

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities

Benjamin Dethine, Manon Enjolras, Davy Monticolo

“In a rapidly changing world, the only strategy that is guaranteed to fail is not to take risks.”

Mark Zuckerberg
Facebook CEO

Digitalization is becoming an increasingly central issue for companies. However, most companies, and in particular SMEs, are struggling to engage in a coherent global digital transformation process. Indeed, digitalization affects much of a company's organizational strategy, including the development of market opportunities. Digitalization has been identified as an element that fosters the internationalization of SMEs. However, the integration of digital technology requires investments and changes in a company's internal practices through the mobilization of new resources, as well as by implementing specific capabilities to manage them. The objective of this research work is therefore to examine the impact of SMEs' digital transformation on their internationalization capability. Relying on an extensive exploratory literature review, digital facilitators were identified and classified into three categories: e-commerce, e-marketing, and e-business. Then, a cross-analysis between the identification of digital facilitators from the literature and a framework of SMEs' export practices (the Potential Export Index, Enjolras et al., 2016) was conducted in order to highlight differentiated impacts that can be theoretically identified. The most impacted export practices are related to the strategic vision of the firm, the customization of its offerings, its network dynamic, and its internal organization. E-commerce facilitators concern the supply chain organization, e-marketing facilitators are related to communications and customer relations, and e-business facilitators impact the company as a whole.

Introduction

Over the past decade, the emergence of increasingly powerful digital technologies and digital infrastructures have transformed and continue to transform business processes, organizations, and corporate culture with new innovation processes, marketing models, and types of products/services (Tekic & Koroteev, 2019).

One field of literature in particular has further studied the implications of digitalization for improving the international capabilities of companies. International activities have been identified as one of the most important levers for economic growth (Bo kunow, 2019). They involve several advantages for companies' development, but also imply certain challenges, especially for small and medium enterprises (SMEs) because of their size and limited resources (Bhatia & Thakur, 2018). In this specific context, digital tools and technologies can be considered as facilitators for

mobilization in order to achieve SMEs' international business objectives (Safar et al., 2018).

The objective of this paper is to examine the impact of SMEs' digital transformation on their internationalization capability. Specifically, this research identifies digital facilitators, defined as tools, technologies, skills, or capabilities that a company can implement in order to improve its internationalization process. Taking as a methodological basis the Potential Export Index, as a framework for good export practices (Enjolras et al. 2016), the impact of digital facilitators on these practices is assessed through a bibliographical review. This theoretical analysis highlights potential contributions in the digital age as a way of potentially answering to international challenges faced by SMEs. This research is therefore based on an explorative approach that aims at building a theoretical research object in view of later empirical work to follow.

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

Literature Review

SMEs and Internationalism

Internationalization can be defined as a process of increasing company commitment to international markets. It can occur in several modes: exporting, importing, foreign investment, opening of subsidiaries, and other things. In the scientific literature, the particular case of SMEs remains the subject of numerous publications that use different approaches to explain the processes of international commitments.

A widely used approach is the step-by-step process. Internationalization is then considered as a linear, sequential, and progressive process (Coviello & McAuley, 1999). Within this step-by-step approach, two paths coexist: The Uppsala model (Johanson & Vahlne, 1992) emphasizes the notions of a learning process and psychological distance. The innovation model (I-Model) (Bilkey & Tesar, 1977) considers internationalization as a process comparable to the adoption stages of a new product. However, there is a large body of literature that questions the step-by-step approach to internationalization and, in particular, criticizes the idea that firms (especially SMEs) must follow a specific gradual path to internationalize (Anderson & Narus 1990; Coviello & McAuley, 1999). Some studies highlight that the several stages of an SME's internationalization process are not always gradual. They are instead characterized by rapid increasing, decreasing, and re-increasing commitment to foreign markets (Dominguez & Mayrhofer 2017). Moreover, the concept of necessary "stages" is also refuted by the immediate internationalization process of the so-called "born-global firms," which involve international activities from the company's creation (Knight & Cavusgil 2004). This phenomenon could be explained, among other ways, by the development of digital technologies that allow SMEs to enter the international market more quickly and easily (Loane et al., 2004).

The second approach for mobilization is the network approach, which sees internationalization as a network that develops through trade relations with other countries (Johanson & Mattsson, 2015). The emphasis in this case is put on the relational capacities of the company.

Finally, the so-called economic approach, as supported by Penrose (1959) and in line with a resources-based view (Barney, 1991), suggests that certain resources are

critical. These resources are crucial in influencing the growth of the company and therefore its ability to penetrate new markets. A lack of these resources (financial, human, time) can thus limit companies' international activities. In this approach, the focus is rather on organizational capacities (production capacities, financial capacities).

Thus, several models of internationalization coexist within the literature. The economic approach highlights the importance of firms' organizational capacities, and more particularly, their capacity to mobilize strategic resources. The network approach considers that internationalization requires the development and mobilization of the relational capacities of a firm. And finally, the step-by-step approach highlights the importance of the learning capacity to overcome psychological distance specific to the internationalization process. These various points of view refer to aspects that an SME must consider in order to develop beyond its national territory (Laghzaoui, 2009).

The internationalization process is therefore complex and involves major disruptions within companies. This is why most SMEs face difficulties in developing an effective international strategy. For example, most SMEs adopt a short-term strategy in comparison with larger companies (Moeuf et al., 2018). Moreover, they face internal obstacles related mainly to their small structure and limited resources (Cerrato & Piva 2012). Leonidou (2004) considers that SMEs' difficulties are either external, and therefore related to the business environment (domestic or foreign market), or internal, and therefore related to the resources, organizational capacities, and vision of the company. Indeed, the main internal constraints for SMEs are lack of financial resources (Bellone et al. 2010; Paul et al. 2017), lack of time and/or skills (Freeman et al. 2012; Paul et al. 2017), and lack of knowledge about foreign markets (Bianchi & Wickramasekera, 2013). In the same vein, Costa et al. (2020) consider that SMEs face two particular difficulties in their internationalization processes: to establish a customers' network as a way of gaining competitive advantages in foreign markets, and to identify and manage the right information.

On the other hand, SMEs have a flatter and less bureaucratic structure than larger companies since they have a simpler internal organization that usually allows them to adapt quickly to change (Wang et al., 2017). Despite their limited size, SMEs often have active

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

relationships with their networks, which are one of their most important sources of knowledge in an international context (Hsieh et al., 2019).

These sources of knowledge and the quantity of data to handle have increased with the arrival and growth of digitalization. In the next section we will explore issues of digitalization for the SMEs.

SMEs and Digitalization

Academics and industry are used to the term "digital transformation" as a key term to express organizational changes influenced by digital technologies. However, while a clear definition has not been widely adopted, all the scientific articles are nevertheless unanimous in expressing the fact that digital transformation induces a radical change in organizations (Burki, 2018). According to Lucas et al. (2013), these changes concern adjusting business processes, creating new organizations, changes in organization/customer relationships, markets, user experiences, and the number of customers, and finally, the impact of disruptive technologies. In addition, the acceleration of digital technological development, combined with the increasing globalization of associated economies, is accelerating the innovation cycles of products and services, and generating new business models, while also changing the operational and organizational environment for businesses and consumers.

Thus, companies from all business sectors are exploring and experimenting with new ways of using digital tools and technologies within their organizations. New digital technologies, such as data analysis, digital communication, connected objects, intelligent systems, and user experience through digital technology, are being applied in all sectors of activity, including many traditional industries (Pagani et al., 2017). Moreover, some researchers have observed the advantages of digital technology in companies (von Leipzig et al., 2017; Rojo Abollado et al., 2017; Bedell-Pearce, 2018; Subramaniam et al., 2019), and that companies which have started their digital transformation are more competitive and thus able to more easily adapt to changing ecosystem conditions.

However, despite the importance attached to this phenomenon, most companies, in particular SMEs, are struggling to engage in a coherent global digital transformation process. Indeed, the integration of digital technology requires investments and changes in a company's internal practices as a whole, which

sometimes requires the implementation of new internal organizational strategies as well as the development of new skills. SMEs generally invest in digital technologies on an ad hoc basis, operating in an opportunistic manner, yet without following any real global digital transformation strategy. This approach, which focuses on a short-term vision, sometimes results in investment errors, and often in incremental development rather than in the development of a profound transformation that maximizes value creation associated with digital transformation of the entire company.

