecting on ideas from events participation	<p>"My experience from my industry career. I use my experience to know which steps usually need to be taken, and what alternatives there are, and can even beforehand consider these steps including the whole process. I simulate in my mind what I could do." LEAN (ENTREPRENEUR/2nd round interview).</p> <p>"Whenever Wärtsilä offers me a deal. I make a personal visit to the site to check the situation on the ground. Using experience from similar tasks, it enables me to have a clear picture of what to do and not to do" FIRE (ENTREPRENEUR/1st round interview).</p>
Consultative Learning	Interpreting and reflecting on prior work experience	<p>"I go on visits, expos, seminars. Last summer, I was in Stockholm for the Fire Sprinkler Conference. Attending such workshops provides me with access to new developments in fire maintenance systems" FIRE (ENTREPRENEUR/1st round interview).</p> <p>"Conferences and trade shows, we have participated in are POWTECH 2017...and iTAG 2017. We attend them to upgrade our knowledge" ULTRASOUND (ENTREPRENEUR/1st round interview).</p> <p>"I also attended a course...by an</p>
	External knowledge acquisition via programs	

Table 4 (continued)

A priori Code	Categories	Quotes from the interview
Learning from Communitas	External knowledge acquisition via collaborations	<p>organization in Espoo...where we were given training...in doing business in China" LEAN (ENTREPRENEUR/1st round interview).</p> <p>"We have close relations with universities...This year (2020), we collaborated with Vaasa University of Applied Sciences on a project exercise course to source ideas on how circular economy thinking can be utilized in our company's international trade" LIGHTENING (ENTREPRENEUR/2nd round interview).</p> <p>"In the US...we are collaborating with external research bodies. We have joint research collaboration with the University of Helsinki...to aid us in understanding current trends in ultrasound technology. Without the research collaborations...we wouldn't have known this" ULTRASOUND (ENTREPRENEUR/2nd round interview).</p> <p>"...if I have a project in the Middle East, I will use my Middle East contact. We learn about the host market environment through them." FIRE (ENTREPRENEUR/2nd round interview).</p> <p>"We have organizations as partners in Norway...We also have networks of cleantech companies and through this network we get access to information on country where a network member is operating. For example, we went to Sweden by a support of an information given by a network member" LIGHTENING (ENTREPRENEUR/1st round interview).</p>
	Learning from liminal participants in projects	<p>"We are part of start-up EU-funded projects...Uh, if you look at these projects, the most interesting thing we have learned or experienced is how participating companies coped with uncertain changes like the coronavirus. And what they started to do to increase their sales and, and other kinds of things...That is closer to the benchmarking part we have." LIGHTENING (ENTREPRENEUR/4th round interview).</p> <p>"Yes, especially in the start-up world, um, it's very normal that...you talk to companies that are doing the same thing that you are doing. We do that a lot because we are a consulting company. So, we end up working and sharing ideas." LEAN (ENTREPRENEUR/4th round interview).</p> <p>"We have several collaborations with small organizations in the industry. One is in Japan, the US, Netherlands, Chile, and Norway. They have broadened our view to see the bigger picture of our solution. We have co-developed new technologies to solve new issues." ULTRASOUND (ENTREPRENEUR/4th round interview).</p>
Rituals	Learning and sharing ideas with liminal partners	
	Celebration of success	<p>"...we have had these kinds of, like, team events. So, internally with all</p>

(continued on next page)

Table 4 (continued)

A priori Code	Categories	Quotes from the interview
		<p>the people who work here, we have arranged these kinds of events. So, in that way, we have like celebrated success with discussions of the good things we are doing. We have had, like, team events where we have gone out and eat..." LIGHTENING (ENTREPRENEUR/4th round interview).</p> <p>"We have, like a champagne afternoon if we reached, for example, the KPIs of the fiscal quarter or the fiscal year... Lots of things have changed, ah, since the corona, but we would gather at the office, and have some snacks and champagne or sparkling wine, and the ENTREPRENEUR, would give the good news by saying like hey, we achieved the targets, great work everyone." LUMINARY (ENTREPRENEUR/4th round interview).</p> <p>"But it really depends on the team, you know, it's their celebration so the team can decide what they want to do and from our side, we give them the time to do that. Yeah, so there's one good example when I asked the team about what they want to do when we achieve our goal. And their response was that they wanted to go climbing. They did that, so we organized a climbing day that we went to climb and had a lot of fun" LEAN (ENTREPRENEUR/4th round interview).</p> <p>"...it's about everything, to get together, celebrate the wins and understand the losses, what can we learn from them, and what we can do better for the next year. We get together to eat, drink and just have a good time as a company. Um, usually it's done around Pikkujoulu, like, so, around December, and we may have some summer celebration, uh, just to hang out, but, yeah, the end of the year is the one that we usually do" ULTRASOUND (ENTREPRENEUR/4th round interview).</p> <p>"I...contact places where I've been working and the end-customers to get feedback when I complete a project... I invite them for coffee just to get feedback" FIRE (ENTREPRENEUR/2nd round interview).</p> <p>"Um, and maybe it was before corona times when we, ah, we actually created an internal communication group where we actually called it failures is the new black, where people would write their failures in projects and how they overcame them...for example, "hey I've have failed in this, like, I completely failed in this project by doing this and that. But I would like to thank this and these people who helped me" ... " LIGHTENING (ENTREPRENEUR/4th round interview).</p> <p>"I mean, of course, we do have a meeting, it is part of the end of the year target meeting, um, I don't know, we don't have a special name</p>
	Celebration of failures	

Table 4 (continued)

A priori Code	Categories	Quotes from the interview
		<p>for it. But it's a meeting that we have to review what we have done during the year. Of course, we celebrate the wins, and we look at the lost projects and why we didn't reach certain targets, uh, what can we do to do better for the following year. So, yeah, we learn more from the losses than from the wins" ULTRASOUND (ENTREPRENEUR/4th round interview).</p>

dimension of time, so we complemented it with a visual mapping technique (Langley, 1999). We used the technique to decompose emerging chronological activities from the data for each case into successive discrete phases of internationalization, which become comparative units of analysis. It served as a basis for us to trace from the interview scripts the underlying factors explaining the occurrences of activities in the early internationalization intent phase, liminal phase, and stable internationalization operations phase.

