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# **The role of slack resources and managerial capabilities in early and late internationalization: a configurational approach**

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Key words: international entrepreneurship, cognition, international performance, configurational approach

## Abstract:

Internationalization requires a distinct set of managerial capabilities and company resources. Although there has been a call for examining the impact of cognitive capabilities on international entrepreneurship, only a few studies have attempted to do so. Since international entrepreneurship starts with opportunity recognition (Oviatt & McDougall, 2005), attention should be paid to this step. However, ability to recognize international entrepreneurial opportunity is not enough by itself, but rather it needs to be supported by other cognitive factors. COVID-19 has put specific pressure on entrepreneurs highlighting their ability to actively respond to changes and persist under uncertainty. The aim of this research is to examine the difference in drivers of early and late internationalization and their impact on international performance by analyzing 50 Finnish SME via fsQCA. The results suggest two distinct configurations that are connected to early internationalization and one configuration that is connected to late internationalization.

## Introduction

International entrepreneurship focuses on recognition, evaluation, and exploitation of opportunities that enable creation of new goods and service across national borders (Oviatt & McDougall, 2005). Thus, successful internationalization requires recognition of an entrepreneurial opportunity and perception that opportunity is worth pursuing, namely opportunity recognition belief (Scheaf et al., 2020). Due to the nature of entrepreneurial opportunities (social objects) individuals cannot be certain that they have actually recognized an opportunity before they exploit it, and as a result they form entrepreneurial opportunity beliefs. Thus, opportunity recognition occurs through entrepreneurial cognition, which is described as *“the knowledge structures that people use to make assessments, judgments or decisions involving opportunity evaluation and venture creation and growth”* (Mitchell et al., 2002, p. 97). However, successful international performance requires more than belief about opportunity recognition. Internationalization, and especially early internationalization, requires a distinct set of cognitive capabilities, which have been proposed to be key to uncovering the international entrepreneurial process (Zahra et al., 2005). Such cognitive capabilities include cognitive flexibility (Marti & Rubin, 1995), grit (Duckworth & Quinn, 2009), and international opportunity recognition capability (Ko and Butler (2006) and Gordon (2007), among other things.

Internationalization and especially early internationalization can require a distinct set of cognitive capabilities. Although there has been a call for examining the impact of cognitive capabilities on international entrepreneurship (e.g. Zahra et al., 2005), few studies have attempted to do so (cf. the literature review of Mainela et al., 2014). The extant research has mostly focused on large multinationals (e.g. Maitland & Sammartino, 2015) or it has been conceptual (e.g. Zahra et al., 2005). Since international entrepreneurship starts with opportunity recognition (Oviatt & McDougall, 2005), attention should be paid to this step and its connection to the subsequent company performance. Due to the nature of entrepreneurial opportunities (social objects) individuals cannot be certain that they have actually recognized an opportunity before they exploit it, and as a result they form entrepreneurial opportunity beliefs. However, the ability to recognize international entrepreneurial opportunity is not enough by itself, but rather it needs to be supported by other cognitive factors. We share the opinion that international entrepreneurship literature has fallen behind other fields of research (e.g., entrepreneurship) in adopting cognitive perspective (Zucchella, 2021). Thus, by examining how cognitive flexibility, grit, opportunity belief and international entrepreneurial capability together shape international performance, this research project aims to shed light on the omission of prior international entrepreneurship research. There have been some studies about risk attitudes/perception and internationalization (Acedo & Florin, 2006; Sommer, 2010; Ciravegna et al, 2018), for example, but more understanding of entrepreneurial cognition’s role in internationalization is needed (Coviello, 2015).

Further, cognitions have been found to have a key role when entrepreneurs and other decision-makers manage tensions between their resources and capabilities, and environmental constraints during the international opportunity recognition process (Jones & Casulli, 2014; Niittymies & Pajunen, 2020). The prior international entrepreneurship research has provided very little, if any evidence how SMEs and international SMEs could and should prepare for crisis (Etemad, 2021). COVID-19 has put specific pressure on entrepreneurs highlighting their ability to actively respond to changes and persist under uncertainty. The prior entrepreneurship literature has suggested that dynamic capabilities (including opportunity recognition) and resilience (Bullough & Renko, 2013; Bullough et al., 2014; Bergami et al., 2021) differentiate those entrepreneurs and small businesses who are able to grow and survive in the long run through learning from those who are merely surviving or even worse failing (Zahra, 2020; Belitski et al., 2021). Thus, cognitive capabilities such international opportunity recognition capability, cognitive flexibility, and grit enhance entrepreneurs’ chances to pursue growth under such adverse conditions. As the data for this study has been collected during the COVID-19 crisis the results of our study can offer insights in relation to timing of internationalization in a hostile environment.

The aim of this research is to examine the difference in drivers of early and later internationalization and their impact on international performance. By doing this, the paper contributes to international entrepreneurship literature in three ways. First, we contribute to the international entrepreneurship literature by studying entrepreneurial cognition and its effect on internationalization speed (performance), and with this we respond to the calls on studies focusing on cognition (Zahra et al., 2005; Coviello, 2015; De Cock et al. , 2021; Zucchella, 2021). To the best of our knowledge, this study is a first one to examine the combined role of grit, cognitive flexibility and international entrepreneurial recognition capabilities in the context of internationalization. Our findings show that the combination of cognitive flexibility and entrepreneurial grit is an important driver of early internationalization. Entrepreneurial grit can be described as a persistence of the effort and a consistency of the goal entrepreneur has for his/her venture (Duckworth et al., 2007) and this important concept has not been

studied in the context of international entrepreneurship in the past. However, the addition of this factor can provide new insights on early internationalization. Further, international opportunity recognition capability is also found being part of the equation. Second, our study provides new insights about the performance of early internationalizing SMEs, also during the times of COVID-19. In general, those firms which possess grit in relation to both effort and goal consistency as well as cognitive flexibility were most satisfied with their presence in international markets. Further, even though there are not statistically significant differences between different types of companies in our sample, our results indicate that early internationalization does not seem to generate the best possible performance outcomes. As early internationalizing companies are more dependent on international markets, COVID-19 crisis may affect their performance more than of those companies which internationalize later during the life cycle. Third, we contribute to the international business and international entrepreneurship literature by studying the antecedents of early (and late) internationalization, using fsQCA research method that differ from the conventional linear causality logic (see e.g., Ciravegna et al., 2018; Fainshmidt et al., 2020). With this method we are able to show that there can be two distinct configurations among the early internationalizing companies, which we have named *resource laggards* and *hard-working adapters*, and consequently we are able to provide more insight about the types of internationalizing SMEs.