Financial barrier to internationalization are common for SMEs, along with the risk of losing investments. Von Leipzig et al. (2017) show that, in addition to financial obstacles, a lack of technology and skills related to digitalization, as well as a poorly structured strategy, can also constitute a missed opportunity for digital transformation. As Goerzig and Bauernhansl (2018) explain, the human side must always be considered. They define "digitalization" as the interconnection between a company, its product or service, and human beings. In SMEs, organizational development is driven by their employees. This is reflected in the strategy that a SME takes involving the human factor as being of primary importance, since it will directly influence the digitalization actions by staff.

In this context, SMEs need to be prepared to adapt to their new technological environment in order to remain competitive or even to engage with new markets (Safar et al., 2018). SMEs need guidance in developing their digitalization strategy in order to keep pace with technological developments. This can happen by prioritizing actions to enable an effective and efficient digital transition (Goerzig et al., 2018). Digital transformation therefore represents a new type of challenge for SMEs, requiring a global digital transformation strategy that impacts the entire company organization. What results from this approach will be not only a specific product or new service, but also the development of a capacity to adapt to changes induced by technological innovations related to digitalization. In the next section, we will describe the consequences of digitalization in the internationalization process of SMEs.

Internationalization and Digitalization: towards a joint resource/capability perspective

Digitalization and internationalization are both well-documented research areas. However, the relationship between these two themes remains relatively fuzzy,

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

particularly in the specific context of SMEs. Even with a growing trend among SMEs of utilizing the Internet for internationalization (Jean & Kim, 2019), there is still a lack of studies addressing the influence of digitalization on the internationalization management of SMEs (Costa et al., 2020).

Studies addressing this topic highlight that firms may consider digitalization as a means of enhancing their international capabilities (Lee & Falahat, 2019), even if the effects might be indirect. Regarding the impact on internationalization processes, Dutot et al. (2014) observed that SMEs adopting a more complex form of internationalization often have more developed IT capabilities. Moreover, digital tools could specifically benefit SMEs by improving an SME's ability to compete with larger organizations through operating on an international scale (Louw & Nieuwenhuizen, 2019), thus compensating for a weaker physical presence in foreign markets.

However, these studies generally focus on the importance of digital technologies in support of SMEs' international activities (Brouthers et al., 2016). In particular, these studies acknowledge the resource-based view, for which digital technologies constitute a strategic resource in Barney's sense (1991), and which can give a company a competitive advantage (Lee and Falahat, 2019). Thus, digital resources are strategic if they are valuable (value creation), scarce, not easily transferable or inimitable, and not substitutable (Barney, 1991). From this point of view, the relationship between digitalization and international activity is regularly considered from a techno/process point of view, but its operational implementation is often little explored.

According to Cassetta et al. (2019), the internal context in which digital tools/resources are adopted within SMEs is often ignored. Thus, companies fail to consider digital technology decisions as an integral part of their business practices (Chatzoglou & Chatzoudes, 2016). However, the organizational impact of digitalization on SMEs is crucial, and must be reflected in a combination of tools/resources, skills, and capabilities. Digital resources can therefore be considered strategic only if good implementation or exploitation of them within the company is considered. The identification and exploitation of strategic resources still requires the implementation of specific capacities.

As an example, Guidici and Blackburn (2013) explore

the digital/international relationship from a dynamic capability perspective (Teece et al. 1997), through the specific topic of digitally-enabled network intermediation as factor for a SME's internationalization facilitator. Resources may directly be related to capability, putting forward the benefits of a combination between the resource-based view and the capability view.

Based on these statements, it seems interesting to explore the relationship between digitalization and internationalization of SMEs, not just in terms of facilitating resources but also in terms of capabilities. This way the impacts of digitalization on the internal practices of companies may be considered, as well as the changes induced in their internationalization process.

Methodology

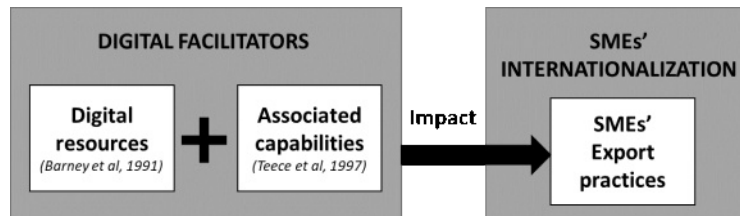
Research Design

Based on theoretical statements in the previous section, the research question of this work aims to answer the following question: *how can digitalization potentially impact SMEs' international practices?* Relying on a joint resources/capability-related vision, this analysis proposes considering digitalization as leverage for the internationalization of SMEs, through facilitators defined as a combination of digital resources and associated capabilities. We believe facilitators should make it possible to implement resources and capabilities in a company's internal practices. Based on the definition of Teece et al. (1997), we define an associated capability as a firm's ability to integrate, build, and reconfigure internal and external digital resources to address changes related to its international development.

Because of the large scope of literature in the international field, and the various entry modes into international markets, the scope of this study was reduced to a specific internationalization mode: export. Exporting is indeed one of the most common ways to enter a foreign market in the early stages of SME internationalization (Jones 2001; Majocchi et al. 2005). This refers to companies that position their products and services outside the geographical borders of their country of origin. The internationalization mode for export-oriented companies is preferred because it requires the lowest level of commitment and risk (Laufs & Schwens, 2014). In view that SMEs have a predominantly centralized method of functioning (Torrès & Julien 2005), it seems less risky and challenging

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

Figure 1. Research design



for a small business to export themselves than, for example, to set up a subsidiary abroad.

Finally, this study follows a joint perspective that combines resources and capacities. Thus, the evaluation of the impact of digital facilitators on SMEs' internationalization is based on an analysis at the internal company level. The study's objective is first of all to identify how digital facilitators (resources and capabilities) both strengthen the export practices of companies and support internal changes (Figure1). The impact on export performance is beyond the scope of this study.

Methodological Background: The Potential Export Index (PEI)

This research work relies on an empirically based diagnosis tool for SMEs' export capabilities: a Potential Export Index (PEI) (Enjolras et al., 2016; Enjolras 2017). This index measures a company's maturity regarding six dimensions (strategy, openness, adaptation of the

offer, organization, human resources, and management) spread across 22 export management practices (Figure 2).

Based on a maturity grid, the diagnosis describes a company's behaviour in terms of export-related internal practices. It provides a diagnosis of a company's current situation by identifying its strengths and weaknesses. The PEI relies on a robust empirical base (Enjolras et al., 2016) that has been tested with SMEs at the international level (Enjolras, 2017). This diagnostic tool does not evaluate export maturity on the basis of performance indicators (for example, export turnover, or number of foreign markets); instead it measures the degree of maturity of internal practices within a company. Indeed, while many export performance diagnostic tools exist (Alaoui, 2013; Marzouk and Bouslama, 2016), few attempt to identify organizational practices that promote exports. Attention to metrological positioning allows for identifying the potential impacts of digital facilitators on the maturity of a SME's export practices

STRATEGY	OPENESS	EVOLUTION OF THE OFFER	ORGANIZATION	HUMAN RESOURCES	MANAGEMENT
Strategic vision	Technological / Commercial Intelligence	Product or Service Adaptation	Roles and Responsibilities	Language Skills	Administrative Preparation
Value chain	Networks and Partnerships	Communication	Opportunity Development	Diversity and International	Contract Follow-up
Financial Agility	Influence / Lobbying	Business Model	International Deployment	Learning and Skills Management	Capitalization and Feedback
Intellectual Property		Distribution system	Production Organization		
			Operational Adjustment		

Figure 2. The Potential Exportation Index (PEI) framework and practices and sub-practices

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

and likewise enables the proposition of a joint resources/capabilities-related vision of the digitalization/internationalization relationship.

Methodological approach

This research is based on an exploratory deductive approach. The objective is to build a theoretical research object in view of later empirical work to follow. Indeed, according to Saunders et al. (2003), an exploratory research approach can either be a goal in itself, or constitute part of the research upstream of a subsequent testing process. Thus, our methodological approach aims at identifying and clarifying the relations that exist between digitalization and internationalization within SMEs, from a joint resource/capability point of view, based on a theoretically exploratory study.