3.5. Trustworthiness

We employed two separate methods to establish the credibility of our study, namely peer debriefing and data triangulation (Lincoln and Guba, 1985; Korstjens and Moser, 2017). For peer debriefing, we sought scholarly feedback from our peers in the research community by presenting our results at seminars, meetings, and conferences, and exposing our ideas to criticism. Constructive comments from our academic colleagues have improved the quality of our findings. A number of data sources were employed for triangulation (Korstjens and Moser, 2017). First, we used retrospective accounts from entrepreneurs in conjunction with archival data, such as internal documents describing the firm's strategies and plans during its establishment, and all blogs describing the internationalization operations. Second, the information from the archival data and blogs was used to verify the retrospective accounts received from the interviews. Finally, to avoid recall bias (Huber and Power, 1985), we decided to minimize the elapsed time between the events of interest to this study and the data collection, in order to allow the entrepreneurs to recall events accurately. Hence, there was a year's interval after every round of interviews. Our second consideration was the dependability of the study (Lincoln and Guba, 1985). To establish this, we ensured that the questionnaires were correctly designed, and piloted them to check for inconsistencies before the interview process was initiated. During the interview process, we developed an interview guide, while allowing for new, emerging themes and nuances to arise from the data. Also, we coded the data twice, at different points in time, and later compared the codings for similarity. They proved to be highly similar, demonstrating that the findings are consistent and can be repeated. The third consideration was the transferability of the study (Lincoln and Guba, 1985). We have conducted the present study using the appropriate theory to achieve theoretical generalization, and the transferability of the findings was narrowed to early and rapidly internationalizing firms in the cleantech industry. Finally, to support the confirmability of the study, we performed data triangulation across the data sources (Lincoln and Guba, 1985).

4. Findings and discussion

4.1. Early internationalization as a liminal process

During the first round of the interviews, all five case firms were experiencing liminality. Thus, they were neither at the internationalization intent phase nor the matured phase of enjoying stable

Table 5
Data structure and findings (Inductive approach).

First-order themes	Second-order themes	Overarching dimensions
Unfamiliarity with local language and culture of host market	Liabilities of newness	Challenges in a liminal phase
Challenges in managing differences in host countries' trade legislation and policies		
Challenges of managing deals Spatial costs, which relate to costs arising from transportation and coordination	Liabilities of foreignness	
Searching for customers' needs Searching for information on partners Searching for market opportunities	Searching for market opportunities	International horizon scanning
Searching for information on competitors Searching for information on work sites	Searching for threats	
Tapping into the tacit knowledge of employees Sharing and utilizing the interns' ideas	Harnessing knowledge	Learning from employees
Communicating with employees on-site to get feedback on ongoing projects	Communication	
Internal discussion on the present status of the firm's foreign activities (i.e., ongoing cases, supply chain, company's internal activities) Frequent meetings to share ideas and reflect on the performances of distributors Sharing of tasks in meetings Frequent communication with hired workers to get feedback on ongoing activities	Distribution of knowledge and interpretation	International knowledge generation
Celebrating success with discussions of the good things the firm is doing Celebrating losses with discussion to learn and improve in the future	Ritualization actions for knowledge legitimization	
Changing products based on customers' needs Adapting products to internal R&D outcomes Customers' information determining service fitness Adapting the message around the core values and products	Product/Service Adaptation	Routines for international adaptation at the firm level
Keeping operations up-to-date on technological changes Developed OEM solutions based on learning Adapting technology based on internal R&D	Technology Adaptation	
Adapting to foreign business culture and market Adapting to host country culture, norms and language	Cultural Adaptation	
Adapting to local contractual requirements and policies in host markets Adapting to local trade requirements	Legislation Adaptation	

Table 5 (continued)

First-order themes	Second-order themes	Overarching dimensions
Resourcing local employees Providing distributors, the sole responsibility to manage logistics	Externalization	

international operations. For example, as explained by the entrepreneur of Lightening: *"We've made sales agreements with foreign companies, but we can't deliver until we meet country-related requirements. We could have, and delivered our products two years ago, but we want to enter the market the right way. The right branding, proper penetration..."* (Lightening entrepreneur). When we contacted the entrepreneur in the following year, the firm was still in the state of liminality. He explained: *"At the moment, we're still waiting, and building a global distribution network. So, we have sales representatives in Finland, Sweden, Norway, Denmark, Estonia, Latvia, Lithuania, and the UK. We're negotiating with Australia and also Chile."* (Lightening entrepreneur). According to the Lean entrepreneur, the company was fully active in the foreign market during the first three years after inception, but at the time of the interview he explained that the company was involved in few foreign activities. He added: *"...We're a micro company and going abroad requires muscle...We're building and growing the team for foreign opportunities."* (Lean entrepreneur). When contacted for a second round, he explained that the firm was still in a liminal phase: *"As I said in our previous meeting, we're building little by little. Like in Ghana and Kenya, we're building networks."* In the case of Ultrasound, the entrepreneur explained that the company did not have a foreign office, but was internationally active albeit without a physical presence: *"We've already incorporated in the USA, we're expanding but not there yet. We just filed the incorporation [papers], and we're in the visa processes...We're expanding to become a global company."* (Ultrasound entrepreneur). During the second round of interviews, the firm was still in a liminal phase: *"We now have the permit to set up a permanent office in the USA.... We've been running a project for the German and Swedish markets and both are finished now. We're trying nowadays to work on long-term projects so that our systems are running all the time."* (Ultrasound entrepreneur). Similarly, according to the Luminary entrepreneur, the company already had a foreign presence in the USA and a few countries in Europe, and was striving to become a global company. He explained: *"We're working on how to get contacts from countries in Africa and other emerging markets."* (Luminary entrepreneur). Subsequently, during the second round of interviews, he remarked: *"We're still not there yet... We're searching for partners and potential distributors."* (Luminary entrepreneur). The situation in Fire seemed to be the same as in Ultrasound and Luminary. The entrepreneur reported that the company had engaged in small projects in different African countries, but Fire's size was limiting his ability to acquire bigger contracts. He added: *"...My vision is to set up a small office in Cameroon and expand...I sent a letter of agreement to a company that distributes spare parts and fire systems in the UK."* (Fire entrepreneur). When we asked about this vision in the second round of interviews, he remarked: *"I'm still working on it but hope it will work out in the future."* (Fire entrepreneur).