The paper continues as follows. Next, the theoretical framework of the study is presented and each factor contributing to the speed of internationalization is discussed. Then, the research methodology is presented and results of fsQCA are discussed. The validity of configurations is evaluated by applying cluster analysis. Lastly, the theoretical and managerial implications of the results are reflected, limitations and further research suggestions are provided.

## **Literature review and theoretical framework**

### *Entrepreneurs' cognitive capabilities*

An entrepreneurs' cognitive capabilities have been proposed to play an important role in entrepreneurial decision-making and entrepreneurial action (Gregoire et al., 2010; Helfat & Peteraf, 2015). Entrepreneurial cognition includes "knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth" (Mitchell et al., 2002, p.97). Regardless of the importance of entrepreneurial cognitive capabilities and the central role of the entrepreneur in entrepreneurial action (McMullen et al., 2020) acknowledged by the prior entrepreneurship literature, the international entrepreneurship research has tended to focus on organizational factors shaping internationalization (Acedo & Florin, 2006). Cognition in entrepreneurial and managerial decision in internationalization including the speed of internationalization is an under-researched and under-explored area of research (Hennart & Slangen, 2015; Maitland & Sammartino, 2015). Individuals vary in their sense making of internationalization decisions, which originate from the cognition, developed through prior experience (Maitland & Sammartino, 2015), which leads to development of cognitive capabilities (Li, Baldassi, Johnson, & Weber, 2013). Cognitive capabilities are especially required in the complex situations, for example, opportunity recognition as well as internationalization, characterized by "the complexity of decision making under uncertainty (Aharoni, 2010, p. 101). Cognitive view offers a great promise for researchers to understand the psychological facets of entrepreneurial venturing and decision making (Chaston & Sadler-Smith, 2012). Internationalization decisions being complex as well as constrained by an enormous number of uncertainties require a cognitive perspective to understand such decisions because poor decisions will lead to the failure of firm or in the internationalization endeavor (Casson & Wadeson, 2007). Furthermore, regardless of the recognition of international new ventures (Oviatt & McDougall, 1994) and defining international entrepreneurship to involve "the discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services" (Oviatt & McDougal, 2005, 540), the prior research has provided only limited evidence about how entrepreneurs (and other decision-makers) in entrepreneurially internationalizing firms actually process opportunities and what kind of cognitive opportunity beliefs they have based on e.g. their earlier experiences and networks (e.g. De Cock et al., 2021; Zucchella et al., 2021).. This implies that given that entrepreneurial opportunity recognition is essentially a cognitive process, so is international opportunity recognition, and thus it requires specific entrepreneurial cognitive capabilities.

### *Internationalization (speed and performance)*

Internationalization, and especially early internationalization is risky given that early internationalizing companies do not only have to bear the risks associated with internationalization (liabilities of foreignness), but also those related to early phases on entrepreneurship (liabilities of newness and smallness) (Knight & Cavusgil, 2004; Shepherd & Patzelt, 2018, 18). Oviatt and McDougal (2005) have proposed a model for forces that shape

the speed of internationalization (i.e., timing of internationalization), and these include entrepreneurial opportunity, enabling technology, motivating competition, network relationships, entrepreneurial actor perception and knowledge. Entrepreneurial opportunity, technology and competition enable early internationalization, which shape the entrepreneur's perceptions and together with his or her knowledge and networking capabilities, which, in turn, ultimately determine the speed of internationalization (ibid). Additionally, early internationalizing companies possess, such cognitive capabilities as commitment, innovativeness, entrepreneurial orientation, and adaptability to changing conditions (Cavusgil & Knight, 2015). Recently, prior international entrepreneurship literature has started shed light on entrepreneurial cognition by examining learning and knowledge development, substance of knowledge structures, and perceptions and sense-making (Niittymies & Pajunen, 2020). However, COVID-19 has provided additional challenges for international entrepreneurs by increasing unpredictability of the market. Thus, factors such as grit, persistence and flexibility are key in adapting to these situations.