Therefore, we define a four-step method:

- 1) **Extensive bibliographic research:** A bibliometric analysis was conducted using a keyword research algorithm: “*SME* AND digital* AND (international* OR export*)*.” Only “article” document types were considered and only papers written in English between 2000 and 2020 were used. This first bibliographic analysis was performed on the Web-of-Sciences database and provided a total of 40 corresponding papers. Next, the relevance of each paper was checked, according to its research area. This refining process resulted in the exclusion of papers from unrelated areas of research such as medicine, biology, and law. 21 papers were then retained for the next step.
- 2) **Exploratory keyword analysis:** identification of keyword clusters defining thematic dimensions addressed by literature analyzing the digitalization/internationalization relationship within SMEs.
- 3) **Systematic literature review:** A deep analysis of each considered paper was performed in order to identify digital facilitators favoring the international development of SMEs.
- 4) **Cross analysis of the digital facilitators and the SMEs' export practices:** Each facilitator was analyzed according to the PEI (Potential Export Index) practices framework. A systematic comparison of facilitators with all export practices was undertaken to identify potential impacts, for

which we then sought validation through bibliographic support.

Results

Explorative keyword analysis

The literature review led to the identification of 21 relevant articles that analyse the relationship between digitalization and internationalization of SMEs. A keyword analysis was first carried out in order to identify dimensions according to which the digitalization/internationalization relationship is addressed. Thus, an occurrence map made with VoS Viewer software that allowed us to highlight the most common keywords within the 21 selected articles (Figure 3).

Our analysis of this map highlights different dimensions. First of all, some keywords are related to the research design of publications: mobilized theories (resource-based view and capability approach, as identified in the previous theoretical section) and methodological positioning (model, action research). The second dimension refers to performance-related keywords: benefits, impact, competitiveness. This dimension confirms the challenge of digitalization and internationalization for SMEs as a growth factor.

The third dimension concerns the structural and contextual factors addressed in the publications: specific business sectors (aviation, services) and the economic or contextual particularities of companies (export entry mode, emerging economies). This dimension highlights focus on the digital/international relationship from a contingent perspective in the sense of Mintzberg (1979). Certain external and structural factors make this relationship specific to the context in which companies operate, where differentiation could be envisaged.

The fourth dimension concerns keywords relating to the types of digital tools that can be used, supporting a technology-oriented point of view: digital marketing, e-commerce, and big data. The fifth dimension, meanwhile, highlights keywords relating to the functioning of companies and their organizational practices: management, innovation, knowledge, strategy, collaboration. These keywords are connected to the notion of capabilities and address changes induced by digitalization and internationalization within companies.

The coexistence of these last two dimensions highlights

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities

Benjamin Dethine, Manon Enjolras, Davy Monticolo

the interest of combining resources (tools) and capabilities (practices) for the study of the digital/international relationship within SMEs.

literature review and cross analysis

Based on the explorative keyword analysis, a systematic literature review was performed within the 21 selected publications, in order to identify relevant facilitators acting on the export management of SMEs. Then, each facilitator was confronted with our export-theoretical framework, in order to identify its impact on the internal practices of companies' export management.

Based on this systematic literature review, Table 1 puts forward the potential impact of digital facilitators on the export practices of SMEs. Each correspondence is based on (a) bibliographical source(s) enabling it to be validated theoretically. To propose a clarified vision of the potential impacts of digital facilitators on export management practices, Table 1 is structured through a three-type categorization of the digital facilitators considered (Mazzarol 2015):

- e-commerce facilitators generally refer to the use of digital platforms to undertake transactions consisting of selling goods and services via the internet.
- e-marketing facilitators refer to the use of digital

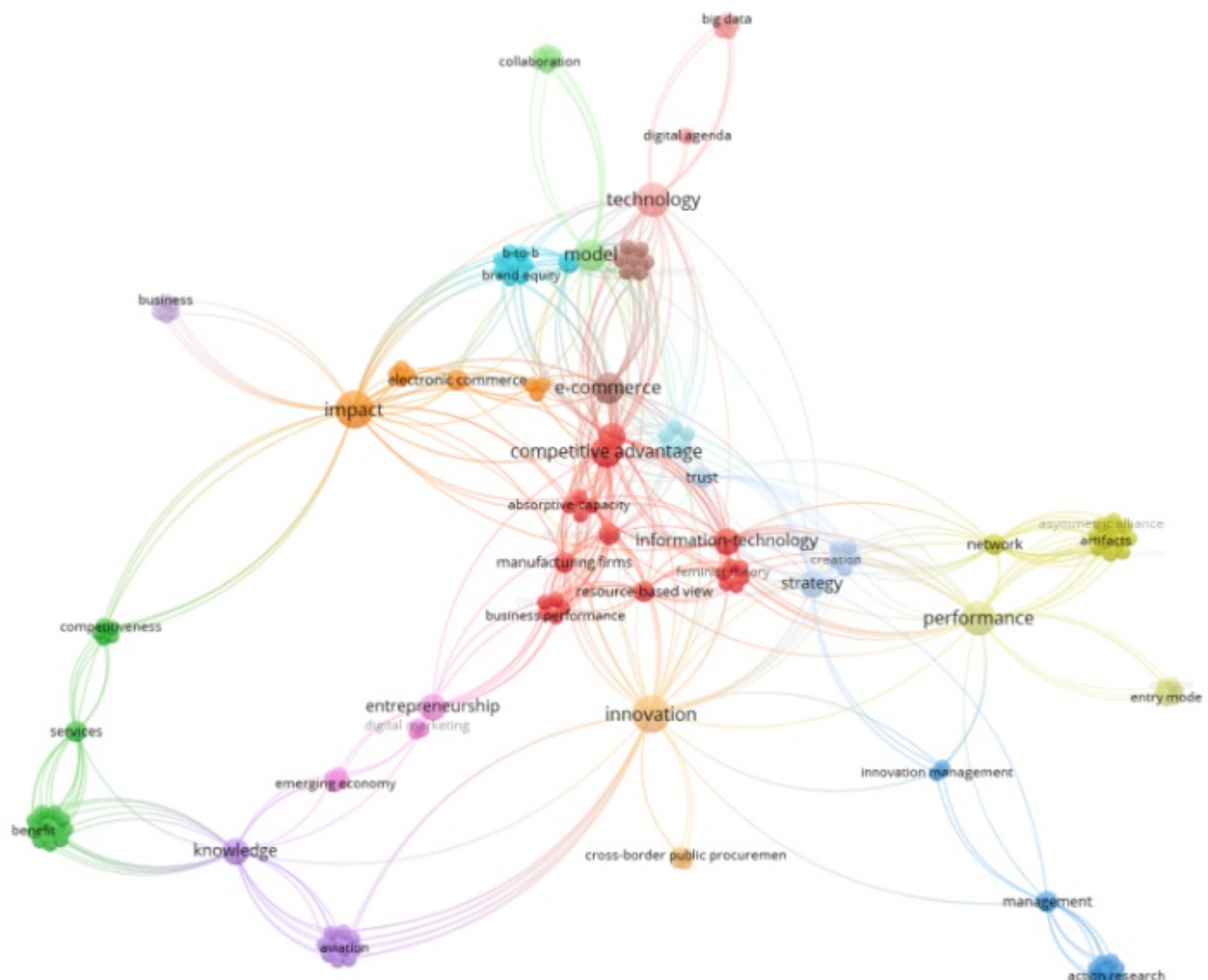


Figure 3. keyword occurrence map

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

channels to undertake marketing and promotion.

- e-business facilitators refer to the use of digital analytics tools to enhance production processes and internal management.

Each facilitator is represented in Table 1 with a specific color, indicating the category it belongs to. Some facilitators can be classified in one specific category, while others show a multidimensional impact. This explains why some facilitators can belong to several categories. The numbers indicated in Table 1 refer to a bibliographic source justifying the impact of the digital facilitator on the export practice considered. All references considered in Table 1 are listed in Table 2.

Discussion

The cross-analysis between digital facilitators and export management practices puts forward several findings. First, Table 1 shows that digital facilitators impact the export management practices in a global way.

The most impacted practices are related to:

- the relationship with value chain stakeholders: suppliers, distributors, partners
- adapting the offer: product, communication, business model
- business intelligence: commercial, technological, competitive watch
- the strategic vision
- operational adaptation
- knowledge management and capitalization

However, some practices are not impacted or only very slightly impacted by the digitalization facilitators identified. Financial agility seems not to be connected with the digitalization of companies. Intellectual property is also not a determining factor, along with influence or lobbying practices. Finally, operational practices related to language skills and administrative preparation seem also not to be heavily impacted by digital facilitators.

Thus, the impact of SMEs' digitalization on their export management practices seems global, while our analysis put forward a focus on strategic and organizational practices. Operational and structuring practices, such as human resources management or administrative processes, are significantly less impacted.

