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- Digital transformation and internationalization of SMEs
- Born digital firms and internationalization process
- International new ventures in the digital age
- Industry 4.0 investments and internationalization
- Board interlocks in SMEs and international joint ventures
- Technology and corruption: benefit or burden for SMEs?
- Punctual crisis assessment in SMEs
- Worker-managed firms and local communities



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SPECIAL ISSUE



EDITORIAL

DIGITAL TRANSFORMATION AND INTERNATIONALISATION OF
SMEs: EMERGING CHALLENGES, OPPORTUNITIES AND THREATS

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Abstract

A better understanding of the influence of the ongoing digitalisation of SMEs on their internationalisation strategies and processes is of fundamental importance for both, scholars and practitioners. This Special Issue comprises a series of empirical and conceptual studies that address important issues and particularly emerging challenges, opportunities and threats at the interface between digital transformation and internationalisation processes of SMEs. The selected contributions draw from different frameworks and methodological approaches as the authors have expertise in various disciplines (e.g., international business, international entrepreneurship and family business). They provide new insights in the field of international business issues of SMEs with a special focus on the following topics: internationalisation process of digital firms, international growth process of international new ventures operating in the Big Data & Analytics sector, influence of Industry 4.0 investments on internationalisation strategies and international joint ventures choices in a digitised world.

The current wave of digital transformation triggered off by technological advances that are related to terms such as big data analytics, 5G, internet-of-things or artificial intelligence holds opportunities and threats regarding the competitive positioning of firms of all sizes. For reasons of limited financial and human resources as well as highly specialised business models these challenges are of particular interest for small and medium-sized enterprises (SMEs) acting within international contexts (Hervé, Schmitt, and Baldegger, 2020; Kleindienst and Ramsauer, 2016). The latter need to rethink the way they create, capture and deliver value to their customers in order to survive and/or to grow in the international marketplace (Bharadwaj, El Sawy, Pavlou, and Venkatraman, 2013; Loebbecke and Picot, 2015).

As the rapid development and increasing pervasiveness of new internet-based technologies results in highly dynamic and competitive business environments, the digitalisation is putting firms under an enormous pressure to identify opportunities and threats and to efficiently change their products, services, Structures and processes (Bouwman, Nikou, and de Reuver, 2019; Lerch and Gotsch, 2015; Rachinger, Rauter, Müller, Vorraber, and Schirgi, 2019; Turber, vom Brocke, and Gassmann, 2015). Technologies behind concepts such as internet of things, big data and analytics, robotics, and additive manufacturing are transforming the conditions under which and how firms create and deliver value-based transactions within local and foreign markets (e.g., Ojala, Evers, and Rialp, 2018).

In the course of these technological advancements and applications such as virtual reality or augmented reality innovative newcomer firms which are able to anticipate the opportunities of combining digital and analogous products and to develop new business model as well as new sophisticated configurations of value chains emerge (Dasi, Elter, Gooderham, and Pedersen, 2017; Porter and Heppelmann, 2014; 2015; 2017). As one important consequence –among others– these developments allow for previously rather unknown modes of internationalisation (Coviello, Kano, and Liesch, 2017) or lead to disruptive changes of established structures and processes of cross-border transactions and collaborations of which many bear new opportunities for newcomers and start-ups conceptualised as international new ventures (INVs) or Born Globals (e.g., Cannone and Ughetto, 2014; Cavusgil and Knight, 2015; Oviatt and McDougall, 1994; Zahra, 2005; Zander, McDougall-Covin, and Rose, 2015). Specifically, these new firms are changing the way of how economic value is created, captured and delivered by replacing the traditional firm-centric with a network-centric view (Chan, 2015). Among others, they are developing innovative value creation processes based on new layers such as object sensing and information gathering, information delivering, information processing, application and smart services (Chen, 2013; Chan 2015), which have not been considered before, but have become key drivers of future business growth.

Previous studies have shown that the continuous development of digital technologies frequently has a disruptive effect on traditional business models – based on a product dominant logic – towards a service-oriented approach, removing established incumbents, and enforcing the reconfiguration of organisational structures (e.g., Dasi, Elter, Gooderham, and Pedersen, 2017; Brouthers, Geisser, and Rothlauf, 2016; Tripsas, 2009; Yoo, 2010; Yoo, Boland, Lyytinen, and Majchrzak, 2012). In addition, other scholars have analysed how digital transformation is forcing and enabling firms to redesign the business functions of the value chain (Caylar, Noterdaeme, and Naik, 2016; Porter and Heppelmann, 2015). In the context of cross-border business activities Strange and Zucchella (2017) have highlighted potential changes in existing configurations of the global value chain especially with regard to location and ownership. Another stream of research emphasises the influence of digitalisation on the internationalisation process of multinational enterprises (Coviello, et al., 2017), international new ventures (Autio, 2017; Autio and Zander, 2016) and iBusiness firms (Brouthers, et al., 2016) as well as the relevance of location decisions in explaining the business growth of new technology-based firms (Onetti, Zucchella, Jones, and McDougall-Covin, 2012).

However, as many of the exemplarily cited literatures have highlighted in their future research sections, there is ample evidence that many issues regarding the internationalisation of SMEs in the digital age are yet to be systematically investigated. In fact, although the more disruptive wave of digitally enabled business models started already in the mid-2000s, with the exception of authors cited above, international business scholars have only recently started to address this phenomenon. This comes as a surprise in the light of increasing anecdotal evidence that the digitalisation is directly challenging and even undermining the current business models of SMEs with a clear impact on both (global) value chains and internationalisation processes, which are becoming increasingly complex, sophisticated, and uncertain.