### *Contextual setting: Covid-19 and its consequences*

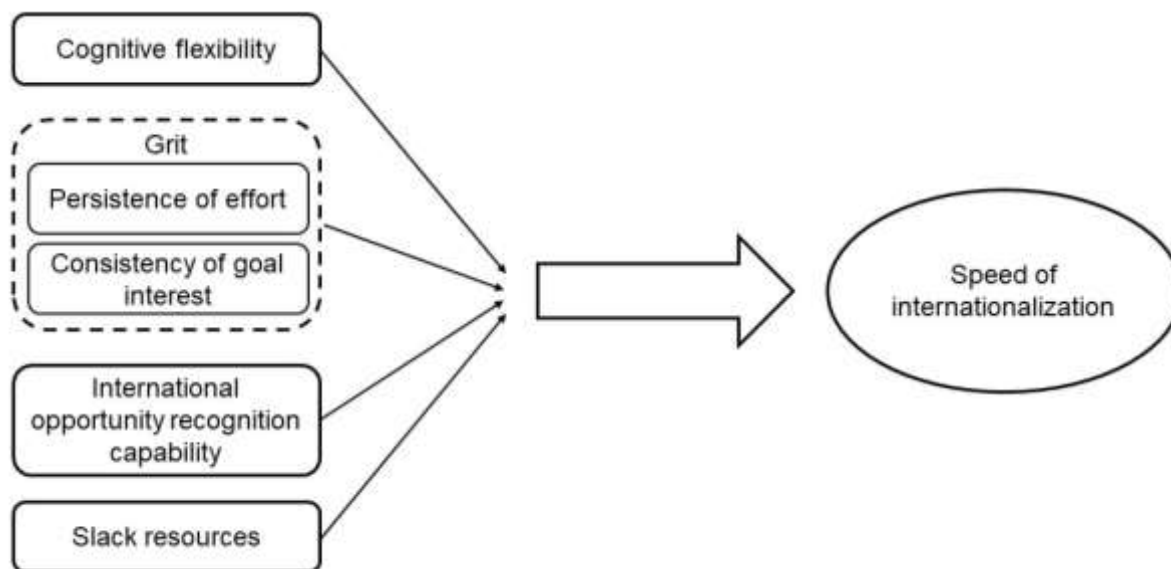
Several motives for internationalization reflect competitive landscape, market environment and industry, but at the same time, they are intertwined with entrepreneurs' attitudes, needs and ambitions (Zahra et al., 2005). The COVID-19 crisis and its consequences have hit companies of different sizes by disrupting their operations as a result of partial or full lockdowns (Thukral, 2020). These effects have been systemic, and for example, Brown et al. (2020) show that the drop in seed funding after the COVID-19 outbreak has been considerable. This further highlights the notion that SMEs tend to be severely affected by this type of crises due to their overrepresentation in industries mostly affected by lockdowns, fragile financial structure and reliance on sales, dependence on supply chains and effects of supply chain disruptions, limited digitalization adoption ability, and inability to adapt established business operations (OECD, 2021). Additionally, the COVID-19 crisis has changed the global business environment for good by "damaging long standing institutions, reshaping the global supply chains, disrupting existing businesses and personal networks, and undermining the flow of knowledge, technology capital, ideas and people across international borders", and since these disruptions are interconnected, their effect of international ventures will be considerable (Zahra, 2021). Some companies have benefited from the crisis (Li-Yong & Nell, 2020), while others have faced multiple challenges, and even closing down of business (Williams et al., 2017; Kuckertz et al., 2020). A key for companies to response to adversity, such as the circumstances caused by COVID-19 crisis, are capabilities, which enable companies to adjust to adversity through interaction with the environment, and these include cognitive, financial, behavioral and emotion-regulation capabilities (Williams et al., 2017). Prior research has suggested that SMEs apply bricolage in order to identify and pursue entrepreneurial opportunities by relying on relational capabilities, developing financial capabilities and navigating the assistance-recipient mismatch (Kuckertz et al., 2020).

### *Theoretical framework*

The literature has found several capabilities which are related to early internationalization and we study them here from configurational perspective. Configurational approach focuses on causal complexity. Causal complexity refers to a situation in which several different causal conditions produce a particular outcome (Ragin, 2008, 124). Causal complexity reflects three characteristics that are conjunction, equifinality and asymmetry. Conjunction explains the mechanisms and reasons for input variables together to bring about the outcome, while equifinality suggests that the same outcome can be reached through different paths that consist of different input variables (Furnari, Crilly, Misangyi, Greckhamer, Fiss & Aguilera, 2020). Asymmetry refers to the notion that configuration of causal conditions resulting in a presence of an outcome may differ from the configurations generating absence of an outcome (Ragin, 2008; Fiss, 2016). Following the configurational approach, conjunction in the case of cognitive capabilities suggests that entrepreneurial cognition comprises multiple cognitive capabilities, which lead to the same outcome, early internationalization. Additionally, equifinality suggests that different combination of cognitive capabilities may lead to the same outcome, early internationalization. Lastly, asymmetry suggests that those cognitive capability bundles that result in early internationalization differ from those that result in late internationalization.

In this paper, we focus on cognitive capabilities, which enable companies to respond and persevere with their current strategic direction, namely grit, cognitive flexibility and international opportunity recognition capability, and ordinary capabilities, namely slack resources (see theoretical framework below in figure 1). Hence, Figure 1 illustrates the set of antecedents for early internationalization, interplay of which we examine in this study. Our

basic proposition is that each firm may have its own bundle of cognitive capabilities which leads to the similar speed (or different speed).



**Figure 1:** Theoretical framework

Cognitive flexibility refers to an individual's willingness to adapt to a given situation, self-efficacy in being flexible, and awareness of communication flexibility (Martin & Anderson, 1998). Cognitive flexibility is the base of individual flexibility (Martin & Rubin, 1995), and as such it covers awareness about the presence of options and alternatives in a given situation, willingness to adapt to situation by being flexible, and belief about the one's ability to be flexible in a given situation (Martin & Anderson, 1998). According to the cognitive flexibility theory (Spiro et al., 2003) fundamental beliefs and knowledge, which often limit an individual's ability to recognize new information (Spiro, 1988), possessed by individuals have a considerable effect on determining the cognitive resources an individual is able to access, when solving problems and shaping their behavior. For example, the odds of an individual to identify an opportunity by connecting discrete pieces of information, thus cognitive flexibility enables recognition of entrepreneurial opportunities (Foo et al., 2013). Similarly, Dheer and Lenartowicz (2019) have shown that cognitive flexibility affects entrepreneurial intentions indirectly through attitude towards risk taking and entrepreneurial self-efficacy. Furthermore, an individual's ability to adapt one's thoughts and behaviors depending on a given context is also connected to cognitive flexibility (Canas et al., 2003). This is because high levels of cognitive flexibility enable storage of multiple knowledge structures, information, heuristics and schemata (Spiro, 1988), which in turn enable adoption of response to a given situation or problem. COVID-19 has forced entrepreneurs to differing degree to adapt their business models and operations, and thus those entrepreneurs, who have high cognitive flexibility seem more likely to overcome challenges than those with limited cognitive flexibility.