This analysis highlights a differentiated impact according to the facilitators' orientation. Relying on a three-type categorization– e-business, e-commerce, and e-marketing facilitators– it was possible to identify several dimensions where digitalization fosters SMEs' export management practices in a differentiated way.

First, the e-commerce facilitators, aiming at carrying out functions such as business to business (B2B) and business to consumer (B2C) transactions, mostly impact practices related to supply chain management (supplier/distributor relationships), networking (partnership and influence), communication, as well as business model definition through the implementation of a specific price policy (Table 1). These are particularly related to the export practices of an organization and the development of a company's offerings. Thus, e-commerce facilitators seem to act as levers to overcome or reduce operational difficulties encountered by SMEs in foreign markets by acting on the order of selling and distribution processes, as well as structuring commercial offerings through online transactions.

Based on the findings from our systematic literature review, e-commerce facilitators notably contribute to reducing the distance and entry costs related to involvement in international markets by providing an additional channel for sales. In a general way, e-commerce digital tools improve supply chain efficiency by enabling the automation of internal related processes, along with providing real-time information about inventory, production, sales, and distribution issues (Astuti & Nasution, 2014). E-commerce adoption also has a direct impact on a firm's business model, more particularly, on its pricing policy definition (Cassetta et al., 2019). By decreasing costs associated with spatial distance and export intermediaries (Arenius et al., 2005), e-commerce provides a business model optimization opportunity as well as a close and direct connection with clients (Astuti & Nasution, 2014).

However, e-commerce adoption also represents a risk-taking decision because of potential damages to technical systems and data files, financial loss, reputation threats, loss of productivity, and loss of confidential customer information (M. Rahman & Lackey, 2013). This is why, among other things, SMEs are less engaged in e-commerce initiatives than their larger counterparts.

Secondly, the e-marketing dimension refers to the use of digital facilitators to undertake marketing and

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities

Benjamin Dethine, Manon Enjolras, Davy Monticolo

Table 1. Cross-analysis facilitators/export practices

FACILITATORS	STRATEGY				OPENESS			EVOLUTION OF THE OFFER				ORGANIZATION					HUMAN RESOURCES			MANAGEMENT		
	Strategic vision	Value chain	Financial Agility	Intellectual Property	Technological / commercial intelligence	Networks and partnerships	Influence / Lobbying	Product or service adaptation	Communication	Business model	Distribution system	Roles and Responsibilities	Opportunity development	International Deployment	Production Organization	Operational adjustment	Language skills	Diversity and International	Learning and skills management	Administrative preparation	Contract Follow-up	Capitalization and feedback
eBusiness eCommerce eMarketing																						
ERP	1 /13	1 /13	13								1	1	1		1				1		1	1
Cloud computing						1		19	19			1										1
E-procurement		1			6										1							
Learning digital technologies																	3		3			3
Internet of things		9									9				9 /20	20 /16						9
Robotics															20	20						
Process improvement DT		3													3							3
Digital Balanced Scorecard										19												
Product development DT		3						3														
Collaborative network					13	13 /15		13		13		13			13	13		13				
Digital platforms		4 / 2			2	4 / 2							2									2
Information and Communications Technologies	14	4 / 11 /14 /20			18 / 17	4 /17 /16		11 /17	11 / 13 14 / 20 19 / 17	16	11 /19			14						11	11	
DATA								8	8	8												
Digital service								11	8					11								
Technological skills																			20			
Digital technologies	16				16			16 / 15	16		16		15	15	16			16	16		16	
Digital tools		12				12 /16			16		16			16		12		12				
Internet transaction							8	8	1	8				8								
Online selling										1						1						
Website		1				1 / 7			1 / 7 / 9					16		1						
Internet Access	5	5			8	5			5		5 / 8					5						
Digital marketing								18	18	18												
CRM	10				10	10		1 / 10	1 / 10				1 / 10	1 / 10		10						1 / 10
Social media	5	5		5	1 / 5	1 / 5		1 / 5	1 / 5		5		5	16		1		1 / 5	9			5
Market intelligence	5					15	15	8 /15	15	8 /15				5								

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

Table 2. bibliographic references from the cross-analysis

1	Cassetta, E; Monarca, U; Dileo, I; Di Berardino, C; Pini, M	The relationship between digital technologies and internationalisation. Evidence from Italian SMEs
2	Eric Costa, António Lucas Soares, Jorge Pinhode Sousa	Industrial business associations improving the internationalisation of SMEs with digital platforms: A design science research approach
3	Lee, YY; Falahat, M	The Impact of Digitalization and Resources on Gaining Competitive Advantage in International Markets: The Mediating Role of Marketing, Innovation and Learning Capabilities
4	Heim, I; Kalyuzhnova, Y; Li, WZ; Liu, KC	Value co-creation between foreign firms and indigenous small- and medium-sized enterprises (SMEs) in Kazakhstan's oil and gas industry: The role of information technology spillovers
5	Eid, R; Abdelmoety, Z; Agag, G	Antecedents and consequences of social media marketing use: an empirical study of the UK exporting B2B SMEs
6	Munoz-Garcia, C; Vila, J	Value creation in the international public procurement market: In search of springbok firms
7	Louw, C; Nieuwenhuizen, C	Digitalization strategies for SMEs: A cost vs. skill approach for website development
8	Andersen, PH	Export intermediation and the internet: an activity-unbundling approach
9	Trasca, DL; Stefan, GM; Sahlian, DN; Hoinaru, R; Serban-Oprescu, GL	Digitalization and Business Activity. The Struggle to Catch Up in CEE Countries
10	Roopchund, R	Exploring Social CRM for Development of SMEs in Mauritius
11	Gatautis, R; Vitkauskaitė, E	eBusiness Policy Support Framework
12	Bahri Korbi, F; Said, K; Chouki, M	What role(s) can artifacts play in improving mutual understanding between partners within asymmetric alliances?
13	Jardim-Goncalves, R; Agostinho, C; Sarraipa, J; Grilo, A; Mendonca, JP	Reference framework for enhanced interoperable collaborative networks in industrial organisations
14	Marcinkowski, B; Gawin, B	A study on the adaptive approach to technology-driven enhancement of multi-scenario business processes
15	Pergelova, A; Manolova, T; Simeonova-Ganeva, R; Yordanova, D	Democratizing Entrepreneurship? Digital Technologies and the Internationalization of Female-Led SMEs
16	Joensuu-Salo, S; Sorama, K; Viljamaa, A; Varamaeki, E	Firm Performance among Internationalized SMEs: The Interplay of Market Orientation, Marketing Capability and Digitalization
17	Igartua, JI; Retegi, J; Ganzarain, J	IM2, a Maturity Model for Innovation in SMEs
18	Wasowska, A	Organisational-Level Attributes of Micro-Multinationals. The Evidence From European SMEs
19	Chen, YYK; Jaw, YL; Wu, BL	Effect of digital transformation on organisational performance of SMEs Evidence from the Taiwanese textile industry's web portal
20	Cook, D	RICS futures: turning disruption from technology to opportunity
21	Kazlauskaitė, R; Autio, E; Sarapovas, T; Abramavicius, S; Gelbuda, M	The Speed and Extent of New Venture Internationalisation in the Emerging Economy Context

promotion (Mazzarol, 2015). It leads to higher profits, enhanced market share, and growing brand equity (Eid & El-Gohary, 2013). According to the cross-analysis, e-marketing facilitators are numerous and impact more or less all export management practices. However, a bigger impact appears for export practices related to

openness (networking and business intelligence), strategy (building of a strategic vision and intellectual property management), and developing the company's offerings through adapting the traditional 4 Ps of the marketing mix: Product, Promotion, Price, and Place.

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

Thus e-marketing facilitators can be used to reach several objectives. First, these facilitators foster the online communities of the firm's customers, through the use of social media, among other things, to increase the strength and frequency of the firm's interaction with customers (Roopchund, 2019; Eid et al., 2019; Pergelova et al., 2019). They also enable the collection and integration of customer information from various sources, as well as the usage of this information to assess customer value and engagement. Electronic interactions indeed enable firms to acquire new customers, to retain existing customers through improved customer satisfaction, and to up-sell their products through better and timely customer knowledge (Guidici & Blackburn, 2013).