During our third round of interviews, we found that Ultrasound, Luminary, and Fire had exited liminality (i.e., were enjoying stable internationalization operations), while Lean and Lighting were still in transition. Lean was not attracting more foreign demand, and is currently (i.e., time of writing) investing in new markets and competence development. Lightening also had certifications pending related to foreign countries before it could deliver products, and at the moment (i.e., at the time of writing) is focusing on product development. In contrast, the case companies that had exited liminality were enjoying stable internationalization operations such as steady sales growth, access to strategic partners, international recognition, and rapid foreign expansion. For example, as explained by the entrepreneur of Fire: *"...A*

few other international companies have approached us, but I don't have the capacity to act on it. I've been fully occupied with company X's [domestic MNC] foreign projects." (Fire entrepreneur). Table 6 provides additional evidential quotes on the companies' situation at the time of the third round of interviews. The next section reveals our findings on the challenges of liminality and the development of LAN.

4.2. Process of LAN development

We see early internationalization as a highly liminal process, since transitioning from a state of no internationalization to stable foreign market operations is marked by uncertainties and ambiguities (Prashantham and Floyd, 2019). As in social anthropology, the liminal entity transits a realm that has few or none of the attributes of the past or coming state (Turner, 1987). Our findings show that the case firms encountered uncertainties and ambiguities arising from the liabilities of newness and liabilities of foreignness. As reported by the entrepreneur of Luminary, cultural distance was a major challenge when they entered the US market: "The challenge especially in the US market is that the culture is very different. How people buy things is quite different, so that's one of the main challenges if you're entering the US market." (Luminary entrepreneur). This was quite similar to the experience of the Ultrasound entrepreneur, who expressed "...how difficult it was to convince them to start a project, because our technology was pretty new. Most of the companies we're dealing with, they move pretty slowly, which was a surprise for us... We haven't encountered that many unexpected situations since we entered the US... I just mentioned one, but that's more on the client side, how they move and how they make decisions." (Ultrasound entrepreneur). In Fire, ambiguities and uncertainties arose as a result of differences in local requirements in host countries: "Sometimes the local requirements and labor

policies differ from the company's design standards and policies..." (Fire entrepreneur). In a similar vein, the Lean entrepreneur explained that he faced ambiguities in interpreting Chinese legislation and trade laws: "On my fact-finding trip to China, I found it difficult to interpret the Chinese legislation and trade laws. So I enlisted the services of a Chinese lawyer..." (Lean entrepreneur). Similarly, the entrepreneur in Lightning expressed that: "...every country has its own legislation... We've made sales agreements but not delivered yet... Everything depends on the certificates... The market is not static, it keeps on changing. There could be something we don't yet know about that can cause us to adapt our strategy." (Lightning entrepreneur). Another ambiguity expressed by the entrepreneur of Lean was linked to language. He stated: "In our project in Germany with Japanese businesses, the German language was not a problem, the major challenge was the Japanese language... I used Google Translate to translate into Finnish." (Lean entrepreneur).

In the midst of the uncertainties and ambiguities, we found that the case firms engaged in diverse opportunity scaffolding activities to develop LAN. Inductively, we derived international horizon scanning and learning from employees as opportunity scaffolding activities enabling LAN development. In addition, applying a deductive approach, we found self-reflective learning based on prior experience, consultative learning, and learning from communities (see Tables 4 and 5). Collectively, both the inductive and deductive approaches enabled us to uncover theoretical and empirical insights on opportunity scaffolding activities emerging from the data and the existing literature. We discuss in detail below how these knowledge acquisition activities support the generation of knowledge in the developmental processes of LAN.

4.2.1. Self-reflective learning

According to the findings, self-reflective learning occurred in three ways. First, with the entrepreneur reflecting on the firm's ongoing activities. We found this in Lean, Luminary, Ultrasound, and Fire. It enabled the entrepreneurs to review and identify what they could do. As explained by the entrepreneur of Ultrasound: "Whenever I get information from a client about a case, I put it in Hailer [a communication tool] and... reflect and try to figure out if we can solve the case." (Ultrasound entrepreneur). At Luminary, self-reflective learning enabled the entrepreneur to review the performance of distributors, based on which the firm decided whether to continue or discontinue distribution rights. Similarly, at Lean, the engagement in self-reflective learning on ongoing activities provided the firm with information to support the continuous development of activities. As explained by the entrepreneur: "I reflect on our activities to understand our own actions and behaviors in the foreign market and identify ways to improve performance." (Lean entrepreneur). Finally, at Fire, self-reflective learning provided the entrepreneur access to the current activities of workers in host foreign markets. Our finding confirms the assertion by scholars (e.g., Prashantham and Floyd, 2019; Turner, 1969) that liminal occasions are characterized by heightened reflexivity.

Second, the entrepreneur reflected on ideas obtained from participating in events such as conferences and training programs. This was evident in Lean and Fire. Lean's entrepreneur asserted that he engaged in self-reflective learning after attending consulting training on how to do business in China. His reflections on the notes from the training supported him in understanding Chinese business culture, before embarking on a fact-finding trip to China. Similarly, according to the Fire entrepreneur, anytime he attends an event, he reflects on how the ideas shared will support the development of his company. The following interview excerpt supports this evidence: "In these programs you share ideas. The fire system I'm using is difficult to understand. Sitting in a group with people who're in the business and have the experience, reflecting on their opinions, it becomes clearer." (Fire entrepreneur).

Third, the entrepreneur looked to make sense of his prior industry experience to explore possibilities. We found this activity in Lean and Fire. The entrepreneur of Lean projects the outcomes of fact-finding trips by reflecting on previous experience in similar tasks. He uses his prior

Table 6
Current situations of the case firms as at third round of interview.