Grit is defined as a trait-level "perseverance and passion for long-term goals (Duckworth et al., 2007). In other words, grit comprises of two dimensions, namely persistence of effort and consistency of goal interest (ibid). Thus, grit includes the tendency to maintain and continuously focus on ones' long-term goals and interests, while working hard and maintaining effort towards those long-term goals regardless of any setbacks or hardships (Crede et al., 2017; Salisu et al., 2020). When considering the nature of entrepreneurship, and particularly international entrepreneurship, it is surprising that there are only a few studies, in which grit has been connected with entrepreneurial outcomes (Mooradian et al., 2016; Mueller et al., 2017; Salisu et al., 2020; Datu, 2021). At the company level, persistence of effort has been positively connected to perceived innovation success and indirect effect on company performance via innovation success, while consistency of goal interest has a negative impact on perceived innovation success (Mooradian et al., 2016). Additionally, the prior entrepreneurship research has shown that grit has positive effect on subjective performance, and additionally, grit is shaped by passion through locomotion and assessment (Mueller et al., 2017). More recently, Datu (2021) has proposed two alternative outcomes of grit, namely improved well-being and increased achievement.

Improved well-being results from need satisfaction, emotion regulation and positive cognitions, while the increased achievement results from behavioral efforts towards a given goal, adaptive motivation and cognitive resourcefulness (ibid). Given that COVID-19 has affected both physical and emotional well-being of entrepreneurs, grit could be one factor that shapes internationalization efforts and their outcomes. Furthermore, the two dimensions of grit, namely persistence of effort and consistency of goal interest, could have different role in internationalization, especially, when combined with other factors.

International opportunity recognition capability is key to international entrepreneurship since it forms a core activity of international entrepreneurship (Oviatt & McDougal, 2005). Similarly to entrepreneurship, recognition of international opportunity is the first step towards internationalization. However, recognition is not sufficient for entrepreneurial action, but rather the recognized opportunity needs to be exploited (Shane & Venkataraman, 2000). Thus, in the case of international entrepreneurship, entrepreneurs exploit international opportunities through internationalization (Chandra et al., 2012). The prior research has shown that international opportunity recognition positively enhances innovativeness (Lorenz et al., 2018). During the COVID-19 crisis, companies faced many obstacles as countries were imposing different degree of lockdowns and limiting social interactions, which are often needed for business operations. For these types of sudden changes in the environment, companies that have capabilities to recognize international opportunities may be better equipped to navigate the challenging conditions.

Slack resources refer to company's allocative material or economic resources, which are obtained as result of domination (Giddens, 1984), and which are available to the organization actors (agents) to be used alternatively (Dutta et al., 2016). Slack resources can either enable companies to grow, innovate and take risks by enabling through strategic initiatives, which would not be otherwise possible, or creating inefficiency by limiting growth, innovation and risk-taking, due to settling to maintain the current state of resource availability (Dutta et al., 2016). Hutzschenreuter, Pedersen and Volberda (2007) note, following Cyert and March (1963) and behavioral theory of the firm in principle, that a firm's ability to internationalize is mostly conditioned by the availability and control of organizational slack and by the strategic intent to use this slack to enter new markets. Slack in small and new organizations, including international new ventures, may be in the form of cash holdings or financial instruments, which may enable risky decisions, such as early internationalization (Chang et al., 2012). Additionally, it has been shown that SMEs tend to intensify their internationalization (measured via exporting intensity), only when they have extreme levels, low or high, of slack human and financial resources, while average level of slack resources SMEs will increase their focus on activities domestically (Kiss et al., 2017). Thus, slack resources may act as a buffer in the COVID-19 crisis, and thus enable companies to continue their internationalization, or continue operating as they have before. Additionally, as many governments have offered SMEs with subsidies for developing their operations, this may provide the companies with additional resources that enable internationalization.

## **Methodology**

The data was collected via online survey among Finnish small- and medium-sized companies in 2020. A total of 495 firms were contacted, out of which 96 provided responses to the survey. After removing incomplete responses, there are 50 full responses, corresponding to a response rate of 10.1 percent. Given that the survey was targeted at top managers of small-and medium-sized firms during COVID-19 outbreak, the response rate is considered acceptable.

The measurement scales were adopted from the prior literature. Cognitive flexibility was measured via measurement scale developed by Marti & Rubin (1995). Grit was adopted from Duckworth and Quinn (2009), and it includes two dimensions: persistence to goal interest and persistence to effort. Although prior research has tended to use the one-dimensional measure of grit, we follow Mooradian et al. (2016) and consider grit as two-dimensional construct. International entrepreneurial recognition capability was adopted from Ko and Butler (2006) and Gordon (2007). The items of each scale are listed in appendix 1. Slack resources were measured via total assets (thousands of euros). Speed (timing) of internationalization was measured via number of years between founding of the company and its start of internationalization. Additionally, multiple different performance aspects were included in the study. First, international performance satisfaction was measured via subjective scale with seven different aspects of international performance. Similarly, subjective performance was measured in terms of profitability, turnover, market share, increase in know-how and investment pay-back time. A percentage of international sales from total turnover was also self-reported. Other performance measures were objective and collected from a secondary database. The factor analysis was used as the base for forming



summated scales. The measures are deemed reliable since Cronbach's alphas are at adequate level (above 0.7).

Table 1: Descriptive analysis

	Mean	St.dev.	Range	CA	1	2	3	4	5
1. Cognitive flexibility.	8.35	1.05	4.87	0.84					
2. Grit goal	6.92	1.94	9.00	0.88	0.10				
3. Grit effort	7.95	1.38	6.00	0.69	0.70*	0.15			
4. IEO recog. capability	4.26	1.36	6.00	0.86	0.30*	0.06	0.25*		
5. Slack resources	1724.4	2687.0	16243.0	-	-0.03	-0.03	-0.03	0.26*	
6. Speed of internat.	4.56	9.09	46.00	-	-0.20	-0.03	-0.22	-0.08	0.08

Notes: IEO recog. capability = international entrepreneurial opportunity recognition capability, speed of internat. = speed of internationalization (years between the foundation and initial internationalization)

Following Fiss (2011), a two-step approach was taken to analyze the data. First, a fuzzy-set qualitative comparative analysis was performed (fsQCA), which was then compared to a cluster analysis. The recommendations of the prior literature were followed to conduct the fsQCA analysis. Qualitative comparative approach enables examination of how a particular outcome (in this study speed of internationalization) is generated through combination of in-depth insights and generalizability from the observed case (Rihoux, 2006; Legewie, 2013). This means that qualitative comparative analysis (QCA) combines qualitative and quantitative approach, and thus enables examination of causal complex relationship (Ragin, 2008) through taxonomy development (Fiss, 2011). Although QCA provides support for the existence of a causal relationship through identification of association patters among observations, it does not provide evidence about the nature of causal relationship (Legewie, 2013). Fuzzy-set QCA is among the three types of QCA, which are the fsQCA, crisp-set QCA, and multi-value QCA (Thiem & Dusa, 2013). Regardless of the type of QCA, there are four essential steps to conduct QCA analysis: 1) data calibration, 2) examination of necessity and sufficiency of conditions, 3) formation of truth table, and 4) minimization to find configurations for an outcome (Leppänen et al., 2019).