However, Ghalandari (2013) shows that the positive relationship between e-marketing facilitators and a company's export capabilities has a higher impact on international markets when digital tools are employed for communications development, instead of only for information search and sales activities. The ability to conduct online meetings or to speak directly to customers strongly reduces social and cultural distance. It also improves the company's understanding of its customers' views and needs, while disseminating a strong brand awareness (Eid et al., 2019). Nevertheless, it is widely believed that "remote" meetings cannot ever fully replace the "personal touch" (Tseng & Johnsen, 2011).

We find it interesting to note that e-marketing facilitators are able to lower technological barriers regardless of a firm's size and resources. While large firms have been the early adopters and beneficiaries of most marketing innovations, an increasing number of SMEs are also rapidly adopting digital innovations to extend their market bases, and remain competitive (Kim et al., 2013). For example, a recent report revealed that the emergence of online platforms, such as Facebook and LinkedIn, offer low-cost options for SMEs to connect with foreign customers and facilitate their internationalization (Manyika & Lund, 2016). This is why a social approach to Customer Relationship Management (CRM), through website and social media, appears to be a relevant and productive strategy to engage customers in a collaborative conversation, in addition to monitoring traditional customer-business interactions.

However, viral network effects typical of more consumer-oriented social media do not seem to be

validated in a B2B environment. In this specific context, a fear of losing control and an unwillingness to share valuable information appear to hold back SMEs. This reduces the use of online B2B platforms in particular (Guidici & Blackburn 2013; Costa et al., 2020). This can be explained by the fact that the end-customer context (B2C) is more emotionally reactionary, than the B2B market, where the interactions tend to be more rationally strategic. Thus, the B2B context involves co-creation and innovation from an industry- or process-specific point of view, whereas the B2C context concerns service- or design-oriented innovation in particular (Iankova et al., 2019). This strongly modifies the way companies communicate and share information. However, e-marketing remains an impactful facilitator in the B2B context, because it allows a strong network strategy to facilitate communication processes, and effective brand and image promotion (Kim et al., 2013).

Finally, e-business tools are important for SMEs in order to keep track of impacts and implications, and to develop the distinct capabilities needed to reach international markets (Grandon & Pearson, 2004). According to our cross-analysis, e-business facilitators are the most representative and impact export practices in a global way. Relying on the definition of e-business facilitators above, the global impact factor makes sense because digital tools aim at supporting the global organization of firms (Mazzarol, 2015). Therefore, the impact of e-business facilitators on the export management of SMEs is spread across all internal components of a SME's organization. If a stronger impact seems to appear for practices related to supply chain management (relationship with suppliers, distributors, operational adaptation, production adaptability) and to networking practices, nevertheless a strong impact also appears for knowledge management practices, through information capitalization and feedback.

Thus, digital e-business facilitators provide consistent support for information management, by providing better and easy acquisition of information about foreign markets through new channels of information (Cassetta et al., 2019; Trașcă et al., 2019; Costa et al., 2020). They also foster information sharing between companies' internal stakeholders and potential partners, by enabling actors to make their own contents available using digital collaborative platforms (Costa et al., 2020). Entering into this collaborative approach, companies and their partners are involved in activities that require group coordination, behavioural adaptation, and alignment

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities *Benjamin Dethine, Manon Enjolras, Davy Monticolo*

between the objectives of the group and individual actors. Digital tools are strong facilitators to foster these kinds of practices. For example, Bahri Korbi et al. (2019) explain that the adoption of digital artifacts (common databases, videoconferencing, teleconferencing, screen sharing) by strategic partners leads not only to the establishment of a common working language, but also to a decrease in the degree of inter-organizational uncertainty, and improvement in mutual understanding. These elements are particularly relevant in an international context because they reduce the risk of conflict, mitigate cultural differences between partners, and even turn into an asset for the alliance (Trabelsi, 2016).

These findings are particularly true in the specific case of high-tech SMEs that are more used to supporting their internationalization process through intelligence gathering activities, to investigate and expand their connections across a worldwide business network (Loane, 2005). Digital technologies indeed play an increasingly important role in the search for complementary partners within the overall supply chain (Guidici & Blackburn, 2013).

Moreover, the use of digital channels such as social media enables a company to recruit employees (Trașcă et al., 2019). Employees are also users of and contributors to digital content provided by companies on the internet. So, it is crucial that they understand the impact of digitalization on business and undertake training for improved competences (Kim et al., 2013).

Digital tools also provide an additional channel for increasing knowledge of foreign markets and potential competitors (Cassetta et al., 2019) through a strong process of market, technology, and economic intelligence (Jardim-Goncalves et al., 2013; Wąsowska, 2017; Joensuu-Salo et al., 2018; Igartua et al., 2018). As an example, public e-procurement systems appear as a relevant channel for companies in terms of business intelligence. Policymakers generally pay little attention to dissemination procedures and formats. Consequently, information on awarded contracts is provided through various e-procurement and transparency portals. This may improve a company's tendering capabilities and reduce difficulties faced by SMEs in winning public contracts.

Finally, from a process optimization viewpoint, digital e-business facilitators such as cloud computing, robotics, Internet of Things (IoT), mobile services,

Supply Chain Management (SCM), and Enterprise Resource Planning (ERP) applications, serve to enhance internal production processes (Cassetta et al., 2019). They foster companies' capabilities to improve flexibility in manufacturers' supply chains, reduce cycle time, and deliver products to customers in a timely manner (Jardim-Goncalves et al., 2013; Cook, 2015; Trașcă et al., 2019).

Thus, the role of e-business facilitators is rather different from e-commerce and e-marketing because they contribute to changing production and internal management processes, as well as to supporting partners' integration in the supply chain.

Conclusion

This article aimed to study the relationship between digitalization and internationalization of SMEs. More specifically, this research work identified the theoretical impacts of digital facilitators on companies' export practices. Adopting a joint vision between the integration of digital resources and their usage through specific capabilities, digital facilitators were identified in the literature and classified according to three categories: e-business facilitators, mainly concerning online transactions, e-marketing facilitators, that aim at promoting and communicating; and finally e-business facilitators, concerned with the modification of a company's internal organization, as well as its supply chain. A cross-analysis of data collected was carried out using best export practices from the PEI framework as a basis for comparison. The objective of this cross-analysis was to identify potential impacts of facilitators on SME practices. The cross-analysis was carried out with the help of an extensive literature review.

This research highlighted various impacts according to the type of facilitators (e-commerce, e-marketing, and e-business) and export practice considered. Indeed, the most impacted export practices are those related to the strategic positioning of companies, the adaptation of their offerings, openness, and organization. Operational practices related to the export process are less impacted. Moreover, the facilitators with the most global impact are e-business facilitators, as they directly concern a company's internal functioning and modify its processes as a whole. E-marketing facilitators also have a strong impact, but are more focused on practices related to communication and customer relations.

Thus, this study showed various impacts of digitalization

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities

Benjamin Dethine, Manon Enjolras, Davy Monticolo

on SMEs' export management. However, these results have some limitations and open the way to several different research perspectives. First of all, this research was based entirely on an exploratory review of the literature, which made it possible to construct a theoretical object of study, but which requires empirical validation. This work therefore represents a first theoretical step to be confirmed and confronted in the field. In addition, this study was carried out on the basis of a bibliography focused on SMEs, containing a rather limited number of scholarly articles. An analysis generalized across all companies could be a means of visualizing the differences between the digital practices of SMEs and those of larger companies. Indeed, some digital facilitators are easier than others to set up for small business structures and, in this context, the acceptability of the digital facilitators deployed, both in terms of the resources that can be mobilized and the skills that can be implemented, is an issue to be considered further with analyses of the impact of digital systems on export practices. Prioritization for such studies could be envisaged to limit the effort required while optimizing the impacts. Finally, we chose to focus our analysis on exports. However, digital technology is a valuable asset to be mobilized in the case of more advanced internationalization modes, for example, opening a subsidiary abroad or establishing a joint venture. It would be interesting to broaden the scope of this study, to also take into consideration these modes of internationalization. Finally, a study on "born-global" SMEs can also be envisaged.