To fill at least a fraction of this research gap, our Special Issue in *Piccola Impresa/Small Business* seeks to address both conceptual and empirical implications on how new digital technologies are changing the internationalisation process of SMEs, highlighting opportunities, threats and challenges. The Special Issue starts with a literature review on born digital firms and their internationalisation processes (see Piqueras). Of the manifold research questions we exemplarily mentioned in our call for papers in February 2019 the papers which finally made it into this Special Issue address –among others– the following research ones:

What are the determinants characterising the international growth process of International New Ventures that provide Big Data and Analytics services? (see Veglio and Romanello);

Is there a difference in I4.0 adoption paths between small and larger international firms? Is there any difference in terms of adoption between internationalised small and small firms operating only domestically (see Bettiol, Capestro, De Marchi, and Di Maria);

What opportunities and risks do the use of ICTs create for international SMEs in their fight against corruption? (see Bauer and Schembera);

How do board interlocks affect the firm's choice to engage in a domestic or in an international joint venture? (see Debellis and Pinelli).

Moreover, as the authors have expertise in different disciplines such as international business, international entrepreneurship, and family business the selected contributions draw on diverse frameworks and methodological approaches. As such, we think that the collection of studies published in the Special Issue provide national and international readers with a special interest at the crossroads of digitalisation, digital transformation, business model innovation and internationalisation of SMEs with an interesting spectrum of insights as well as ideas for future research.

The review article by Silvia Piqueras "Born digital firms and their internationalisation process: a systematic literature review and future research agenda" illustrates the diversity of topics and research in the context of innovative high-tech start-ups that rely on advanced information and communication technology. The author systematically summarises the research at the intersection of entrepreneurship and international business. Piqueras speaks of "born digital firms" in reference to the aforementioned concept of Born Globals (esp. Knight and Cavusgil, 2004; Cavusgil and Knight 2015), which are characterised by the fact that shortly after their inception they already generate a large part of their turnover outside their home countries. Piqueras' work highlights that both conceptualisations have large overlaps, because start-ups whose business model is based on the development, creation and distribution of digital products and services ('born digitals') are able to market them on different global markets with little adaptation due to lower logistics and transaction costs ('born globals'). It aims at providing a better understanding of how born digital firms internationalise. For this purpose, Piqueras conducts a systematic literature review focusing on what she labels 'central academic papers', i.e. relevant studies published in high impact journals between 2000 and 2018. Her staged review process finally identifies and embraces 42 review, conceptual and empirical articles of which many have been published in leading international business (IB) and entrepreneurship journals. Given the specific research interest of internationalisation of born digitals the majority of contributions can be ascribed to the IB field. Not surprisingly though, the number of articles published in recent years (2016-2018) grew significantly. With regard to studies that develop concepts and theories, Piqueras proposes to distinguish different research streams such as stud-

ies (a) addressing internalisation theory, (b) investigating into variations of internationalisation process theories and particularly on speed and entry modes, or (c) applications of resource based view. Her thematic analysis of the 22 empirical studies (of which 13 were qualitative and 9 quantitative) revealed four major themes addressed by previous research, i.e. those studies that investigate in antecedents and factors that determine (a) speed, sequence and location choices or (b) entry modes (e.g. export versus FDI) as well as a group that addresses (c) the global diffusion of digital innovations or (d) the development and implementation of digital business models. Of much value for the interested readers are ideas for future research avenues and topics to be addressed.

Based upon Piqueras' results and discussion we learn that there is –despite an attempt of UNCTAD to provide a commonly accepted terminology – an ongoing need to better define what we understand and subsume under a 'digital firm' or a 'born digital firm'. The same holds with regard to internationalisation process theories and their adaptation to digital firms especially as young and therefore –as a rule– small firms internationalisation patterns may differ significantly from those of established and large firms. On the other hand, the author concludes that well-established internationalisation process theories such as the Uppsala model are still of value for born digitals although they need to be implemented carefully and need to be adapted in certain details. In sum, Piqueras' review offers a good starting point for both, scholars and practitioners interested in internationalised digital firms' phenomenon. The first may address research gaps or advance existing internationalisation theory of SMEs the latter may derive valuable insights supporting them to better crafting and manage their own internationalisation.

Valerio Veglio and Rubina Romanello, in their article "International new ventures in the digital age: the case of a big data and analytics provider", examine the determinants characterising the international growth process of international new ventures with a special focus on companies in the area of big data and analytics services. The authors adopt a case study approach to investigate the internationalisation process of a digital international new venture. Veglio and Romanello review the literature on the internationalisation process of international new ventures and discuss the specific case of big data analytics, and thereby, industry 4.0. They note that though there has been a general research interest on big data analysis in the area of management, the aspect of internationalisation has remained rather unexplored, providing a research gap for the authors.

Veglio and Romanello present the results of two in-depth interviews with a founder of an Italian international new venture offering big data analytics services. In addition, archival data was collected for triangulation purposes. The authors analysed the most influential variables (individual,

environmental, and firm) during each phase of the internationalisation process demonstrating that the influential variables change depending on the stage on internationalisation. The study is one of the first studies examining international new ventures In the field of industry 4.0. Veglio and Romanello show that the internationalisation process in industry 4.0 is similar to those of manufacturing and high tech INVs. However, there is a strong influence of individual, environmental and firm level variables on the internationalisation process in the industry 4.0. By the way, the relevance of the influence of each level changes withing the internationalisation process. Individual and environmental factors are both highly relevant during the initial phase of growth of the INVs, while already during the turning point stage firm's factor become more necessary for survival. The qualitative approach selected by Veglio and Romanello provides an excellent starting point for future quantitative studies in the area. Future studies may focus on researching the influence of the individual, environmental and firm level influences utilizing a larger sample, and thereby, providing more generalizable results. Examining a broader context, potentially even involving country comparisons will provide avenues for future research in the area.