First, the data was calibrated. In the calibration, a threshold values for raw data are set to define which respondents belong to the "fully in" and "fully out" membership class in a given condition, and which is the cross-over point, which determines the point in which a raw data is considered to be more out than in a fully in category (Douglas et al., 2020). Essentially, calibration transforms the raw data into a range of value between 0 and 1; here, 0 denotes full non-membership (fully out) and 1 a full membership (fully in). Two calibration strategies were used. First, majority of the measurement scales used were Likert-scales, and thus, categorical in nature. Following the recommendation of Dusa (2019) totally fuzzy and relative (TFR) calibration was used. The TFR calibration makes it possible to take into account the nature of the data when calibrating data. Second, a direct assignment was used for the speed of internationalization. The literature regarding international entrepreneurship proposes that companies that internationalize within five years of their founding can be considered early internationalizers (the threshold used by Acedo and Jones, 2007, based on the notion that in many international new venture studies the average age at entry to international markets has been six years). Consequently, this threshold was used to set the exclusion limit for membership (non-membership). Additionally, due to the skewed nature of the data, the inclusion limit was set to 0 and cross-over point to 4 and exclusion point was set to 5. Similarly, direct assignment was used for slack resources. Due to lack of theoretical base for calibration, 25 percent quartile was used as exclusion point, 50 quartile as cross-over point and 75 quartile as inclusion point. To ensure that none of the values get the value of 0.5 (maximum ambiguity point), 0.001 was added to each value that was assigned 0.5.

Second, in the forming of the truth table was formed following the recommendations of the prior literature regarding setting the minimum number of cases (3), a consistency threshold (0.7), and proportional reduction in inconsistency threshold (0.6) (Douglas et al., 2020; Greckhamer et al., 2018; Leppänen et al., 2019). Consistency refers to "the acceptable level of dissimilarity" within a configuration that is connected to the outcome (Douglas et al., 2020). In the negation of the outcome, these recommendations could not be followed due to the limited number of late internationalizing companies in the data. Instead, the following cut-offs were used, , 0.65 and 0.5. It is noted that this causes some limitations for the interpretation of the results, which are further discussed in the limitations section of the paper.

Third, there are three types of solutions in QCA, namely complex, parsimonious, and intermediate solution (Ragin & Sonnett, 2005). Complex solution, which is often referred as conservative solution, is formed based on the observed data, and thus contains only empirical configurations (Schneider & Wagemann, 2012, 162). The second type of solution is parsimonious solution, and it includes logical reminders. These are configurations that are theoretically possible, but they do not exist in the observed data, and these logical reminders are used via simplifying assumptions to generate the simplest solution possible (Thiem, 2015). The third solution type is intermediate solution, which relies on easy counterfactuals as logical reminders through setting directional expectations, and thus combines complex and parsimonious solution (Thiem, 2015). The directional expectations are hypothecations about the role (0 or 1) that a condition has on an outcome, and they are defined by the researcher based on theoretical, and case-based knowledge. However, some simplifying assumptions are not useful in minimization, and thus untenable simplifying assumptions, i.e., theoretically impossible assumptions, should be identified and omitted before creating the intermediate solution.

## Results

The analysis was performed in two parts. First, the necessity of conditions and second, the sufficiency of conditions was examined. The QCA suggests that none of the conditions by themselves fulfill the requirements for necessary conditions. This is further supported by the necessity condition analysis, which suggests that some level of persistence of effort, persistence of goal interest and cognitive flexibility is needed for early internationalization; however, none of these can be considered as significant necessary conditions for early internationalization. See attachment 2 for necessary condition and bottleneck analysis.

**Table 2: Analysis results**

	Early internationalization		Late Internationalization
	<i>determined resource laggings</i>	<i>hard-working adapters</i>	<i>determined capability laggings</i>
GRIT goal	●		●
GRIT effort	●	●	
IOR capability		●	○
Cognitive flexibility	●	●	○
Slack resources	○	○	●
Number of cases	9	9	5
Solution coverage	0.32	0.27	0.37
Unique coverage	0.10	0.05	-
Consistency	0.88		0.67
Coverage	0.37		0.37

Notes: the black circle denotes the presence of a condition, white circle denotes the absence of a condition, empty space means that a condition is irrelevant to the configuration; IE capability= international entrepreneurial opportunity recognition capability

Second, the sufficiency of conditions was analyzed. The results show that there are two distinct configurations associated with early internationalization and these cover 37 percent of the cases in the data. Configuration 1 includes presence of a consistency of goal interest (GRIT goal), persistence of effort (GRIT effort), cognitive flexibility and absence of slack resources, and thus this configuration is called *determined resource laggings*. The second configuration includes presence of persistence to effort (GRIT effort), international entrepreneurial opportunity recognition capabilities (IE capability) and cognitive flexibility as well as absence of slack resources. Thus, this configuration is called *hard-working adapters*.

Third, slow internationalization was examined. It should be noted that some compromises had to be made in terms of inclusion and proportional reduction in inconsistency thresholds (these were set to 0.65 and 0.5 respectively), which has implications to the trustworthiness of the results regarding slow internationalization. The results suggest that there is no necessary condition associated with slow internationalization and only one configuration, which was connected to slow internationalization. The configuration 3 includes presence of

persistence to goal and slack resources combined with absence of cognitive flexibility and international entrepreneurial opportunity recognition capabilities. Thus, this configuration is called *determined capability ladders*.