Acknowledgements

This work was supported partly by the Cifre PhD ANRT N° 2018/1848 as well as the French PIA project "Lorraine Université d'Excellence" (reference ANR-15-IDEX-04-LUE)

References

- Alaoui, Abdallah. 2013. Pratiques Managériales et Performance à l'export Des PME%: La Prénance Des Facteurs Endogènes. *Humanisme & Entreprise* 13 (311): 21–40.
- Andersen, Poul Houman. 2005. Export Intermediation and the Internet: An Activity-Unbundling Approach. *International Marketing Review* 22 (2): 147–64. <https://doi.org/10.1108/02651330510593250>.
- Anderson, James C., and James A. Narus. 1990. A Model of Distributor Firm and Manufacturer Firm Working Partnerships. *Journal of Marketing* 54 (1): 42. <https://doi.org/10.2307/1252172>.
- Arenius, Pia, Viveca Sasi, and Mika Gabrielsson. 2005. Rapid Internationalisation Enabled by the Internet: The Case of a Knowledge Intensive Company. *Journal of International Entrepreneurship* 3 (4): 279–90. <https://doi.org/10.1007/s10843-006-7856-x>.
- Astuti, Novika Candra, and Reza Ashari Nasution. 2014. Technology Readiness and E-Commerce Adoption among Entrepreneurs of SMEs in Bandung City, Indonesia. *Gadjah Mada International Journal of Business* 16 (1): 69–88. <https://doi.org/10.22146/gamaijb.5468>.
- Bahri Korbi, Fadia, Karim Saïd, and Mourad Chouki. 2019. Quel(s) Rôle(s) Peuvent Jouer Les Artefacts Dans l'amélioration de l'intercompréhension Entre Partenaires Au Sein Des Alliances Asymétriques%? *Revue Internationale P.M.E.* 32 (1): 71–99. <https://doi.org/10.7202/1059181ar>.
- Barney, J. 1991. Firm Resources and Sustained Competitive Advantage. *Journal of Management* 17 (1): 99–120. <https://doi.org/10.1177/014920639101700108>.
- Bedell-Pearce, Jack. 2018. Safe Digital Transformation for SMEs. *Network Security* 2018 (11): 6–7. [https://doi.org/10.1016/S1353-4858\(18\)30110-7](https://doi.org/10.1016/S1353-4858(18)30110-7).
- Bellone, Flora, Patrick Musso, Lionel Nesta, and Stefano Schiavo. 2010. Financial Constraints and Firm Export Behaviour. *World Economy* 33 (3): 347–73. <https://doi.org/10.1111/j.1467-9701.2010.01259.x>.
- Bhatia, Aparna, and Anu Thakur. 2018. Corporate Diversification and Firm Performance: An Empirical Investigation of Causality. *International Journal of Organizational Analysis*. <https://doi.org/10.1108/IJOA-04-2017-1149>.
- Bianchi, Constanza, and Rumintha Wickramasekera. 2013. An Exploratory Study of the Factors Enhancing and Inhibiting Export Growth in the Chilean Wine Industry. *Journal of International Food and Agribusiness Marketing* 25 (2): 85–102. <https://doi.org/10.1080/08974438.2013.724004>.
- Bilkey, W J, and G Tesar. 1977. The Export Behavior of Smaller-Sized Wisconsin Manufacturing Firms. *Journal of International Business Studies* 8 (1): 93–98. <http://www.palgrave-journals.com/jibs/journal/v8/n1/pdf/8490783a.pdf>.

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities

Benjamin Dethine, Manon Enjolras, Davy Monticolo

- Bołkunow, Wiktor. 2019. Internationalization of European Small and Medium-Sized Companies. In *Eurasian Business Perspectives*, edited by Mehmet Huseyin Bilgin, Hakan Danis, Ender Demir, and Ugur Can. Eurasian {Studies} in {Business} and {Economics}. Springer International Publishing: 39–51.
- Brouthers, Keith D., Kim Dung Geisser, and Franz Rothlauf. 2016. Explaining the Internationalization of Ibusiness Firms. *Journal of International Business Studies* 47 (5): 513–34. <https://doi.org/10.1057/jibs.2015.20>.
- Burki, Talha. 2018. Developing Countries in the Digital Revolution. *Lancet (London, England)* 391 (10119): 417. [https://doi.org/10.1016/S0140-6736\(18\)30191-0](https://doi.org/10.1016/S0140-6736(18)30191-0).
- Cassetta, Ernesto, Umberto Monarca, Ivano Dileo, Claudio Di Berardino, and Marco Pini. 2019. The Relationship between Digital Technologies and Internationalisation. Evidence from Italian SMEs. *Industry and Innovation*. <https://doi.org/10.1080/13662716.2019.1696182>.
- Cerrato, Daniele, and Mariacristina Piva. 2012. The Internationalization of Small and Medium-Sized Enterprises: The Effect of Family Management, Human Capital and Foreign Ownership. *Journal of Management and Governance* 16 (4): 617–44. <https://doi.org/10.1007/s10997-010-9166-x>.
- Chatzoglou, Prodromos, and Dimitrios Chatzoudes. 2016. Factors Affecting E-Business Adoption in SMEs: An Empirical Research. *Journal of Enterprise Information Management* 29 (3): 327–58. <https://doi.org/10.1108/JEIM-03-2014-0033>.
- Chen, Ying Yu Kerri, Yi Long Jaw, and Bing Li Wu. 2016. Effect of Digital Transformation on Organisational Performance of SMEs: Evidence from the Taiwanese Textile Industry's Web Portal. *Internet Research* 26 (1): 186–212. <https://doi.org/10.1108/IntR-12-2013-0265>.
- Cook, Daniel. 2015. RICS Futures: Turning Disruption from Technology to Opportunity. *Journal of Property Investment and Finance* 33 (5): 456–64. <https://doi.org/10.1108/JPIF-05-2015-0039>.
- Costa, Eric, António Lucas Soares, and Jorge Pinho de Sousa. 2020a. Industrial Business Associations Improving the Internationalisation of SMEs with Digital Platforms: A Design Science Research Approach. *International Journal of Information Management* 53 (August): 102070. <https://doi.org/10.1016/j.ijinfomgt.2020.102070>.
- Coviello, Nicole E, and Andrew McAuley. 1999. Internationalisation and the Smaller Firm: A Review of Contemporary Empirical Research. *Management International Review* 39 (3): 223–56.
- Dominguez, Noémie, and Ulrike Mayrhofer. 2017. Internationalization Stages of Traditional SMEs: Increasing, Decreasing and Re-Increasing Commitment to Foreign Markets. *International Business Review* 26 (6): 1051–63. <https://doi.org/10.1016/j.ibusrev.2017.03.010>.
- Dutot, Vincent, François Bergeron, and Louis Raymond. 2014. Information Management for the Internationalization of SMEs: An Exploratory Study Based on a Strategic Alignment Perspective. *International Journal of Information Management* 34 (5): 672–81. <https://doi.org/10.1016/j.ijinfomgt.2014.06.006>.
- Eid, Riyadh, Ziad Abdelmoety, and Gomaa Agag. 2019. Antecedents and Consequences of Social Media Marketing Use: An Empirical Study of the UK Exporting B2B SMEs. *Journal of Business and Industrial Marketing* 35 (2): 284–305. <https://doi.org/10.1108/JBIM-04-2018-0121>.
- Eid, Riyadh, and Hatem El-Gohary. 2013. The Impact of E-Marketing Use on Small Business Enterprises' Marketing Success. *Service Industries Journal* 33 (1): 31–50. <https://doi.org/10.1080/02642069.2011.594878>.
- Enjolras, Manon. 2017. Méthodologie d'analyse de La Capacité à Innover et à Exporter Des PME Manufacturières et de Procédés: Identification et Caractérisation d'un Espace Commun En Vue de l'élaboration d'un Outil Multicritères d'aide à La Décision. Université de Lorraine.
- Enjolras, Manon, Mauricio Camargo, and Christophe Schmitt. 2016. SMEs' Innovation and Export Capabilities: Identification and Characterization of a Common Space Using Data Spatialization. *Journal of Technology Management & Innovation* 11 (2): 56–69. <https://doi.org/10.4067/S0718-27242016000200006>.
- Etemad, Hamid. 2004. Internationalization of Small and Medium-Sized Enterprises: A Grounded Theoretical Framework and an Overview. *Canadian Journal of Administrative Sciences* 21 (1): 1–21. <https://doi.org/10.1111/j.1936-4490.2004.tb00319.x>.
- Freeman, Joanne, Chris Styles, and Meredith Lawley. 2012. Does Firm Location Make a Difference to the Export Performance of SMEs? *International Marketing Review* 29 (1): 88–113. <https://doi.org/10.1108/02651331211201552>.
- Gatautis, R, and E Vitkauskaitė. 2009. EBusiness Policy Support Framework. *Engineering Economics* 65 (5): 35–47. https://www.researchgate.net/publication/235464807_eBusiness_policy_support_framework.
- Ghalandari, Kamal. 2013. The Effect of Information and Communication Technology on Export Performance of Iranian Firms. *Research Journal of Applied Sciences, Engineering and Technology* 5 (17): 4367–72. <https://doi.org/10.19026/rjaset.5.4431>.
- Goerzig, David, and Thomas Bauernhansl. 2018. Enterprise Architectures for the Digital Transformation in Small and Medium-Sized Enterprises. In *Procedia CIRP*, 67:540–45. Elsevier B.V. <https://doi.org/10.1016/j.procir.2017.12.257>.
- Grandon, Elizabeth E., and J. Michael Pearson. 2004. Electronic Commerce Adoption: An Empirical Study