Marco Bettiol, Mauro Capestro, Valentina De Marchi, and Eleonora Di Maria in their study entitled "Industry 4.0 investments and internationalisation: does size matter?" explore how firms adopt I4.0 technologies and its influence on internationalisation strategies. The authors review the literature on I4.0 adoption between small and larger firms and Industry 4.0 and internationalisation, focusing on the difference adoption pattern between small and large firms and on the relationship between internationalisation of small firms and I4.0 technologies. Based on a dataset of more than 1, 200 Italian manufacturing firms located in the North of Italy operating in different industries, the authors - through a three-step analysis - provide empirical evidences on how firms of different sizes and with different internationalisation strategies, pertaining to both upstream and downstream activities, adopt I4.0 technologies. Their main findings highlight: (a) medium-large firms compared to small ones are more likely to adopt specific technologies such as robotics and big data / cloud, and to adopt more technologies than one at once; (b) large firms tend to invest more in production and data management technologies than small firms because large firms face more complex activities when doing business on a global scale; (c) the size of the firm, but particularly the internationalisation strategies are important factors in influencing the adoption path of I4.0 and (d) domestic-sourcing small firms have a significantly higher adoption rate for robotics compared to medium-large firms. These outcomes provide innovative and original implications. First, the authors contribute to the literature at the intersection between internationalisation and digitalisation, showing that

firm size, particularly international firm strategy, shape the relationship between I4.0 and international firms. In particular, the authors contribute to the limited knowledge on whether small firms differ from large firms in their adoption of I4.0 technologies, considering for their international competitiveness and their strategical purposes. Second, managers need to consider I4.0 as a part of the firm's strategy in terms of international positioning. Third, policy makers should guarantee a continuous alignment between I4.0 and the international strategy of the firms in order to foster experimentation and the learning curve of firms as well as to increase the internal competences of the firms in terms of I4.0 technologies.

In conclusion, the quantitative approach used by Bettiol, Capestro, De Marchi, and Di Maria is a strong starting point for future research on this field that – despite its strategic importance – is unexplored yet. Future studies might analyse the influence of different groups of technologies (operations vs. data management) on the firm's international activities and strategies.

The paper entitled “Technology as perceived benefit or burden in the fight against corruption at international SMEs? The role of trust and reduced human interaction” by Emily Bauer and Stefan Schembera examines the role of information and communication technologies (ICT) in international SMEs' fight against corruption. By utilising interview and documentary data, the authors examine if ICT can be considered as a help in fighting corruption due to increased transparency or whether, on the contrary, it promotes cyber-crime. The article discusses organisations corruption and relates it to the challenges especially SMEs face in their fight against corruption. The authors discuss why corruption may be considered more acceptable among employees of SMEs than within large organisations and SMEs are more often confronted with corruption-related problems. Anti-corruption ICT has become more common in organizations and may help in improving transparency and reducing corruption.

Bauer and Schembera present a qualitative study, based on a sample of five SMEs in Switzerland and Germany, which is supported by public and corporate documents. The results of the analyses reveal that the implementation of anti-corruption ICT enables transparency and may be a preventative measure against corruption. But ICT may also provide opportunities for misusing disclosed data. Nevertheless, ICT may be considered as a signal for corruption intolerance in the international marketplace, which may be regarded as an opportunity for international SMEs. Bauer and Schembera present a theoretical model that resulted from the analysis of the interview data depicting the relationship between the use of ICT and the perceived opportunities and risks in the fight against corruption.

With their study, Bauer and Schembera contribute to the literature examining the influence of technology in reducing corruption in international SMEs. They also open several new avenues for future research, such as ex-

amining the role of ICT in the fight against corruption in specific industries or in different country contexts. Future quantitative studies may provide a more nuanced picture of the opportunities and risks of anti-corruption ICT.

Finally, the paper "Board interlocks in SMEs and the formation of international joint ventures" authored by Francesco Debellis and Michele Pinelli addresses an interesting issue of an important organisational mode of market entry and cross-border market development called for, i.e. "whether small, often founder- and family-driven firms, exhibit differences and whether the individuals that run such organizations have a unique impact on IJV formation, governance, and management" (Nippa and Reuer, 2019: 582). While one might think that SMEs, due to their limited resources, would be more interested in joining forces with other companies to operate jointly in a foreign market, this is often not the case, as the contribution of Debellis and Pinelli highlights, too. Unlike large companies, which often form several IJVs or use other organisational modes of market entry simultaneously because they are able to do so based on their resources and risk diversification, many SMEs are likely to perceive the risk as too high. IJVs need financial and even more important top management resources to be successful, and reports of failed IJVs fill articles and books. As such, SMEs in particular decide on it at the highest management level. Hence, it is obvious to investigate to what extent the composition of the board of directors and the ownership structure of SMEs have an influence on the decision to form an IJV. Building explicitly on Agency Theory and the Resource Dependency Theory Debellis and Pinelli's paper "aims to investigate the effect of board interlocks on SMEs likelihood to undertake ..." not only domestic, but international JVs. Subsequently, they further investigate into ownership concentration which has been found to positively affect these risky investments (Reuer, Klijn, and Lioukas, 2014). It is of particular interest for Piccola Impresa that the sample the authors use for testing their hypotheses (#1: Parent firms with more board interlocks are more likely to form IJVs; #2: The effect of board interlocks on the likelihood of forming an IJV is stronger, if they can have a majority ownership of the JV) is based on Italian SMEs. According to their statistical operations and calculations the authors are able to confirm both, the main Hypothesis 1 as well as the moderating effect hypothesised in H2. With other words, one can assume that the additional information and knowledge provided by board members that have more than one mandate and, hence, have most likely experienced the pros and cons of IJV decisions has a positive impact on forming an international collaboration and relying on FDI rather than export only. Overall, the paper by Debellis and Pinelli included in this Special Issue offers new insights in a previously rather neglected research area and at the same time many ideas for future research. While this may include for example: (a) using samples from other countries as to test whether there are

country-specific factors or whether the results hold for other institutional contexts, too, (b) including multipartite configurations or (c) extending the sample period to include more recent developments, the latter idea might also be useful to test whether the development of advance internet-based technologies affects the likelihood of SMEs decision to forming an IJV. Moreover, it would be interesting whether high-tech SMEs or SMEs that are forerunners in digital transformation differ with regard to forming IJVs compared to their low-tech or late-mover peers.