	Evident Quotes
In Liminality	<p>"We traded heavily in foreign markets during the first three years of the firm's establishment. However, after that period, we are not attracting more foreign demands... We have the potential for profitability. Currently we're a little stretched because we are investing in new markets and competence development" LEAN (ENTREPRENEUR/3rd round interview).</p> <p>"If you look at the situation now (i.e., delivery of products), we have put that on hold. We should have been ready with certification a long time ago and that has delayed, and we have to make strategic moves on what should be done next... A lot of focus has been on product development and not on the development of sales networks because we do not have the products and certifications ready" LIGHTENING (ENTREPRENEUR/3rd round interview)</p>
Exit from Liminality	<p>"...our sales have been growing. They keep doubling annually... and now we have a permanent office in the USA." ULTRASOUND (ENTREPRENEUR /3rd round interview).</p> <p>"Nowadays we deliver across the globe... Our products are prominent in Norway, Germany, US, Thailand." ULTRASOUND (ENTREPRENEUR /3rd round interview).</p> <p>"I've been fully occupied with company X [domestic MNC] foreign projects. I have been involved in a large number of maintenance projects in the US, Ethiopia, Togo, Zambia, Mozambique, Cameroun, Curacao, the Americas." FIRE (ENTREPRENEUR/2nd round interview).</p> <p>"Yes, US, Mexico, South Africa, Netherlands, UK, Switzerland, Thailand, Japan- those are the major ones... We have clients in all those countries that I mentioned. It's not that we have an office there, but we have cases. From time to time, we fly there and do operations..." ULTRASOUND (Entrepreneur/3rd round interview).</p> <p>"...Globally, contacts are coming from distributors, and some are coming directly from other firms..." LUMINARY (ENTREPRENEUR/3rd round interview).</p> <p>"We don't work with many people in the US. We are self-sufficient. We work with our accountant who is an external partner, we work with our lawyers also an external partner, and then we have our clients" ULTRASOUND (ENTREPRENEUR /3rd round interview).</p>

industry experience from fact-finding trips by drawing up simulations and through internal discussions on how to proceed in finding information in the foreign market. He posited: *"I've earlier experience of finding information about markets...So this experience is important because I now know how to find information and what information to find on fact-finding trips."* (Lean entrepreneur). This supports the universal argument that congenital knowledge strongly influences future learning (Cohen and Levinthal, 1990; Huber, 1991; Bruneel et al., 2010). Thus, what an entrepreneur knows will determine what he searches for, what he experiences, and how he interprets what he encounters.

4.2.2. International horizon scanning

We found opportunity searching activities to be prevalent in the operations of Lean, Ultrasound, and Lightning. Lean searches for customer and the market information, as explained by the entrepreneur: *"We search for customer needs...and [information about] the overall market landscape."* (Lean entrepreneur). We found a similar approach in both Ultrasound and Lightning. As expressed by the Ultrasound entrepreneur: *"...customers' information is important to us. That's what we search for."* (Ultrasound entrepreneur). According to the entrepreneur, this supports their understanding of customer needs. Similarly, the Lightning entrepreneur expressed: *"We search for market opportunities, information on potential customers, competitors and partners."* (Lightning entrepreneur). International horizon scanning has provided Ultrasound with accessibility to mitigate liabilities of newness: *"We constantly search for information on customers. Without the information we don't know our customers' demands and how to generate product-market fit. By knowing more and what to do help us to manage our scarce resources."* (Ultrasound entrepreneur).

In addition, we found threat searching activity in the operations of Fire and Lean. The Fire entrepreneur revealed that he searches for potential threats in host markets by making personal visits before embarking on a project: *"Whenever there's a deal or a job overseas. I make a personal visit to the site to check the situation on the ground...local requirements and labor policies."* (Fire entrepreneur). In Lean, the entrepreneur explained that *"We search for competitors' resources and geographic presence to understand their strengths and weaknesses."* (Lean entrepreneur).

In contrast, we found Luminary was not active in international horizon scanning, but had access to foreign market knowledge through its distributors. As explained by the entrepreneur: *"Our distributors. Mostly they have the local market knowledge. They provide customer feedback and insights. The Australian Army needed Luminary for drones, and that came not from direct contact but distributors."* (Luminary entrepreneur). Further, according to the entrepreneur, they assume that their products are associated with features that competitors do not offer. Therefore, the firm does not expend time and resources searching for information on competitors: *"Our products are associated with features that competitors don't have. So we assume we have no competitors because we've developed something different, and don't worry about searching for information on competitors."* (Luminary entrepreneur).

4.2.3. Consultative learning

The findings show that consultative learning transpired in different ways among the case firms. In Fire, it appeared in the form of event participation, and outsourcing project execution to local actors in host countries. As reported by the entrepreneur, attending events such as workshops and conferences provided him with access to new developments in fire systems: *"I go on visits and to expos, and NFPA seminars in the US. In summer last year I was in Stockholm for the Fire Sprinkler Conference. these kinds of events provide me with access to new developments in fire maintenance systems."* (Fire entrepreneur). Outsourcing to locals enabled Fire to learn from foreign markets. The local actors supported the firm with in-depth knowledge about the environment. In Ultrasound, consultative learning came in the form of event participation and research collaboration. Ultrasound has actively participated in

conferences, for example, POWTECH 2017 (Nuremberg) and iTAG 2017 (Amsterdam). According to the entrepreneur, such events have provided the firm with a platform to acquire new knowledge, through discussions with clients and innovators, and to collaborate with partners: *"In Paris, they have expos on a smaller scale that we usually attend to access new developments. You understand industry trends. We were previously in Brussels for the iTag conference..."* (Ultrasound entrepreneur). Besides this, the firm received support from an American research agency to learn about the US market, and a Finnish university to gain access to new knowledge on ultrasonic technology. For Lean, consultative learning involved the engagement of foreign legal assistance to interpret foreign markets' legislation, and consultative advice from a governmental organization on how to conduct business in China. As explained by the entrepreneur: *"Actually there was some quite important information connected to my fact-finding trip to China. I was looking for information from this guy from Merinova, and a lawyer in China. and also from Business Finland."* (Lean entrepreneur). In Luminary, consultative learning meant learning from the ideas generated by the firm's internal research and development unit. As the entrepreneur explained: *"Attending conferences and events isn't necessary in our operations, we've invested in internal research. where the ideas are integrated with our engineers' expertise."* (Luminary entrepreneur). Arguably, the reason for the dissimilarity between the learning process of Luminary and the other case firms derives from the area of operations of the individual firms, and their strategic focus.