### **Robustness check and performance implications**

Next, cluster analysis was performed to check the robustness of the findings of the fsQCA analysis. Cluster analysis is recommended to be used together with QCA to demonstrate the importance and validity of each configuration (Greckhamer et al., 2018). K-means clustering was used and based on the plotting of within groups sum of squares, and the number of clusters was defined to be three, thus corresponding to the number of configurations suggested by fsQCA. The data was standardized for clustering due to considerable difference in scales (7- and 10-point Likert scales versus total assets in thousands of euros). These clusters correspond to some degree to the configurations presented in table 2. Cluster profiles are presented in table 3 below. Except for slack resources, there are significant differences between these three clusters ( $p < 0.01$ ;  $p < 0.10$ ).

Table 3: Cluster profiles

	GRIT goal	GRIT effort	IOR capab.	cog. flexibility	slack	Int. Speed	N
<i>determined resource ladders</i>	8.27	8.74	4.76	9.04	1701.86	2.36	22
<i>hard-working adapters</i>	5.03	8.19	3.93	8.33	1070.94	2.38	16
<i>determined capability ladder</i>	6.96	6.17	3.77	7.10	2637.08	11.50	12
Difference between clusters							
F value	26.16***	30.83***	3.02*	27.38***	1.17	5.44***	

Notes: \*\*\*= $p < 0.01$ , \*\*= $p < 0.05$ , \*= $p < 0.1$ ; IEO capab. = international entrepreneurial opportunity recognition capability, cog. flexibility = cognitive flexibility, slack = slack resources (in billions), Int. Speed = speed of internationalization (years)

Cluster 1 includes companies that on average internationalize within 2.4 years after their founding (early internationalizers). These companies tend to have founders who have high level of persistence to goal interest and effort (above 8 out of 10). Similarly, their cognitive flexibility is high, and they possess capabilities to recognize international opportunities. These companies have some excess resources, but less than the average companies in the sample (Table 1). Thus, this cluster mostly corresponds to *determined resource ladders* (configuration 1). Cluster 2 also includes companies that internationalize early, on average 2.4 years after their founding. Entrepreneurs in these companies have medium level of persistence to goal interest combined with high level of persistence to effort, capabilities to recognize international opportunities, and cognitive flexibility. These have very low level of excess resources. Thus, this cluster corresponds to *hard-working adapters* (configuration 2). Cluster 3, conversely, includes companies that on average internationalize late within 11.5 years after founding. These companies are run by entrepreneurs, who have high level of persistence to goal interest, medium level of persistence to effort, capabilities for recognizing international opportunities and cognitive flexibility. These companies, on the other hand, have more slack resources than companies in the other two clusters. Thus, this cluster corresponds to the *determined capability ladder* (configuration 3).

The difference between the three groups of companies were further examined in terms of venture capitalist financing, different performance indicators and the scope of international operations (see Table 4). The only significant difference between the three clusters is in terms of satisfaction with a company's international performance ( $p < 0.05$ ). The highest satisfaction is in cluster 1 with 7.39 (out of 10), while in clusters 2 and 3, the average satisfaction to international performance is around 5. When examining whether there is difference in received venture capital funding, cluster 1 has received on average more venture capital financing than the other two clusters. Cross-tabulations show that 23.8 percent of the companies (5 companies) have received VC financing in cluster 1, while only 12.5 percent of companies (2) in cluster 2 and 8.3 percent (1) in cluster 3.

Table 4: Difference in performance, VC financing and scope of operations

	<i>determined resource lagers</i>	<i>hard-working adapters</i>	<i>determined capability lagers</i>	F value
VC financing	0.24	0.13	0.08	0.77
Int. turnover % of total turnover	42.45	36.91	37.83	0.12
Subjective profitability	7.94	7.13	6.27	1.46
Subjective increase in know-how	8.39	8.07	7.27	0.94
International market satisfaction	7.39	5.33	5.18	3.35**
Subjective turnover	6.17	4.60	4.82	1.47
Subjective market share	5.39	4.73	4.82	0.27
Subjective pay-back	6.61	5.67	6.73	0.60
Operating revenue 2020	1920.95	1608.25	2979.67	0.76
Net Income 2020	-99.23	71.19	-58.83	0.81
Sales 2020	1841.32	1466.06	2931.92	0.86
EBIT 2020	-60.91	108.50	110.17	1.55
Scope of operations (# of countries)	11.95	8.94	13.25	0.29

When examining the subjective performance measures, cluster 1 seems to score on average higher than the other two clusters. However, cluster 3 has on average higher operating revenue, sales, and EBIT in 2020 compares to other two clusters. The highest net income is in cluster 2 (on average). When it comes to the scope of internationalization, companies in cluster 3 have international operations on average in 14 countries, while cluster 1 companies have operations on average in 12 countries, and companies in cluster 2 in 9 countries. Conversely, the highest proportion of sales out of total turnover is in cluster 1 with 42.5 percent, followed by cluster 3 with 37.8 percent and cluster 2 with 36.9 percent. These differences suggest two issues: 1) early internationalization does not seem generate the best possible performance outcomes, and 2) considering that the early internationalizing companies are more dependent on international markets, COVID-19 crisis may have shaped their performance more than late internationalizer's performance.

## Discussion

The aim of this paper was to examine the connection between cognitive and slack resources and speed of internationalization during the COVID-19 crisis by examining 50 Finnish internationally operating SMEs. The COVID-19 crisis has presented unexpected and complex challenges to international entrepreneurs, which are likely to change the global business environment for good (Zahra, 2021). However, for some companies the COVID-19 crisis has offered new opportunities to innovate and internationalize. The data was analyzed first utilizing fsQCA, and then cluster analysis. The results of the cluster analysis further support the configuration discover in fsQCA analysis. The results show two configurations that are associated with early internationalization and one, which is associated with late internationalization.