Summing up, there are plenty more research avenues that are linked to the cross-road of digitalisation and internationalisation of SMEs.

However, we hope that this Special Issue is a good starting point and helpful to trigger-off and guide innovative and challenging future research as well as offering down to earth insights for practitioners, too.

A thank you is due to the authors who submitted their work for possible inclusion in the Special Issue. We also thank the Piccola Impresa/Small Business editorial support staff for assisting us as we navigated the review system. Last, but not least, we thank Professor Tonino Pencarelli and his editorial team for inviting us to become Guest Editors for this Special Issue.

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DIGITAL INTERNATIONALIZING FIRMS (DIF'S): A SYSTEMATIC LITERATURE REVIEW AND FUTURE RESEARCH AGENDA

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Abstract

This article analyzes the content and evolution of the research in the field of International Business and Entrepreneurship to describe the state of the art of the literature on born digital firms and their internationalization, to identify the themes that recurred during the last two decades, and to highlight trends and future research perspectives in these fields. We conducted a rigorous search of articles published in high impact journals. The main findings reveal that there is still no consensus on the definition of digital firms and their internationalization processes. Future research should advance in this aspect. Likewise, it is both needed and important to conduct more empirical research that analyze the international expansion of born digital firms and their internationalization patterns. In response to this, we examine in the extant literature how mainly digital companies base on their digital business models to internationalize. Although there are still few academic publications regarding how digitalization of the business model affects born digital firms' internationalization, the number of articles is widely increasing in the field of International Business and Entrepreneurship, as are opportunities for future research.

1. Introduction

Digital technologies are disrupting traditional industries and the global economy. Examples of new information technologies infrastructures, Internet of Things (IoT), Artificial Intelligence (AI), Blockchain, High-speed internet and Wireless technology, and other information and communications technologies (ICTs) are generally referred to as “digitalization”.

To companies, digitalization means opportunities for transform and/or create new business models, spanning from marketing and sales channels to logistics. The use of advanced digital information and communications technologies allow companies to identify opportunities for improvement, provide challenges to growth and share international activities. Digitalization is transforming how International Business (IB) is conducted (Coviello, Kano and Liesch, 2017; Alcácer, Cantwell and Piscitello, 2016; Vahlne and Johanson, 2017). Digitalization enables some firms to reach high levels of internationalization very rapidly and with limited investment in foreign assets (The United Nations Conference on Trade and Investment (UNCTAD, 2017).

Prior research indicates that digital firms may follow different internationalization patterns and adopt different operating modes that conventional firms (Autio and Zander, 2016; Mahnke and Venzin, 2003; Yamin and Sinkovics, 2006). Empirical studies suggest that the internationalization process of digital firms goes from regional to international, and finally global, using adaptations such as language translations to overcome barriers (Mahnke and Venzin, 2003; Brourthers et al., 2016). They position their products or services for a niche market, and they adapt very quickly to control it (Hennart, 2014; Autio, 2017). Other empirical studies on digital start-ups producing digital innovations (e.g., mobile apps) analyse how these firms base their businesses on online platforms or marketplaces to internationalize rapidly (Shaheer and Li, 2018). Using a high degree of digitalization of the value chain, digital companies coordinate the value chain activities with Internet-enabled technologies (Hennart, 2014; Hazarbassanova, 2016). The centre of decisions is generally the home country (Mahnke and Venzin, 2003). However, it is also argued that these companies prefer to enter international markets via controlled modes (e.g., subsidiaries) (Sinkovics, Sinkovics, and Jean, 2013). Based on this, digital companies cannot activate in a market without being partly present offline, in general, because of legal compliance and market-specific requirements (e.g., a dependence on local e-commerce merchants) (Wentrup, 2016). Moreover, these firms should deal with greater Liabilities of Outsidership (LoO), since the main concern is the creation of a large enough network of users to generate value on its platform, and create thick ecosystems in new countries (Brourthers et al., 2016).

Unfortunately, studies on digital firms published in the last two decades

suffer from a lack of clarity in the adoption of definitions and recent research includes different samples of Internet-related firms. Little research has been done regarding the emergence of a new type of digitalized (Internet-based) company (Bell and Loane, 2010; Brouthers et al., 2016; Wentrup, 2016), which bases its business model on the latest digital technologies. As a foundation for considering what might be a “born digital” firm, we refer to UNCTAD (2017) to distinguish between Information and Communications Technology (ICT) firms and those that are digital.

In this sense, the aim of this paper is to contribute on this aspect by performing a systematic literature review of central academic papers analysing the content and evolution of the research in the fields of International Business and Entrepreneurship, to develop a more complete understanding of how born digital firms internationalize. Thus, the goals of the review are as follows: to describe the state of the art of the literature on born digital firms and their internationalization patterns, to identify the themes that recurred during the period 2000 and 2018, and to highlight trends and future research perspectives in the fields of International Entrepreneurship and International Business. As one of the implications, this study aims at serving as a summary and starting point for scholars and practitioners interested in internationalized digital firms’ phenomenon. Future research should advance in this aspect. The main findings reveal that there is still no consensus on the definition of digital firms and their internationalization processes. In so doing, we attempt to discuss some shortcomings of research at a methodological and thematic level offering insights into how such limitations could be addressed. To achieve this, we structure this paper in six sections as follows. The initial theoretical framework is discussed in the second section. In section three, we present the methodology to analyse systematically the literature that uses digital dimensions as a framework in international business and international entrepreneurship research published in high impact journals between 2000 and 2018. The discussions based on the findings are given in section four and directions for future research are outlined in section five. Our conclusions are reported in the last section.