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities

Benjamin Dethine, Manon Enjolras, Davy Monticolo

- of Small and Medium US Businesses. *Information and Management* 42 (1): 197–216. <https://doi.org/10.1016/j.im.2003.12.010>.
- Guidici, A., and R. Blackburn. 2013. Digitally-Enabled Network Intermediation in the Internationalization of SMEs: A Dynamic Capabilities Perspective. *Www.Nemode.Ac.Uk*. http://www.nemode.ac.uk/?page_id=574.
- Heim, Irina, Yelena Kalyuzhnova, Weizi Li, and Kecheng Liu. 2019. Value Co creation between Foreign Firms and Indigenous Small and Medium sized Enterprises (SMEs) in Kazakhstan's Oil and Gas Industry: The Role of Information Technology Spillovers. *Thunderbird International Business Review* 61 (6): 911–27. <https://doi.org/10.1002/tie.22067>.
- Hsieh, Linda, John Child, Rose Narooz, Said Elbanna, Joanna Karmowska, Svetla Marinova, Pushyarag Puthusserry, Terence Tsai, and Yunlu Zhang. 2019. A Multidimensional Perspective of SME Internationalization Speed: The Influence of Entrepreneurial Characteristics. *International Business Review* 28 (2): 268–83. <https://doi.org/10.1016/j.ibusrev.2018.09.004>.
- Iankova, Severina, Iain Davies, Chris Archer-Brown, Ben Marder, and Amy Yau. 2019. A Comparison of Social Media Marketing between B2B, B2C and Mixed Business Models. *Industrial Marketing Management* 81 (August): 169–79. <https://doi.org/10.1016/j.indmarman.2018.01.001>.
- Igartua, J, J Retegi, and J Ganzarain. 2018. IM2, a Maturity Model for Innovation in SMEs. *Dirección y Organización* 64. <https://revistadyo.com/index.php/dyo/article/view/521>.
- Jardim-Goncalves, Ricardo, Carlos Agostinho, Joao Sarraipa, Antonio Grilloc, and Joao Pedro Mendonca. 2013. Reference Framework for Enhanced Interoperable Collaborative Networks in Industrial Organisations. *International Journal of Computer Integrated Manufacturing* 26 (1–2): 166–82. <https://doi.org/10.1080/0951192X.2012.687130>.
- Jean, Ruey Jer Bryan, and Daekwan Kim. 2019. Internet and SMEs' Internationalization: The Role of Platform and Website. *Journal of International Management* 26 (1): 100690. <https://doi.org/10.1016/j.intman.2019.100690>.
- Joensuu-Salo, Sanna, Kirsti Sorama, Anmari Viljamaa, and Elina Varamäki. 2018. Firm Performance among Internationalized SMEs: The Interplay of Market Orientation, Marketing Capability and Digitalization. *Administrative Sciences* 8 (3): 31. <https://doi.org/10.3390/admsci8030031>.
- Johanson, Jan, and Lars-Gunnar Mattsson. 2015. Internationalisation in Industrial Systems – A Network Approach. In *Knowledge, Networks and Power*, edited by Mats Forsgren, Ulf Holm, and Jan Johanson, 111–32. Palgrave Macmillan UK. https://doi.org/10.1057/9781137508829_5.
- Johanson, Jan, and Jan-Erik Vahlne. 1992. Management of Foreign Market Entry. *Scandinavian International Business Review* 1 (3): 9–27. [https://doi.org/10.1016/0962-9262\(92\)90008-T](https://doi.org/10.1016/0962-9262(92)90008-T).
- Jones, Marian V. 2001. First Steps in Internationalisation: Concepts and Evidence from a Sample of Small High-Technology Firms. *Journal of International Management, {SMEs} and the {Global} {Economy}*, 7 (3): 191–210. [https://doi.org/10.1016/S1075-4253\(01\)00044-8](https://doi.org/10.1016/S1075-4253(01)00044-8).
- Kazlauskaitė, Rūta, Erkko Autio, Tadas Šarapovas, Šarūnas Abramavičius, and Modestas Gelbūda. 2015. The Speed and Extent of New Venture Internationalisation in the Emerging Economy Context. *Entrepreneurial Business and Economics Review* 3 (2): 41–52. <https://doi.org/10.15678/EBER.2015.030204>.
- Kim, Hee Dae, In Lee, and Choong Kwon Lee. 2013. Building Web 2.0 Enterprises: A Study of Small and Medium Enterprises in the United States. *International Small Business Journal: Researching Entrepreneurship* 31 (2): 156–74. <https://doi.org/10.1177/0266242611409785>.
- Knight, Gary A, and S Tamar Cavusgil. 2004. Innovation Organizational Capabilities and the Born-Global Firm. *Journal of International Business Studies* 35 (2): 124–41.
- Laghzaoui, Soulaïmane. 2009. Internationalisation Des PME%: Apports d'une Analyse En Termes de Ressources et Compétences. *Management & Avenir*, no. 22: 52–69. http://www.cairn.info/resume.php?ID_ARTICLE=MA_V_022_0052.
- Laufs, Katharina, and Christian Schwens. 2014. Foreign Market Entry Mode Choice of Small and Medium-Sized Enterprises: A Systematic Review and Future Research Agenda. *International Business Review* 23 (6): 1109–26. <https://doi.org/10.1016/j.ibusrev.2014.03.006>.
- Lee, Yan Yin, and Mohammad Falahat. 2019. The Impact of Digitalization and Resources on Gaining Competitive Advantage in International Markets: Mediating Role of Marketing, Innovation and Learning Capabilities. *Technology Innovation Management Review* 9 (11): 26–38. <https://timreview.ca/article/1281>.
- Leipzig, T. von, M. Gamp, D. Manz, K. Schöttle, P. Ohlhausen, G. Oosthuizen, D. Palm, and K. von Leipzig. 2017. Initialising Customer-Orientated Digital Transformation in Enterprises. *Procedia Manufacturing* 8 (January): 517–24. <https://doi.org/10.1016/j.promfg.2017.02.066>.
- Leonidou, Leonidas C. 2004. An Analysis of the Barriers Hindering Small Business Export Development. *Journal of Small Business Management* 42 (3): 279–302. <https://doi.org/10.1111/j.1540-627X.2004.00112.x>.
- Loane, Sharon. 2005. The Role of the Internet in the Internationalisation of Small and Medium Sized

