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# Digitalization and internationalization of micro-, small, and medium-sized enterprises: An overall conceptual process

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## ABSTRACT

The digital technologies that are emerging around the world are completely transforming the paradigms of our economies, societies, and firms, including the new reality of international trade that is becoming connected. Although there are many opportunities to be built, traditional theories of business internationalization do not specifically address the pervasive effects of digital technologies. This article aims to jointly study digitalization and firm internationalization and proposes an overall conceptual process that links these dimensions through entrepreneurial behaviors of firms and entrepreneurs. This process demonstrates how the use of digital technologies impacts entrepreneurial behaviors and how this might shape new opportunities to enhance the propensity for internationalization of firms. It illustrates that the effective use of digital technologies depends to a large extent on the entrepreneurial behaviors of firms (with an entrepreneurial orientation) and of entrepreneurs (with their self-efficacy). These results provide new relevant practical value to practitioners and policy makers.

## KEYWORDS

Digitalization;  
internationalization;  
entrepreneurial orientation

## Introduction

The emergence and convergence of digital technologies around the world is completely transforming our economies, societies, and businesses. At the firm level, advances in digital technologies are dramatically changing the way business is conducted. From operations, workforce, and corporate culture to sales functions and customer engagement, the use of digital technologies is leading to a radical transformation of strategic and structural approaches to business, including the nature of the business model (Autio et al., 2018; Li et al., 2018; Matt et al., 2015; Proksch et al., 2021; Vial, 2019). The many changes brought about by the digital environment expose micro-, small, and medium-sized enterprises (MSMEs) to new challenges and opportunities in the international arena (Manyika et al., 2016). One of the main challenges is the intensification of the competitive environment due to lower barriers to entry. In such a competitive environment, firms are encouraged to foster entrepreneurial activities and thus

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adopt an entrepreneurial orientation (EO) as a strategic posture in order to define and consolidate a competitive advantage (Anderson et al., 2009; Covin & Slevin, 1989; Lumpkin & Dess, 1996). In this regard, the use of digital technologies could provide new avenues to consolidate their EO (Hervé et al., 2020a) as well as their competitive advantage (Gartner et al., 2022). However, their use does not only affect the company but also the entrepreneurs who run it. In this digital age, entrepreneurs need to be aware of opportunities in order to be ready for sustainable innovations (Autio et al., 2018; Kraus et al., 2019; Nambisan, 2017; Schallmo et al., 2017; Vial, 2019). Indeed, it has always been recognized that the behaviors of entrepreneurs are critical in the context of rapid technological advances; it is their personal traits that influence the discovery and exploitation of opportunities enabled by emerging technologies (Schumpeter, 1934). However, while some authors are addressing how the digital environment affects the internationalization process of firms (Autio & Zander, 2016; Brouthers et al., 2016; Coviello et al., 2017; Neubert, 2018; Strange & Zucchella, 2017), traditional international business theories are not adequate for the pervasive impact of purely digital technologies (Andersson et al., 2014; Coviello et al., 2017; Hult et al., 2020; Knight & Liesch, 2016; Kriz & Welch, 2018; Welch et al., 2016; Welch & Paavilainen Mäntymäki, 2014), and research does not incorporate the role of entrepreneurial behaviors of firms and entrepreneurs in their analysis. Based on a literature review and a quantitative survey of a sample of 190 MSMEs operating abroad, the authors propose to build an overall conceptual process that demonstrates the relationships between the dimensions of interest.

## Literature review

### *Digital entrepreneurship and digitalization*

Based on the theoretical underpinnings of entrepreneurship, which relies on recognizing, seizing, and transforming opportunities into marketable goods or services to create new value, digital entrepreneurship is considered a subcategory of entrepreneurship “in which some or all of what would be physical in a traditional organization has been digitized” (Hull et al., 2007, p. 7). It is defined as “the pursuit of opportunities based on the use of digital media and other information and communication technologies” (Davidson & Vaast, 2010, p. 3). This field of research considers the use of digital technologies as an input to pursue entrepreneurial opportunities (Giones & Brem, 2017) and in this regard aims to study digital technologies and their unique characteristics to shape entrepreneurial activities (Nambisan, 2017).

## ***International business and entrepreneurship***

Over time, many theoretical perspectives have been used to describe the internationalization of firms. One of the best-known approaches is the Uppsala model, which argues that internationalization is a linear and sequential process through which firms gradually acquire knowledge over time through experience (Johanson & Vahlne, 1977). Although this approach has evolved since it was first published, many scholars question the universality of the model and question the gradual nature of foreign market engagement (Andersson et al., 2014; Coviello et al., 2017; Hult et al., 2020; Knight & Liesch, 2016; Kriz & Welch, 2018; Welch et al., 2016; Welch & Paavilainen Mäntymäki, 2014). At the heart of these questions is the phenomenon of entrepreneurial MSMEs and the current technological advances that are revolutionizing internationalization models.

## ***Entrepreneurial orientation***

In promoting entrepreneurial initiatives, corporate EO is primarily conceptualized as an organizational tendency in decision making that exhibits innovation, proactivity, and risk-taking to better discover and exploit opportunities and outperform competitors by building a strong competitive advantage (Anderson et al., 2009; Covin & Slevin, 1989; Lumpkin & Dess, 1996; Miller, 1983). It can be described as the propensity to use new behaviors to anticipate and act on future changes in the external environment, and the willingness to undertake investments with uncertain outcomes (Lumpkin & Dess, 1996).