2. Theoretical Framework: Regarding Born Digital Firm definition and its internationalization process

2.1 Digitalization and born digital firms

Extant research use different terms like ibusiness (Brouthers et al., 2016), high-tech firms (Almor, Tarba, and Margalit, 2014; Ojala and Tyrvaainen, 2006), digital information goods providers (Mahnke and Venzin,

2003; Wentrup, 2016), new technology-based firms (Bell and Loane, 2010; Campos et al., 2009; Mahadevan, 2000; Reuber, 2016), accidental internationalists (Hennart, 2014), or application service providers (Susarla, Barua, and Whinston, 2003), but they view digitalized companies as any firm operating online that provides its products/services to customers using the Internet and other digital, IC-based technologies (Bell and Loane, 2010; Wentrup, 2016; Nambisan, 2017). Other authors define a digital firm as an organization where nearly all significant business processes and relationship with customers, suppliers, and employees are digitally enabled and mediated, and key corporate assets are managed through digital means (Laudon and Laudon, 2018). Digital firm offers extraordinary opportunities for more flexible global organization and management.

As we mentioned before, our foundation for considering what might be a ‘born digital’ firm, follows The United Nations Conference on Trade and Investment (UNCTAD), in its 2017 World Investment Report to distinguish between Information and Communications Technology (ICT) firms and those that are digital. ICT firms include manufacturers of hardware and components (e.g., Samsung, Toshiba), software and service firms (e.g., Oracle, Adobe Systems), or telecoms that provide the infrastructure for communication (e.g., Vodafone, Deutsche Telekom). In contrast, a digital firm relies on the internet for its production, operating and delivery processes. These include internet platforms (e.g., Alphabet, Yahoo, Facebook, Twitter) and providers of digital solutions (e.g., Automatic Data Processing, PayPal, Global Payments), that operate entirely in a digital environment, and e-commerce (e.g., Amazon, Alibaba, Expedia) and digital content firms (e.g., Comcast, Time Warner, Netflix, Spotify), that combine a prominent digital dimension with a physical one.

Therefore, to avoid confusion, we may adopt the term “born digital firm” to denote firms whose business models are based on digital ICTs (e.g., big data, robotics, artificial intelligence, among others), and whose products and services can be delivered virtually over the internet (Coviello et al., 2017; Mahnke and Venzin, 2003). Thus these firms provide digital goods and services and may also possess a fully or partially digitalized value chain. Digital goods and services are broadly defined as “experience goods encoded as a string bits” (Mahnke and Venzin, 2003, pg.119): *“the goods do not perish or require transportation; have no diminishing return to scale; have great benefits of economies of scale; might inherit network effects; might produce valuable data”*. This particular type of firm has the above characteristics, and it is also digital from inception.

In this sense, we classify born digital firms in two main categories regarding its type of digital business model. The “purely born digital firms” which includes digital platforms, providers of digital solutions, and digital content producers/distributors of goods and services in digital format. In the second

category called “mixed born digital firm” we include only full online and on-line-born commerce companies which are involved in both digital and physical products and services distribution, basically Internet retailers and e-commerce platforms. These definitions restrict the concept of digital firm to those companies whose business is digital. Therefore, ICT companies that provide the enabling infrastructure that makes the Internet accessible to individuals and business (hardware, software and telecom firms) and e-commerce channel of traditional business and multichannel retailer are excluded.

2.2 Digital internationalization process theories

Extant International Business (IB) research on digital firms has applied two broad types of internationalizations process theories: the Uppsala model, as well as the more recent theory on International New Ventures (INVs) and born global firms.

First formulated by Johanson and Vahlne in 1977, the Uppsala model, also known as the stage model or the U-model, is one of the most influential theories explaining firms’ internationalization (Oviatt and McDougall, 2005; Schueffel et al., 2014). The internationalization is described as slow and incremental (Oviatt and McDougall, 2005), and the model assumes that the firm’s overarching goal is to strive for growth and long-term profit while trying to keep risk taking at a low level (Madsen and Servais, 1997). At the time, IB was mainly developed for multinational enterprises (MNEs). Notably, Johanson and Vahlne (2009) have suggested several extensions and clarifications to their original model, emphasising the role of business networks and capability-creating processes (Vahlne and Johanson, 2017).

Within internationalization theory, the phenomenon of small and young firms internationalizing early has opened a new research stream. These firms do not follow the same patterns as traditional firms when internationalizing and many researchers sought to explain why using several theoretical frameworks.

This phenomenon has had many labels: “Born Globals” (Rennie, 1993; Rasmussen and Madsen, 2002), “Global Start-ups, (Oviatt and McDougall, 2005), “International New Ventures” (McDougall and McDougall, 2005; Servais and Rasmussen, 2000; Oviatt and McDougall, 2005; Autio, 2005; Coviello, 2006) and “International Entrepreneurship” (IE) (Oviatt and McDougall, 2005). Moreover, the IE approaches focus on internal factors, capabilities, and networks of a company as reasons for such behavior (Andersson, 2011; Hagen and Zucchella, 2014).

The recent literature suggests that digital firms tend to be INVs or born-global firms (Autio et al., 2017; Brouters et al., 2016), because their products are “instantly accessible from anywhere in the world” (Brouters et al., 2016, pg. 514). Compared to traditional modes of foreign market entry, virtual internationalization greatly reduces the cost and risk of expand-

ing (Autio and Zander, 2016). Digital products and services can easily be exported to remote markets, because the Internet permits nearly costless and instantaneous delivery (Hennart, 2014; Mahnke and Venzin, 2003). When value-adding, activities need to be performed in foreign markets, digital ICTs often allow firms to externalize these operations by improving communication and monitoring (Autio and Zander, 2016; Dunning and Wymbs, 2001; Rangan and Sengul, 2009). Scholars have argued that these factors substantially reduce the need for market-seeking foreign direct investment (FDI) (Eden, 2016; UNCTAD, 2017). Digital firms are thought to pursue primarily 'virtual' internationalization, i.e., without establishing a physical presence in foreign markets (Singh and Kundu, 2002; Yamin and Sinkovics, 2006).