Consultative learning supported both Lean and Ultrasound in gaining legitimacy. According to the Lean entrepreneur, the firm had encountered a challenge on how to manage foreign deals, and they overcame it through consultative support from two Finnish business organizations: *"But what turned out to be challenging, we knew it would be, was how to make deals. [Finding] a way to overcome the challenge was quite important, we were utilizing the organizations available like Merinova and also Business Finland. to support us. We got good access to companies..."* (Lean entrepreneur). In Ultrasound, according to the entrepreneur, the major challenge was in logistics, due to the spatial distance between cities in the US, and the need to transport equipment from Finland to the US. They overcame the challenge by partnering with a logistics firm: *"...Also logistics need to be taken care of when shipping from Finland to the US, and customs clearance. I'd say those are challenges we just need to deal with. We've partnered with UPS on the logistics side, and they're helping and guiding us. They have a lot to teach us about the US market."* (Ultrasound entrepreneur). Finally, Luminary encountered a liability of foreignness that was unique among the case firms. As reported by the entrepreneur, cultural distance was a major challenge when they entered the US market, and they overcame it by utilizing local people in their business operations: *"The challenge especially in the United States market is that the culture is very different. We overcame it by having local people working on the marketing side and also on the sales side."* (Luminary entrepreneur).

The findings also confirm the proposition made in the liminality literature on the availability of community leaders to support liminal entities (Prashantham and Floyd, 2019). The literature argues that during the liminal stage, human beings are separated from the experience of their previous environment into an environment of ambiguity, a kind of social limbo (Turner, 1969). There are community leaders who provide support and training, but their availability is intermittent (Prashantham and Floyd, 2019). In the same sense, in the context of firm development and entrepreneurship, the studied firms in stages of transition resorted for guidance to support from governmental bodies, consulting agencies, training programs, internal research and development, and events.

4.2.4. Learning from communitas

We found that Lightning, Lean, and Ultrasound utilized peer companies in their industry, to share information and boost their chances of survival through an unstructured group termed communitas, comprising start-ups and small firms (Turner, 1969). For example, as explained by the entrepreneur of Lightning: *"I got involved with a startup accelerator program called EnergySpin Accelerator in 2018 where I had the privilege of*

learning and networking with other startups in the cleantech industry.” (Lightening entrepreneur). The company is also involved in EU-funded start-up projects, and according to the entrepreneur they have learned from the experiences of other firms on how to adapt to uncertainties in the environment. Similarly, in Ultrasound, the entrepreneur is a member of Kasvuryhmä (a community of entrepreneurs working together in order to grow, innovate and promote internationalization). In addition, the company has several collaborations with small foreign organizations in the industry. Engagement with such networks has exposed the firm to new technologies to solve new issues. As explained by the entrepreneur: “They’ve broadened our view to see the bigger picture for our solution.” (Ultrasound entrepreneur). In Lean, as expressed by the entrepreneur, they have been working and sharing ideas in international projects with start-ups in the industry. This has benefitted the entrepreneur and the firm as a whole: “...We’ve learned a lot from them, like how to handle foreign deals.” (Lean entrepreneur). Similarly, the Fire entrepreneur has formed his own unstructured group of engineers from which he hires: “I have a pool of engineers that I share experiences with and hire from. We learn about the host market environment through them.” (Fire entrepreneur). In contrast, the entrepreneur of Luminary stated they had attempted to engage with *communitas* but had been unsuccessful: “We don’t discuss the business with other firms. We’ve been trying to start discussions and collaboration with other firms in the industry but mostly their attitude and level of understanding is very low. Globally, some firms make direct contact, but we’ve found they contact us for information rather than to seek collaboration.” (Luminary entrepreneur). However, Luminary is able to mitigate the liabilities of newness through collaboration with distributors. As intimated by the entrepreneur: “...Mostly they [distributors] have the local market knowledge. We reach the world through them.” (Luminary entrepreneur).

The present finding is consistent with that of Fuerst et al. (2015), showing how interactions with network partners contribute to knowledge creation. It also supports the previous research (e.g., Posen and Chen, 2013), which argues firms learn not only from their own experiences but also from the knowledge of others.

4.2.5. Learning from employees

Our findings show that the entrepreneurs in Luminary, Fire, and Ultrasound engaged in learning from employees to acquire knowledge. This confirms the extant studies (e.g., Fuerst and Zettinig, 2015) on the importance of grafting to the creation of knowledge by entrepreneurs of early internationalizing firms, in order to offset their lack of firm-level international experience. Among the case firms, entrepreneurs learned from employees through idea sharing, and communications on ongoing cases. According to the Luminary entrepreneur, tapping into the tacit knowledge of employees kept him abreast of current issues. He explained: “We want to be light years ahead... We integrate it [internally-generated knowledge] with our engineers’ expertise. This helps us update our operations.” (Luminary entrepreneur). Similarly, because the Fire entrepreneur engaged in the externalization of local employees in host markets, he regularly communicated with the employees to acquire feedback on ongoing activities, which provided him with ideas on how to improve the firm’s operations. He explained: “I contact them and say hello...talk about personal stuff and the work. Whether the feedback’s good or bad, this gets me information.” (Fire CEO). Adopting a different perspective, Ultrasound had developed an annual internship program [known as GAAP] in the United States, where students were recruited to support the company’s marketing research. According to the Ultrasound entrepreneur, the students sparked many novel ideas regarding the American market: “I’ve learned so much from the students about the dynamics of the US market, and we implemented most of their ideas in our marketing activities.” (Ultrasound entrepreneur).

4.3. Transfer and interpretation of international knowledge

We found that the translation of the entrepreneur’s individual-level

learning to firm-level learning involved the distribution of knowledge, interpretation, and the ritualization of actions. First, on knowledge distribution, the case firms had frequent meetings where the entrepreneur and the firm’s entire personnel shared ideas and experiences to legitimize knowledge at the organizational level. As explained by the Ultrasound entrepreneur: “We have different ways of sharing, and we use a tool called Hailer [a communication tool]. Whenever I get information from a client about a case, I put it in Hailer and then my colleagues will be able to read it and go through all the details... Every Monday morning at 10 am we have...meetings where we share everything that’s going on in cases. We share and reflect on our activities to understand our own actions and behaviors in the foreign market and identify ways to improve performance.” (Ultrasound entrepreneur). The Luminary, Lean, and Fire entrepreneurs reported something similar:

“We usually have meetings where we share ideas and reflect on the performances of our foreign distributors.” (Luminary entrepreneur).