The contribution of the study is threefold. First, the paper provides new insights about the role of cognitive capabilities in internationalization, and thus answering a call for research applying the cognitive perspective to international entrepreneurship research (Zahra et al., 2005; Zucchella, 2021). More particularly, the paper extends the findings of the prior international entrepreneurship literature by focusing on cognitive capabilities and characteristics as well as slack resources (Dasí, Iborra, & Safón, 2015). Thus, by examining the combination of grit, cognitive flexibility and international opportunity recognition capabilities and their connection to speed of internationalization during COVID-19 crisis, this study proposes capability portfolios that are associated with early internationalization. The results show that there are two distinct configurations, namely *determined resource lagers* and *hard-working adapters* that are associated with early internationalization. Both *determined resource lagers* and *hard-working adapters* have low level of slack resources, thus supporting the findings of Kiss et al. (2017) regarding the connection of slack resources and speed of internationalization. Interestingly, consistency of goal commitments is enough to overcome the limited resources (lack of slack resources, while a combination of persistence of effort, cognitive flexibility and international opportunity recognition capabilities is needed to overcome the resource limitation in the case of early internationalization.

Earlier research focusing on international entrepreneurship has pointed out factors like international experience, but also orientations like global mindset and global vision (e.g., Nummela et al., 2004) and attitude towards risk (e.g., Acedo & Florin, 2006). In that sense, our results support the idea that the mindset or managerial

intentionality (Hutzschenreuter et al., 2007) play a larger role in early internationalization than the actual resource base the SME possesses. Our results show that there are, however, more nuances in the profiles of early internationalizing firms – as we distinguish the separate profiles. Furthermore, the results support the notion of grit as a two dimensional rather than one (Mooradian et al., 2016). The results show that both or only one of the dimensions of grit may play a role in the speed of internationalization, and their role may depend on the type of variable combinations, reflecting the causal complex nature of entrepreneurial decision-making. To the best of our knowledge, this study is a first of its kind to include grit as factor shaping international entrepreneurship. Thus, this study provides new insights about the role of grit in entrepreneurship and especially international entrepreneurship. The role of grit has been highlighted in a recent study by Santos et al., (2020), who proposed perseverance and passion as an individual entrepreneurial orientation.

Additionally, when examining the results in the light of prior international entrepreneurship, the identified typologies suggest that persistence and adaptability are important for early internationalization. More particularly, companies who internationalize early rely on cognitive flexibility together with consistency towards long-term goal and/or persistence of effort towards long-term goals. These results are in line with the prior entrepreneurship research has connected effectuation and causation to internationalization (Prashantham et al., 2018) and company performance (Reymen et al., 2015; Smolka et al., 2018; Welter & Kim, 2011). The prior research has shown that in uncertain environments, such as the context of international entrepreneurship, effectuation is more utilized and beneficial for companies (Sarasvathy, 2001; Welter & Kim, 2018; Jiang & Tornikoski, 2019). However, the prior research has also shown that effectuation and causation are not substitutes, but rather complimentary (Sarasvathy, 2001), and these two logics combined can generate better performance outcomes (Reymen et al., 2015; Smolka et al., 2018; Welter & Kim, 2018). Thus, the findings of the present study provide further insights about how companies combine planning and adaptation.

Regarding, late internationalization slack resources combined with consistence of goal commitment enable to overcome the limited international opportunity recognition capabilities and cognitive flexibility. Here we could see that even though the cognitive capability base would be limited, the resources gained, possibly by operating in a domestic market first, can lead to internationalization at the later stage or phase. In this type of 'late internationalization' configuration, there could be linkages to traditional incremental internationalization pattern (along the lines of Uppsala model, see e.g., Johanson & Vahlne, 1977, see also Ciravegna et al, 2018). It may be that there could be an unsolicited export order instead of the proactive international opportunity recognition process, and due to available slack resources, a company decides to agree on internationalization goal and seize the opportunity at the later stage in the company life cycle in a more reactive manner.

These results of the fsQCA showing three configurations were further supported with the cluster analysis. The proposed typology combing the results of fsQCA and cluster analysis is summarized and discussed in table 5 below.

Table 5: Typology descriptions combining the results of fsQCA and cluster analysis

<b>Typology</b>	<b>Description</b>	<b>Performance outcomes</b>
Determined resource laggards	Firms with no slack resources, but whose manager can remain focused on and keep working towards long-term goals despite the possible obstacles faced and adapt to changing situations. These resource configurations are associated with early internationalization.	These companies are more likely to receive VC financing that other two types of companies. They are on average more satisfied with different aspects of performance and their objective performance is better than hard-working adapters. The early and extensive expansion of business seems to shape financial performance of these companies.

Hard-working adapters	Firms with no slack resources, but whose manager can adapt to a changing situation, keep working towards long-term goals and is able to recognize international entrepreneurial opportunities. These resource configurations are associated with early internationalization.	These companies are less likely to receive VC financing than determined resource ladders, but more likely than late internationalizers. They are on average, somewhat satisfied with their company profitability, but least satisfied with their turnover, market share and pay-back time. These companies are generating less sales and operating revenue than the two other company types, but they are able to generate better financial result by focusing on few selected countries.
Determined capability ladders	Firms with slack resources, but whose manager can remain focused on long-term goals despite the possible obstacles faced. However, the manager cannot adapt to a changing situation, and does not possess the needed capabilities for international opportunity recognition. Due to the lack of needed capabilities, these companies internationalize late (and possible reacting to a 'critical incident', see. e.g. Bell et al., 2001)..	These companies are not very satisfied in their performance compared to the early internationalizers, but they have larger operating revenue and sales compared to the early internationalizers. Although these companies have negative net income, they are still able to generate positive financial performance because of their more developed international operations.

Second, the connection between different clusters (two connected to early internationalization, and one to late internationalization) and performance indicators, both subjective and objective were examined. Thus, this provides new insights about the performance of early internationalizing SMEs. The only significant difference was found for the international market satisfaction. The satisfaction to international performance was significantly higher in cluster 1 (corresponding to *determined resource ladders*) than in clusters 2 (corresponding to *hard-working adapters*) and 3 (*determined capability ladders*). However, interestingly, cluster 1 scored higher on average in all subjective performance categories than the two other clusters, while clusters 2 and 3 performed better in the objective performance categories than cluster 1. One reason for this may be the notion that cluster 1 has higher proportion of sales coming abroad compared to two other clusters, although companies in this cluster operate on average in 12 countries, compared to cluster 3 with 14 countries. This suggests that COVID-19 crisis may have affected some of the markets more than others, which is indicated by the lower objective financial performance of cluster 1 companies, which are also more dependent of their target markets. Additionally, as proposed in the table 5 above, the internationalization strategy (early vs. late) a company chooses seems to also have financial performance implications. The results show that although *determined resource ladders* outperform *hard-working adapters* in sales and operating revenue, they fall behind in EBIT and net income, suggesting that the early and rather vast international expansion comes with the price of financial performance.