## ***Self-concept traits***

With technological advances, many entrepreneurship researchers have become interested in profiling the behavioral traits of individuals and their entrepreneurial actions (Gruber et al., 2012; Kor et al., 2007; Rauch & Frese, 2007; Schumpeter, 1934; Shane, 2000). To discover and exploit the opportunities offered by technologies, entrepreneurs are crucial to the process (Schumpeter, 1934; Shane, 2000), and their behaviors that shape entrepreneurial ideas about what the firm can and cannot accomplish with its technological resources are paramount to better understand and predict the growth options pursued or not pursued by an entrepreneur (Gruber et al., 2012; Kor et al., 2007).

## ***Methodology***

The research includes two methodological approaches. First, the literature review aimed to provide an in-depth analysis and synthesis of five scientific articles that address the impact of the use of digital technologies on the

internationalization process of firms. Second, a quantitative survey on the internationalization of Swiss MSMEs is discussed that, on the one hand, aims to measure the relationship between the degree of digitalization, EO, and the intensity of MSME internationalization and, on the other hand, to examine how the relationship between the degree of digitalization and the EO of MSMEs is mediated by the behavior of entrepreneurs.

## Results

First, the synthesis constructed from the literature review provided valuable insights into the main impacts and opportunities offered by the use of digital technologies on the internationalization process of firms (Autio & Zander, 2016; Brouthers et al., 2016; Coviello et al., 2017; Hervé et al., 2020b, 2022; Neubert, 2018; Strange & Zucchella, 2017). The key impacts highlight disruptive changes in international trade, while the key opportunities describe how firms can take advantage of these changes. Second, the quantitative study further investigated the relationship between digitalization and internationalization by considering the entrepreneurial behaviors of firms and entrepreneurs. The first part was conducted at the firm level and tested a conceptual process consisting of the variables degree of digitalization, EO, and internationalization intensity. The results of the regression analysis highlighted a positive and significant relationship between the degree of digitalization and EO as well as between some components of EO and internationalization intensity. The second part of the quantitative research was conducted at the entrepreneur level and aimed to test whether the concepts of self-efficacy and locus of control had a mediating role on the relationship between the degree of digitalization and EO of MSMEs operating abroad. The results of the parallel mediation analysis highlighted that the positive and significant relationship between the degree of digitalization and EO of MSMEs is mediated by the personal attribute of self-efficacy but not by the locus of control. The results highlighted the significant role of entrepreneurs' judgment in their abilities to generate a given performance by seizing the opportunities enabled by the use of digital technologies to consolidate the EO of internationalized MSMEs.

## Discussion and conclusion

By studying the digitalization and internationalization of firms in the scientific literature and linking them through the roles of entrepreneurial behaviors at the firm and entrepreneur levels with empirical data, the research proposes a new perspective on these dimensions. The collected results provided relevant information and allowed the research to build an overall conceptual process (Appendix). It illustrates that in order to benefit from digital technologies to increase the propensity to internationalize, firms must first apply them to

consolidate their entrepreneurial behavior. The diagram is decomposed by different interactions between the dimensions of interest. First, it considers the impacts and opportunities formed by the digital context. Then, the process links the dimensions of digitalization and internationalization through the entrepreneurial behaviors of firms, and more specifically, through the concept of EO that provides key capabilities to build competitive advantage in foreign markets (Lumpkin & Dess, 1996). By linking these dimensions, the overall conceptual process considers the role of entrepreneurial behaviors of entrepreneurs as a crucial lever to adequately use digital technologies in order to strengthen the EO of their company. Finally, through the strengthening of the EO and the core capabilities that comprise it, firms are able to increase their internationalization intensity. The study contributes to the scientific debate by investigating the impacts and opportunities associated with the digital context and the internationalization of companies and by studying the role of entrepreneurial behavior. From a managerial perspective, the main contribution is the overall conceptual process that demonstrates how the use of digital technologies impacts the entrepreneurial behaviors of firms and entrepreneurs and how these behaviors could be shaped to increase the internationalization of MSMEs. Based on this process, recommendations were made to highlight how digital technologies could strengthen the EO of MSMEs to enhance their competitive advantage and propensity for internationalization.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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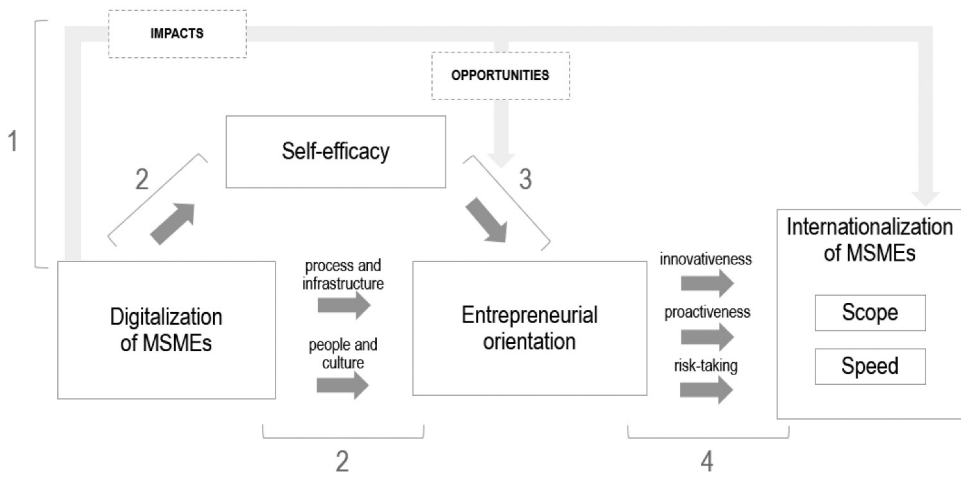
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## Appendix



**Appendix 1.** Overall conceptual process. *Source:* Hervé (2021).