“We have a regular structure of weekly meetings where information obtained from...ongoing activities is shared...we have continuous development, where actions can be called for and tasks assigned in regular meetings...” (Lean entrepreneur).

“...When it comes to my pool of outside engineers, I communicate with them...to get feedback and reflections on ongoing activities.” (Fire entrepreneur).

Second, the distribution of knowledge, and interpretation, influenced the ritualization of actions, such as celebrations of success and failure in foreign markets. The following interview excerpt supported this evidence: “I mean, of course, we do have a meeting, it’s part of the end of the year target meeting, um, I don’t know, we don’t have a special name for it. But it’s a meeting we have to review what we’ve done during the year. Of course, we celebrate the wins, and look at the lost projects and why we didn’t reach certain targets, uh, what we can do better for the following year. So yeah, we learn more from the losses than the wins.” (Ultrasound entrepreneur). Lightening organized meals as team events to celebrate successes, and had an internal communication group known as “failure is the new black” that served as a forum to acknowledge and celebrate learning from failure. The process involved people documenting their failures in international projects, and how they overcame them. Luminary organized a “champagne afternoon” to celebrate success in achieving its international objectives in a particular period. The Fire entrepreneur affirmed that after successfully completing an international project, he invited the end-customers for coffee. Finally, Lean organized outdoor team events to celebrate success, but the entrepreneur said the firm does not celebrate failure: “We actually look at what went wrong and learn from it and encourage open discussion about why it failed. But then we celebrate it once we get it right...” (Lean entrepreneur).

The rituals mentioned above are symbolic events periodically organized to strengthen existing activities (Johnson et al., 2020; Trice and Beyer, 1993). Employees in the case firms had experiences that were distinct from their normal practices. They relocated from their offices to have fun and discuss firm-related issues, led by the firm’s entrepreneur and team leaders who can be described as ritual specialists. In anthropological terms, the ritualization of activities among the case firms provided meaningful assistance in the passage of liminality. The entrepreneur of Lightening explained: “...it [a ritual] helps us take the right steps to move forward, and it boosts motivation.” Similarly, the Luminary entrepreneur stated: “It depends on our objectives, we discuss what we can do to be better ahead of the next target, or the next period...what we could improve.” (Luminary entrepreneur).

4.4. Routines for International Adaptation at the Firm Level

According to our findings, relating entrepreneur level knowledge to organizational level knowledge produced a knowledge stock on which routines for international adaptation were based. Among the case firms,

the routines occurred in the areas of technology, products/services, legislation, culture, and externalization (resourcing). Ultrasound adapted its products to the electrical technology system in the US, legislative requirements, and customer needs. Furthermore, according to the entrepreneur, access to host market knowledge altered the firm's business model. Based on information acquired in the US market, they were able to develop a set of different products for several types of industrial equipment, such as pipelines, heat exchangers, evaporators, steam injectors, and tanks.

Lean adapted its services to customer needs, and the culture of each country in which it operated: *"We learned to adapt to host country differences through our fact-finding efforts and our strategy. For example, about language and cultural issues."* (Lean entrepreneur). Luminary adapted its products using the firm's internal technological knowledge, and externalized its operations by making licensed distributors responsible for product delivery to their home countries: *"Our products are adapted according to what we get from our R&D...we provide the distributors with the necessary documentation, but they have to take responsibility for how to get it to their own countries."* (Luminary entrepreneur). Further, the firm adapted its distribution operations, based on an internally developed ritual organized annually: *"...We reward distributors every year...depending on how they performed, their rights could be maintained or terminated, or exclusive rights changed to non-exclusive."* (Luminary entrepreneur). Similarly to Ultrasound, Fire adapted its operations based on current technological changes in fire systems, and the prevailing legislation in host countries. Moreover, the process of adaptation was led by an internal ritual. As posited by the entrepreneur: *"You have to adapt...when I complete a project...I invite [the end-users of the plants] for coffee just to get feedback from them...It helps me to...adapt what I'm doing by avoiding mistakes in future projects."* (Fire entrepreneur). Lightening also adapted its operations to statutory requirements in host countries: *"...through learning, we change the products based on legislative requirements, listening to customers, meeting the customers... In Norway we redesigned the products based on legislative requirements..."* (Lightening entrepreneur).

It is quite possible for a firm to change or adapt without the presence of routines, since a change can be prompted by a predictable or unpredictable event in the environment. However, our findings recognize the importance of change based on routines, which Winter (2003) labeled dynamic capabilities, in the development of LAN. We conclude that

flexibility and the absence of cognitive inertia among the case firms enabled this kind of adaptation. The absence of cognitive inertia supports the claim expressed by Sapienza et al. (2006) on the cognitive characteristics associated with early and rapidly internationalizing firms in the formation of LAN.

4.5. Process model of LAN development

Our findings and discussion produced an integrative process model of LAN development (see Fig. 1). The model's originality lies in incorporating concepts of social anthropology (Turner, 1969), a non-business field of scholarly work, into the understanding of LAN. It benefits also from facets of the organizational learning literature (Huber, 1991). Overall, the model provides a holistic perspective on the dynamics of LAN development. The model's point of departure is that LAN starts to develop within the space of the early internationalization intent phase and matured phase, where the firm is enjoying stable international operations, such as steady global delivery of products, sales growth, international recognition, and rapid foreign expansion. The model captures the idea that space is a liminal phase, because the firm is neither in an old state (i.e., early internationalization intent phase) or new state (matured phase) faced with liminal challenges; for example, the difficulty of managing differences in host markets' legislation and policies, unfamiliarity with local languages and cultural norms in host markets, and the difficulty of managing foreign deals. The model shows how information acquired at the entrepreneur level becomes distributed, interpreted, and legitimized knowledge at the entrepreneur and firm levels, and finally becomes part of firm-level memory as routines for international adaptation.