However, other studies indicate that digital firms follow different patterns of internationalization of INVs, and do not necessarily serve foreign markets from inception. For example, differences in terms of culture, languages, and consumer preferences, among others, may require modifications on products and services to suit local needs (Blum and Goldfarb, 2006, Shaheer and Li, 2018).

There seems to be significant heterogeneity in the extent to which digital firms achieve global reach (Mahnke and Venzin, 2003; Bell and Loane, 2010; Chen, Shareer, Yi, and Li, 2018). Thus, the applicability of the internationalization theories to digital ways of conducting business needs to be challenged.

3. Methodology

We adopted the basic guidelines for a systematic review set out by Tranfield, Denyer, and Smart (2003), identifying relevant articles through keyword searches in two journal databases. Scopus and Web of Science (WoS) were selected as our database due to their wider coverage of articles, highly adaptable search, and more refined options (Mongeon and Paul-Hus, 2016).

To comply with the objective of analyze the content and evolution of the research in the field of Born Digital Firms it was made a systematic literature review (Tranfield, Denyer, and Smart, 2003). This work systematically reviews articles published from 2000 to 2018. This time frame was selected on the assumption that research that is more than 18 years old probably does not collect all the key information in this technologically changing environment.

3.1 Search method and scope

The search criteria comprised articles investigating born digital firms published in the research fields of International Business and Entrepreneur-

ship. Books, book chapters, and conference proceedings were excluded. The scope of the search is related to material published between 2000 and 2018 (both included). The selection of studies is the result of a methodological process that combined electronic means with manual search in two phases. We conducted a keyword search in *Scopus and Web of Science (WoS)* using “international entrepreneurship,” “international business”, “digital firm,” and “digital business models” which are the most influential labels used to describe firms achieving “online internationalization” (Yamin and Sinkovics, 2006; Wentrup et al., 2016; Shaheer and Li 2018). Six filters were applied for the initial searches: the studies included had to (1) be published in the period 2000-2018; (2) be classified as review, theoretical, or empirical academic article; (3) be the search result of Internet-based firms, digital firm, ebusiness, digital platform firm, digital entrepreneurship, ibusiness, digital business models, online internationalization, international business in the Article title, Abstract or Keywords field of the studies; (4) be identified as journal article; (5) appear in high impact journals in the topic Business and Management, and (6) be written in English. Although our systematic search was limited to these journals, our review included research published in other outlets when it was relevant to the discussion. Firstly, through the *Scopus and WoS* search, we obtained 146 articles published in high impact journals.

Since the goal of the review was to conduct an in-depth thematic analysis, we decide to refine and reduce the database articles obtained, by limiting our search to articles focused on 1) firms whose business models are based on digital ICT-based technologies and whose products and services can be delivered virtually over the Internet, (2) factors that encourage firms to use digital technologies to internationalize from inception; or 3) the characteristics of Internet use, at either the firm or the industry level. Each of these articles was read one by one to determine whether it added value to an enhanced understanding of born digital firms and the paths of their internationalization process. In this second phase, the articles that did not fulfilled the three limiting criteria (104 off-topic articles) were excluded. Some examples of excluded articles were those related to firms (SMEs and High Tech but not digitals) that have relied not only on Internet-based channels, but also used combinations of conventional channels and the Internet. This means that born digitals are fundamentally different from bricks-and-mortar firms that have “gone digital” by internalizing digital capabilities into the organization. They also differ from firms that are still in the process of “going digital” by engaging in digital transformation or augmenting their digital capabilities. The final dataset included 42 articles published in 26 journals referring to digital firms and their internationalization process, as shown in Table 1. The dataset of 42 articles is comprised of the 5 reviews, 15 conceptual studies, and 22 empirical studies, of which, 13 qualitative and 9 quantitative studies. The final selected studies are described in Table 2.

Tab. 1: Description of the number of articles published in each journal and Field

Journal	International Business	Entrepreneurship	Marketing	Management Information Systems	Management	Number
Journal of International Business Studies	7					7
International Business Review	4					4
Strategic Entrepreneurship Journal		3				3
Journal of Business Venturing		3				3
Management International Review	2					2
International Marketing Review			2			2
Journal of International Entrepreneurship		2				2
Strategic Management Journal					1	1
Entrepreneurship Theory and Practice		1				1
Multinational Business Review	1					1
Journal of Organization Design					1	1
Journal of World Business	1					1
Journal of Marketing Management			1			1
Management Dynamics in the Knowledge Economy	1					1
Journal of International Marketing			1			1
Information Systems Journal				1		1
Critical Perspectives on International Business	1					1
Entrepreneurial Business and Economics Review		1				1
Computers in Industry				1		1
Baltic Journal of Management					1	1
Canadian Journal of Administrative Sciences		1				1
Technological Forecasting & Social Change				1		1
Journal of International Management	1					1
Review of International Business & Strategy	1					1
MIS Quarterly				1		1
Journal Management Gov					1	1
Number	19	11	4	4	4	42

Tab. 2: Prior literature on different fields regarding Digital Firms and their Internationalization