Third, the paper extends follows the recent papers applying fsQCA on the context of entrepreneurship and more specifically international entrepreneurship (Reuber et al., 2017), or even international business (Fainshmidt et al., 2020). As the results show none of the managerial capabilities or company resources alone are enough for early or late internationalization, but rather the different combinations of managerial capabilities and company resources are associated with early and late internationalization. Thus, this paper further highlights the need to apply alternative data analysis methods to provide new light on the complexity of entrepreneurial cognition in the context on international entrepreneurship. Additionally, the paper also applies more traditional analysis method, namely cluster analysis, to further strengthen the results of fsQCA.

This paper has also practical implications. In the crisis situation, in this case the COVID-19, incentives to develop companies may help some companies to take the plunge decision to internationalize, but this may also have opposite effect. Thus, national governmental institutions supporting entrepreneurship should take this into consideration. Furthermore, this paper has implications to entrepreneurship education. All the cognitive capabilities included in the study are the kind that can be improved through practice. Thus, entrepreneurship educators should incorporate elements that enable students to build their grit, improve their cognitive flexibility

and international opportunity recognition capabilities. Entrepreneurial internationalization is very much opportunity driven (e.g., Lu, Zhou, Bruton, and Li; 2010), and entrepreneurs' perception of where the opportunities lie and how they can recognize and seize them guides their behavior. The possession of right set of cognitive capabilities will enable the students to build international ventures if they choose to become entrepreneurs and persevere in the face of hardship, thus enabling them to recover faster.

## Conclusions

The aim of the study was to examine combination of cognitive capabilities and slack resources and their connection to speed of internationalization and performance during COVID-19 crisis. By utilizing fsQCA to examine 50 Finnish SMEs, the study discovered two distinct capability and resource configuration that are associated with early internationalization and one configuration, which is associated with late internationalization. Furthermore, cluster analysis was applied to provide further support for the identified resource portfolios and examine differences in average performance. These results provide new insights to international entrepreneurship literature by applying the configurational approach and increasing our understand about the performance implications between early and late internationalization. These results also have implications for entrepreneurial policies and education.

This study has three major limitations, which also call for more research on the topic. First, the data analyzed in the study is limited in terms of size and national scope, which renders the generalizability of the results to a larger SME context. Future research could apply the same setting to a larger group of companies and in different national context, thus providing additional insights about the role of cognitive flexibility, grit, international opportunity recognition capabilities and slack resources. Furthermore, the data was collected in the beginning of the COVID-19 crisis, thus the results are limited to the extreme context of the crises. Future research could examine whether these similar resource portfolios are present in other types of crisis and in non-crisis situations. Additionally, the performance outcomes are only examined during one time point, thus longer time period would enable examination of growth and success of the company. Second, the study examined limited number of cognitive capabilities and characteristics. Future research could also include entrepreneurial passion as a cognitive capability since prior literature has connected entrepreneurial passion and grit (Mueller et al., 2017). Third, fsQCA and cluster analysis as analysis methods do not enable to draw conclusions about causality. Thus, future research could examine the interconnections between grit, cognitive flexibility and international opportunity capabilities by applying analysis methods that enable drawing conclusions about causality, such as structural equation modeling or experimental research designs.

## Appendix 1: Scales and items

### Cognitive flexibility

1. I can Communicate an idea in many different ways.
2. I avoid new and unusual situation. \*
3. I feel like I never get to make decisions. \*
4. I can find workable solutions to seemingly unsolvable problems.
5. I seldom have choices when deciding how to behave. \*
6. I am willing to work at creative solutions to problems.
7. In any given situation, I am able to act appropriately.
8. My behavior is a result of conscious decisions that I make. \*
9. I have many possible ways of behaving in any given situation.
10. I am willing to listen and consider alternatives for handling a problem.
11. I have the self-confidence necessary to try different ways of behaving.

### Grit

1. I often set a goal but later choose to pursue a different one.
2. I have been obsessed with a certain idea or project for a short time but later lost interest.

3. I have difficulty maintaining my focus on projects that take more than a few months to complete.
4. New ideas and projects sometimes distract me from previous ones.
5. I finish whatever I begin. \*
6. Setbacks don't discourage me.
7. I am diligent.
8. I am a hard worker.

#### International opportunity recognition capability

1. How many international business ideas did you identify in the past three years? (from very few to many)
2. How many international business opportunities did you identify in the past three years? (from very few to many)
3. How much did you modify an international opportunity from idea generation to opportunity objectification? (from minor change to major change)
4. How many novel or innovative international business ideas were considered feasible and desirable? (from very few to most)
5. How much have you been able to shift organisational resources to capitalise on emerging opportunities in international markets? (from very low to very high) (new item: resource flexibility)

\* notes that the items was omitted based on the results of factors analysis.

#### Appendix 2: Post-hoc analysis for necessity

**Table 6:** Necessary condition and bottleneck analysis results

	Cognitive flexibility	GRIT goal	GRIT effort	IEO recog. capab.	Slack resources
Necessary condition analysis					
CE-FDH	0.02	0.03	0.05	0.00	0.00
Bottleneck analysis					
0	NN	NN	0.7	NN	NN
10	NN	NN	1.3	NN	NN
20	NN	NN	1.8	NN	NN
30	NN	NN	2.4	NN	NN
40	NN	NN	2.9	NN	NN
50	NN	NN	3.5	NN	NN
60	NN	0.9	4.0	NN	0.0
70	NN	2.2	4.6	NN	0.0
80	2.5	3.5	5.1	NN	0.0
90	5.3	4.8	5.7	NN	0.0
100	8.2	6.1	6.2	NN	0.0

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