The processes of LAN development in the model follow three phases. The first phase focuses on knowledge acquisition at the entrepreneur level, and the activities involved are referred to as *international opportunity scaffolding*, building on the work of Prashanthan and Floyd (2019). Just as putting up scaffolding facilitates construction work, opportunity scaffolding supports the liminal process, and, specifically, facilitates the early internationalizing firm in acquiring new international knowledge and exploiting existing knowledge. We divide opportunity scaffolding activities into internal and external knowledge acquisition activities (Huber, 1991). The internal knowledge acquisition activities are those

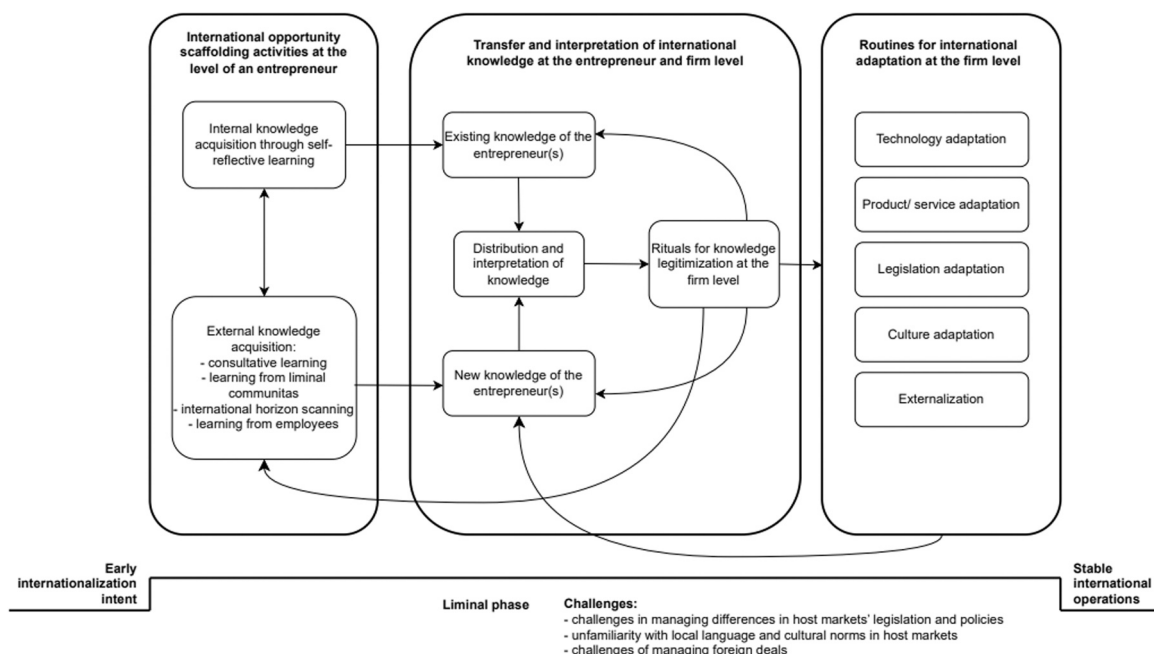


Fig. 1. Development of LAN.

that review or improve the entrepreneur's existing knowledge, and include self-reflective learning. In contrast, the external knowledge acquisition activities are all those which generate knowledge the entrepreneur(s) do not possess, and include consultative learning, learning from *communitas*, international horizon scanning, and learning from employees. Particularly, the *communitas* (Turner, 1969), an unstructured group of organizations comprising start-ups and small firms in the same industry, enables critical information and novel ideas to be shared, facilitating an easy passage to a stable state of internationalization. The internal and external knowledge acquisition activities complement each other (see the bidirectional arrow in the model) and support the transfer and interpretation of international knowledge at the entrepreneur and firm levels in the second phase of LAN development. As depicted by the unidirectional arrows, internal knowledge acquisition through self-reflective learning influences the entrepreneur's existing knowledge, whilst external knowledge acquisition influences the new knowledge of the entrepreneur.

In the second phase, the tacit knowledge (new and existing) of the entrepreneur moves beyond its boundaries to become collective organizational knowledge. This phase involves the elements of distribution and interpretation (Huber, 1991). The entrepreneur and individuals in the firm share their new information and knowledge for collective interpretation by the firm's entire personnel that reflect this new knowledge against current knowledge. This leads to the ritual of knowledge legitimization at the firm level. The firm's entire personnel meet at ritualized events to celebrate successes and failures in internationalization activities, and consider what can be learnt from them, and what was the critical knowledge. These rituals legitimize knowledge that can be stored as an organizational memory on which the firm can develop routines for adaptation. Moreover, this signals to the whole organization what knowledge is relevant and useful. That affects what type of current and new knowledge is appreciated in the firm (see back loops in model). The ritual of knowledge legitimization at the firm level also complements external knowledge acquisition at the entrepreneur level. Thus, at the ritualized events, the entrepreneur acquires insights that can direct what type of external knowledge should be sought in future (see feedback loop).

The third phase of the model focuses on *routines for international adaptation at the firm level*. This phase prepares the early internationalizing firm to exit liminality. The transfer and interpretation of the international knowledge process results in the retrieval of knowledge from the firm's organizational memory on which the firm depends to build routines for adaptation. That process of adaptation might include changing products based on customer requirements, adapting the marketing message around the core values and products, adapting operations based on the performance of distributors, outsourcing local support to cope with the host environment, and amending operations to respond to technological changes. Finally, since learning is an ongoing process (Dibella, Nevis and Gould, 1996), the experiences in the foreign market are fed back as new knowledge to complement the firm's existing knowledge repertoire. This is demonstrated by a feedback loop in the model.

5. Conclusion

This study has addressed previously under-researched aspects of the dynamics of LAN. Adopting the process perspective and applying the concept of liminality, we conducted a longitudinal study of five early internationalizing SMEs. Based on our findings, we developed an integrative process model that demonstrates how LAN is formed. Thus, our study contributes to the IE and IB fields, both theoretically and practically. In the following, we address these contributions in greater detail.