Field	Studies	Typology of study/Sample	Aim/Research Question
International Business	De la Torre & Moxon, 2001	Conceptual	This study analyses the Impact of ICT conducting international Business.
Management	Amit & Zott, 2001	Qualitative. Sample: 59 american and european e-business	This article analyses Value creation in e-business based on efficiency, complementarities, lock-in and novelty.
International Business	Kotha, Rindova & Rothaermel, 2001	Quantitative Sample: 86 internet B2C firms (MNE)	Focus on Internalization theory, this article analyses how internationalize 86 pure internet firms Business to consumer base on Intangible assets (reputation and website traffic).
International Business	Singh & Kundu, 2002	Conceptual	This study contributes to IB theories identifying the variables affecting the growth of e-commerce corporations. The proposed framework in the study extends the explanatory eclectic paradigm in the context of e-business
International Business	Mahnke & Venzin, 2003	Qualitative Case Study (eBay)	This article examines how product characteristics shape the internationalization process of digital information good providers.
International Entrepreneurship	Loane, McNaughton, & Bell, 2004	Qualitative Case Study. Sample: 10 Irish Internet Start-ups	This paper explores the patterns, pace, and drivers of internationalization and the processes involved to determine the extent to which the Internet has influenced the firms' international activities, behaviour, and overall strategy.
International Marketing	Luo, Zhao & Du, 2005	Quantitative Sample: 93 US companies whose business activities are entirely internet-based from inception	This study aims to explain the internationalization speed of e-commerce companies (ECCs). Based on the archive data of the American ECCs, the study used multiple regression analysis to estimate the influences of many micro- and macro-factors.
International Business	Yamin & Sinkovics, 2006	Qualitative Exploratory case study Sample: 26 firms Engineering sector /United Kingdom's North-West region	This paper examines the effects of online internationalisation on the psychic distance perceptions of internationalising firms. Building on extant internationalisation literatures and exploratory interviews, the authors generate four propositions positing effects of online internationalisation on psychic distance.

continue...

International Business	Forsgren & Hagström, 2007	Conceptual	The purpose of this paper is to examine to what extent classical models of firms' internationalization process can explain behaviour among totally new types of firms (Internet-related firms)
Management	Onetti, Zucchella, Jones, & McDougall-Covin, 2010	Literature review, conceptual Based on 70 definitions published from 1996 to 2009	This paper proposes a framework for the business model of new technology-based firms (those developed their business around a new technological platform). For these firms, strategic decisions and growth processes are characterized by a deep interrelationship amongst the processes of internationalization, innovation and entrepreneurship.
International Marketing	Bell & Loane, 2010	Literature Review	This paper analyses the emergence of a new type of firms "new wave of global small and medium firms". For these firms the Internet is a key driver of business development and speedy internationalisation.
International Entrepreneurship	Reuber & Fischer, 2011	Literature review, conceptual 33 journals published from 2000 to 2010	This paper shows a conceptual model based on online reputation, online technological capabilities, and online brand communities, developed through a comprehensive review of literature in diverse fields: entrepreneurship, international business, management, management information systems, and marketing.
International Business	Pezderka & Sinkovics, 2011	Conceptual	Analyze e-risk perceptions and implications for small firm active online internationalization/entry mode
International Marketing	Sinkovics, Sinkovics, & Jean, 2013	Quantitative. Sample: 115UK-based SMEs involved in active online internationalization	This paper examines the drivers and performance outcomes of two patterns of internet use supporting export marketing: the internet as an alternative to a physical presence and the internet as a sales channel. Specifically, it is unclear how the internet can successfully support export marketing.
International Entrepreneurship	Fisher & Reuber, 2014	Qualitative case study Sample: 8 entrepreneurial firms B2B	The purpose of this paper is reducing the gap in the current literature on entrepreneurial communications to know how growth-oriented entrepreneurial firms can use new media channels such as Twitter to reduce uncertainty and enhance differentiation.

continue...

International Business	Brouthers, Geisser & Rothlauf, 2016	Qualitative Multiple case design Sample: 9 iBusiness firms (B2B, B2C, C2C)	This paper examines how the internationalization process of ibusiness firms will build on concepts dealing with social networks and diffusion theories to move from a user- network outsider to an insider and become embedded in the foreign market user community.
International Entrepreneurship	Wentrup, 2016	Qualitative Sample: 3 On-line Service Providers	This study explores how the On-Line Service Providers (OSPs) internationalize in terms of speed, geography and mode of entry. The paper introduces two theoretical concepts: the online-offline balance and online-to-offline interval.
International Business	Alcácer, Cantwell & Piscitello, 2016	Conceptual	The study examines the changing nature of the competitive advantages of places, the competitive advantages and strategies of firms, and the governance structure of International Business (IB) networks in what has been called the third industrial revolution.
International Business	Hazarbassanova, 2016	Qualitative case study Sample: 3 cases with a different value creation logic. Explore the differences in the scale and speed of their internationalisation (cross-case analysis)	This paper explores how the value creation logic of internet firms (IFs) influence their internationalisation process and they differ from traditional firms.
International Business	Shu, Morschett, & Swoboda, 2016	Quantitative Sample: 150 online retailers (1110 market entries in 47 country markets over 19 years)	This paper identifies and analyses various influence factors on internationalization speed of online retailers and their impact on individual internationalization steps. Grounded in the resource-based view, the paper examines the effects of imitability of an online shop, the presence of venture capitalists, the scope of the country portfolio and distance and diversity within the country portfolio on the internationalization speed of online retailers
International Entrepreneurship	Nambisan, 2017	Conceptual	This paper examines how the new digital technologies have transformed the nature of uncertainty inherent in entrepreneurial processes and outcomes.

continue...