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities

Benjamin Dethine, Manon Enjolras, Davy Monticolo

- Companies. *Journal of International Entrepreneurship* 3 (4): 263–77. <https://doi.org/10.1007/s10843-006-7855-y>.
- Loane, Sharon, Rod B McNaughton, and Jim Bell. 2004. The Internationalization of Internet-Enabled Entrepreneurial Firms: Evidence from Europe and North America. *Canadian Journal of Administrative Sciences / Revue Canadienne Des Sciences de l'Administration* 21 (1): 79–96. <https://doi.org/10.1111/j.1936-4490.2004.tb00324.x>.
- Louw, Candice, and Cecile Nieuwenhuizen. 2019. Digitalization Strategies for SMEs: A Cost vs. Skill Approach for Website Development. *African Journal of Science, Technology, Innovation and Development*, July, 1–8. <https://doi.org/10.1080/20421338.2019.1625591>.
- Lucas, Henry, Jr., Ritu Agarwal, Eric K. Clemons, Omar A. El Sawy, and Bruce Weber. 2013. Impactful Research on Transformational Information Technology: An Opportunity to Inform New Audiences. *MIS Quarterly*. Management Information Systems Research Center, University of Minnesota. <https://doi.org/10.2307/43825914>.
- M. Rahman, Syed (Shawon), and Robert Lackey. 2013. E-Commerce Systems Security for Small Businesses. *International Journal of Network Security & Its Applications* 5 (2): 193–210. <https://doi.org/10.5121/ijnsa.2013.5215>.
- Majocchi, Antonio, Emanuele Bacchiocchi, and Ulrike Mayrhofer. 2005. Firm Size, Business Experience and Export Intensity in SMEs: A Longitudinal Approach to Complex Relationships. *International Business Review* 14 (6): 719–38. <https://doi.org/10.1016/j.ibusrev.2005.07.004>.
- Manyika, J, and S Lund. 2016. Globalization for the Little Guy. *McKinsey Global Institute Report*. <https://www.ifac.org/content/globalization-little-guy>.
- Marcinkowski, Bartosz, and Bartłomiej Gawin. 2019. A Study on the Adaptive Approach to Technology-Driven Enhancement of Multi-Scenario Business Processes. *Information Technology and People* 32 (1): 118–46. <https://doi.org/10.1108/ITP-03-2018-0142>.
- Marzouk, Wissem Ben, and Neji Bouslama. 2016. Les Variables de Contrôle de La Performance à l'Export: Quelques Recommandations Empiriques In *Proceedings of the Marketing Spring Colloquy (MSC)*, 34–62.
- Mazzarol, Tim. 2015. SMEs Engagement with E-Commerce, e-Business and e-Marketing. *Small Enterprise Research* 22 (1): 79–90. <https://doi.org/10.1080/13215906.2015.1018400>.
- Mintzberg, Henry. 1979. *The Structuring of Organizations*. Englewood Cliffs, N.J: Pearson.
- Moeuf, Alexandre, Robert Pellerin, Samir Lamouri, Simon Tamayo-Giraldo, and Rodolphe Barbaray. 2018. The Industrial Management of SMEs in the Era of Industry 4.0. *International Journal of Production Research* 56 (3): 1118–36. <https://doi.org/10.1080/00207543.2017.1372647>.
- Muñoz-Garcia, Cristina, and Jose Vila. 2019. Value Creation in the International Public Procurement Market: In Search of Springbok Firms. *Journal of Business Research* 101 (August): 516–21. <https://doi.org/10.1016/j.jbusres.2018.12.041>.
- Pacheco, Edgar, Miriam Lips, and Pak Yoong. 2018. Transition 2.0: Digital Technologies, Higher Education, and Vision Impairment. *Internet and Higher Education* 37 (April): 1–40. <https://doi.org/10.1016/j.iheduc.2017.11.001>.
- Pagani, Margherita, and Catherine Pardo. 2017. The Impact of Digital Technology on Relationships in a Business Network. *Industrial Marketing Management* 67 (November): 185–92. <https://doi.org/10.1016/j.indmarman.2017.08.009>.
- Paul, Justin, Sundar Parthasarathy, and Parul Gupta. 2017. Exporting Challenges of SMEs: A Review and Future Research Agenda. *Journal of World Business*. Inc. <https://doi.org/10.1016/j.jwb.2017.01.003>.
- Penrose, Edith Tilton. 1959. *The Theory of the Growth of the Firm*. Oxford; New York: Oxford University Press.
- Pergelova, Albena, Tatiana Manolova, Ralitsa Simeonova-Ganeva, and Desislava Yordanova. 2019. Democratizing Entrepreneurship? Digital Technologies and the Internationalization of Female-Led SMEs. *Journal of Small Business Management* 57 (1): 14–39. <https://doi.org/10.1111/jsbm.12494>.
- Rojo Abollado, J., E. Shehab, and P. Bamforth. 2017. Challenges and Benefits of Digital Workflow Implementation in Aerospace Manufacturing Engineering. In *Procedia CIRP*, 60:80–85. Elsevier B.V. <https://doi.org/10.1016/j.procir.2017.02.044>.
- Roopchund, Randhir. 2019. Exploring Social CRM for Development of SMEs in Mauritius. *Journal of Enterprising Culture* 27 (01): 93–109. <https://doi.org/10.1142/s0218495819500043>.
- Safar, Leos, Jakub Sopko, Slavomir Bednar, and Robert Poklemba. 2018. Concept of SME Business Model for Industry 4.0 Environment. *TEM Journal* 7 (3): 626–37. <https://doi.org/10.18421/TEM73-20>.
- Saunders, MNK, P Lewis, and A Thornhill. 2003. *Research Methods for Business Students* (3rd Edition).
- Subramaniam, Mohan, Bala Iyer, and Venkat Venkatraman. 2019. Competing in Digital Ecosystems. *Business Horizons* 62 (1): 83–94. <https://doi.org/10.1016/j.bushor.2018.08.013>.
- Teece, David J, Gary Pisano, and Amy Shuen. 1997. Dynamic Capabilities and Strategic Management. *Strategic Management Journal* 18 (7): 509–33. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z).

Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities

Benjamin Dethine, Manon Enjolras, Davy Monticolo

- Tekic, Zeljko, and Dmitry Koroteev. 2019. From Disruptively Digital to Proudly Analog: A Holistic Typology of Digital Transformation Strategies. *Business Horizons* 62 (6): 683–93. <https://doi.org/10.1016/j.bushor.2019.07.002>.
- Torrès, Olivier, and Pierre-André Julien. 2005. Specificity and Denaturing of Small Business. *International Small Business Journal* 23 (4): 355–77. <https://doi.org/10.1177/0266242605054049>.
- Trabelsi, Karim. 2016. Interculturalité et Pérennité Des Partenariats Interentreprises: Le Cas Des Alliances Stratégiques Internationales. *Revue Internationale P.M.E.* 29 (3–4): 269–90. <https://doi.org/10.7202/1038339ar>.
- Trașcă, Daniela Livia, George Marian Ștefan, Daniela Nicoleta Sahlian, Răzvan Hoinaru, and George-Laurențiu Șerban-Oprescu. 2019. Digitalization and Business Activity. The Struggle to Catch Up in CEE Countries. *Sustainability* 11 (8): 2204. <https://doi.org/10.3390/su11082204>.
- Tseng, Ko Min Kevin, and Rhona E. Johnsen. 2011. Internationalisation and the Internet in UK Manufacturing SMEs. *Journal of Small Business and Enterprise Development* 18 (3): 571–93. <https://doi.org/10.1108/14626001111155718>.
- Wang, Xiaoting, Aihua Chen, Huafeng Wang, and Shengxiao Li. 2017. Effect of Export Promotion Programs on Export Performance: Evidence from Manufacturing SMEs. *Journal of Business Economics and Management* 18 (1): 131–45. <https://doi.org/10.3846/16111699.2016.1278031>.
- Wasowska, Aleksandra. 2017. Organisational-Level Attributes of Micro-Multinationals. The Evidence from European SMEs. *International Journal of Management and Economics* 53 (1): 84–98. <https://doi.org/10.1515/ijme-2017-0006>.

About the Authors

Benjamin Dethine is a PhD student at the University of Lorraine. After applied studies in electronics, industrial computing, and electrical engineering, he pursued his studies with a Master's degree in Innovation Management and Industrial Design. He joined the company Innovation Way in 2019 in order to complete a doctoral thesis: Towards a System of Recommendations to Define the Digital Strategy of Companies. His research project aims to develop a model to evaluate and improve the ability of companies to achieve their digital transformation.

Manon Enjolras is a Researcher at the University of Lorraine. She holds a PhD in Industrial System Engineering, working on “SMEs’ innovation and internationalization capabilities” and an engineering degree from the ENSGSI (Ecole Nationale Supérieure en Génie des Systèmes et Innovation). Her main research interests are related to multicriteria decision-making and multivariate data analysis methodologies applied to SMEs’ development, specifically, evaluation metrics of protection, innovation, and internationalization capabilities.

Davy Monticolo is a Professor at the University of Lorraine. He got his HDR in December 2015 and received his Ph.D. (2008) from the University of Technology of Belfort-Montbélaird (France), and an M.S. (2005) degree from the University of Savoie, France. His research interests are Web Intelligence, Multi-Agents Systems, Knowledge Engineering and Modelling, Semantic Web and Ontologies used to design knowledge-based systems. He is currently on the board of the French Research Group on Artificial Intelligence.

Citation: Dethine, B., Enjolras, M., Monticolo, D. 2020. Digitalization and SMEs' Export Management: Impacts on Resources and Capabilities. *Technology Innovation Management Review*, 10(4): 18-34.

<http://doi.org/10.22215/timreview/1344>



Keywords: SME, digitalization, export practices, facilitators, impacts