5.1. Theoretical contribution

First, the study introduces a process-based perspective on LAN as an

important aspect for the future development of the IE and IB literatures. LAN as a concept has been generally accepted therein to explicate the implications of how early internationalization influences new ventures' learning and subsequent international performance (Bai et al., 2020). However, empirical research on LAN is predominantly static, which makes it difficult to capture the dynamism inherent to the process. By adopting this dynamic longitudinal approach using the lens of liminality, we offer a more coherent and nuanced view of LAN dynamics. This enables us to grasp not only how LAN unfolds but also what factors provoke its development, and what consequences it can have for internationalization. Precisely, our model shows the nature of LAN development, and envisages highly interconnected activities and sub-processes to depict the formation and outcome of LAN. It does this by unpacking the complexity and interrelatedness of the *hows* (developmental process) of LAN. This helps us understand the underlying liminal factors that contribute to LAN development.

Second, our study contributes to the literature on the capability development and learning of early internationalizing firms (Autio et al., 2011), highlighting the underlying mechanisms that support LAN development during their transitions along internationalization. We found that LAN development is supported by international opportunity scaffolding activities, rituals for knowledge legitimization, and routines for international adaptation at the firm level. More importantly, the liminality literature from social anthropology enables the explanation of the underlying mechanisms through the concept of *communitas*, and rituals. As reported by Turner (1974), *communitas* creates intense feelings of solidarity and togetherness within a community, and this notion is a crucial element in the development of LAN. Here, it is argued that the firm engages in learning from *communitas* to generate novel ideas to facilitate easy passage to a stable state of internationalization. In liminality, "almost anything may happen" (Turner, 1974: 13). Therefore, translating the entrepreneur's knowledge to firm-level knowledge through the process of distribution and interpretation engenders the ritual of knowledge legitimization at the firm level. Turner (1974) considered ritual a drama in which the participants are the actors, who are transformed by their actions in the ritual, and through their experiences have the power to change society. Likewise, the legitimized knowledge can be stored as an organizational memory on which the firm can develop routines for adaptation. The extant studies (e.g., Sharma et al., 2017) have addressed rituals in firm internationalization with a focus on branding, but we go a step further by showing their applicability in the development LAN, thus responding to the call to broaden the scope of inquiry on ritual (Otnes, Zayer, Arias & Sreekumar, 2018).

5.2. Managerial contribution

The findings evidenced in the present study place a responsibility on entrepreneurs and managers of early and rapidly internationalizing firms in the LAN development process. We postulate that entrepreneurs have to erect the right structures and settings to support LAN generation, to overcome the challenges of liminality by developing their firm to invest in opportunity scaffolding activities and engage in learning from *communitas*. For example, they should engage in consultative learning (e.g., participation in trade events, enrolling in business-related courses), regularly collaborate with customers to share information, and actively work on advancing their activities for the common interest of the firm and its customers. We also encourage entrepreneurs to devote attention to organizational rituals, such as celebrations of successes and failures, because they legitimize knowledge and provide information that supports its adaptation process. These submissions are especially important for managers of rapidly internationalizing firms, as the development of LAN advantages contributes to the firm's adaptive capabilities, which are often critical in the competitive marketplaces where they operate.

5.3. Limitations and further research

This paper is characterized by some limitations. First, our case firms originate from a small, open country, Finland, and the cleantech industry which contains many small early internationalizing firms. This has provided a rich context for studying LAN development. However, generalization based on case study research is often considered challenging. Despite this, we believe that the thick case descriptions provided here allow for naturalistic generalization, as each reader can apply the results to the parts applicable to their own context (Stake, 2000). Moreover, by using a longitudinal multiple-case study research design, the possibilities of generalizing the results analytically back to theory have been increased (Lincoln and Guba, 2002; Yin, 1994). However, despite this conclusion, we should be cautious about generalization beyond the studied case firms, and generalization to a larger population requires therefore further investigation. Future research could conduct a similar study in different cultural settings, especially in larger and emerging economies, and also extend the investigation to other sectors. Further, it would be interesting to conduct quantitative surveys, preferably with a longitudinal study approach, which would allow for testing the generalizability of the findings to a larger population. Second, since early internationalization is a transitioning process, apart from LAN, IE and IB scholars could leverage a liminality theoretical perspective to study how other capabilities (e.g., managerial competence, marketing competence, and collaboration competence) of early internationalizing firms are developed; and their influence on post-internationalization speed, international performance, or foreign market entry survival. Third, in this study, we focused on the positive sides of liminality and how they contribute to LAN development. Future studies could take the next step and investigate how the challenges of liminality influence the learning disadvantage of newness of early internationalizing firms. Fourth, this study also focused on the underlying dynamic process of LAN development. Our findings can be taken further and addressed by sense-making type of studies. For example, investigating how firms make sense of ambiguities, uncertainties, and risks associated with liminality to enhance the development of LAN. Fifth, our findings can be taken further to develop more understanding on how INVs' learnt procedures, developed rituals, and relations within communities during the sensitive liminal period persist during the subsequent stable internationalization state; Our study could then inform research on imprinting processes during internationalization (Marquis and Qiao, 2020; De Cock, Andries and Clarysse, 2021). Sixth, our model shows that the development of LAN can be influenced by random factors. Therefore, more research is needed to understand how different contextuality factors (e.g., institutional and cultural forces) influence LAN development at the liminal transition of early internationalizing ventures.

Finally, our findings and the developed model are based on early internationalizing firms. We expect that these findings do not directly fit organizations that internationalize more gradually and slowly. That is because as firms get older, they develop internal rigidities that prevent them from learning in new markets. Unlike newer firms, they have existing routines that can hamper their ability to engage in opportunity scaffolding activities identified in this research. Also, older firms have embedded ties with domestic partners and customers, whose interests could be affected, if the firm diverts its learning attention away from its domestic market to focus on foreign markets (Zahra et al., 2018). This will make it difficult for them to develop LAN, but future research could investigate whether a gradually internationalizing firm could develop some other type of learning advantages, building on their often deeper commitment and penetration to particular target countries.

Data Availability

The authors do not have permission to share data.

Acknowledgements

We acknowledge the financial support of the Foundation for Economic Education, and the South Ostrobothnia Regional Fund of the Finnish Cultural Foundation. We are also grateful to the managers of the case firms for providing generously their time for interviews.

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