International Entrepreneurship	Etemad, 2017	Conceptual	This article analyses a conceptual multi-layered framework of international entrepreneurship by incorporating another encompassing layer to the framework, the rapidly emerging online global marketplace.
International Business	Strange & Zucchella, 2017	Conceptual	This paper aims to provide an assessment of how the widespread adoption of new digital technologies (i.e. the Internet of things, big data and analytics, robotic systems and additive manufacturing (3-D printing)) might affect the location and organisation of activities within global value chains (GVCs).
International Business	Coviello, Kano & Liesch, 2017	Conceptual	This study focusses on two critical dimensions absent from Vahlne and Johanson's (2017) arguments: the impact of the digital context as a defining macro-level feature of the modern world, and the role of the individual as a core microfoundation of the internationalization process.
Management	Nambisan, Lyytinen, Majchrzak, & Song, 2017	Conceptual	This is an introductory paper whose objective is to lay bare the broader implications of digital innovation for research in innovation management. How should organizations engage in and enhance their innovation outcomes and processes in the digital world.
International Entrepreneurship	Amit & Han, 2017	Conceptual	This study proposes a new conceptualization of a firm's resource configuration decision in a digitally enabled world. The digitalization of businesses allows entrepreneurs and managers alike to reimagine the boundary of their resource configurations and, thereby, enhance the value-creation potential of resources.
Management	Li, Su, Zhang & Mao, 2017	Qualitative Sample: 7 SMEs e-commerce on the Alibaba Digital Platform.	This research investigates how entrepreneurs of small and medium enterprises (SMEs) with inadequate capabilities and limited resources drove digital transformation in their companies.

continue...

International Entrepreneurship	Autio, 2017	Conceptual	This article presents a normative framework (Strategic Entrepreneurial Internationalization) that articulates how INVs can leverage internationalization to drive competitive advantage.
International Business	Schu & Morschett, 2017	Quantitative. Sample: 140 online retailers in Europe	This article examines the foreign market selection on on-line retailers. These authors define a path dependent perspective on influence factors.
Management	Yonatany, 2017	Conceptual	This paper proposes a theoretical link between International Business theory and the literature related to the platform-ecosystem organizational form. It emphasizes implications for psychic distance, liability of foreignness, and speed and pattern of internationalization.
International Entrepreneurship	Parente, Geleilate and Rong, 2018	Conceptual	This article focusses specifically on internet-based firms that allow rent appropriation from temporary utilization of underutilized assets. By looking at these firms' main characteristics and the current dynamics revolving around their internationalization process, the authors develop a framework to guide future research drawing from a business ecosystems perspective.
International Business	Chen, Shaheer, Yi & Li, 2018	Quantitative Sample: 24 apps from 8 subcategories (longitudinal cross-country database)	The study explores a user-network perspective and externalization logic, suggesting that ibusinesses' internationalization process depends critically on users' collective interactions, instead of being solely driven by firms' market commitments, as noted by the Uppsala model.
International Entrepreneurship	Hänninen, Smedlund & Mitronen, 2018	Literature review, conceptual analysis and qualitative case study Sample: 4 multi-sided digital platforms (Alibaba Group, Amazon.com, eBay and Rakuten Group)	This paper explores how multi-sided digital platforms are transforming the retail exchange logic and assess the implications and impact of these platform-based business on the retail sector, especially for business managers and consumers.
Management	Büyüközcan, & Göçer, 2018	Systematic Literature review based on academic literature, published books, industrial reports, Thesis, Websites, Conference Proceedings	This article reviews the state-of-the-art of existing Digital Supply Chain (DSC) literature

continue...

Management	Köning, Ungerer, Baltes & Terzidis, 2018	Quantitative. Sample: 837 business plans collected between 2000 and 2016	This paper investigates evolution patterns of digital and non-digital business models. The objective of this paper is to compare patterns of business model evolution in digital and non-digital venture industries and to shed some empirical light on the usefulness of combining The Business model canvas (BMC) and the lean start-up manifesto (LSM) methods.
International Business	Ojala, Evers, & Rialp, 2018	Qualitative: longitudinal, exploratory single-case study	This article examines how Digital platform providers internationalize their services. The findings shed light on the relationship between technology and internationalization by demonstrating that the internationalization of digital platform providers is moderated by a variety of technical and strategic bottlenecks in the market.
International Business	Wittkop, Zulauf, & Wagner, 2018	Qualitative Case study Sample: 6 internet-based firms (B2B, B2C, C2B)	The purpose of this article is to develop a comprehensive understanding of how internet-based companies (IBC) internationalize in the digital market.
International marketing	Watson IV, Weaven, Perkins, Sardana, & Palmatier, 2018	Literature review, conceptual analysis	This article investigates the effect of Digital technologies and the changing global business environment to understand how relational approaches to international market entry (IME) are changing considering macro developments.
International Entrepreneurship	Autio, Nambisan, Thomas & Wriah, 2018	Conceptual	This study explores the theoretical and conceptual underpinnings of the entrepreneurial ecosystem phenomenon and propose directions for further research. The authors compare the entrepreneurial ecosystem concept against theoretical constructs evoked in the economic geography, innovation, and management literatures.
International Entrepreneurship	Grochal-Brejidak & Szymura-Tyc, 2018	Qualitative, single case study (longitudinal. Sample: three e-commerce micro firm (from inception)	The study presents a holistic description of the internationalisation process of an entrepreneurial e-commerce firm. The simultaneous involvement in the inward and outward forms of internationalisation enhances the development of knowledge necessary for further internationalisation of e-commerce firms.

continue...

International Entrepreneurship	Shaheer & Li, 2018	Quantitative. Sample: 127 Apps at Apple's store Health and Fitness in 50 countries	This paper analyses some salient factors affecting the internationalization speed of digital innovations by tracking international penetrations of 127 apps at Apple's app store. Although apps are globally available via online platforms, their international penetration is still subject to cultural, administrative, geographic, and economic (CAGE) distances that act as user adoption barriers to impede app internationalization.
International Business	Vendrell-Herrero, Gomes, Collinson, Parry, & Bustinza, 2018	Quantitative Sample: a survey with 5,200 usable data points from consumers residing in fourteen geographically dispersed countries.	This article investigates, through the country-of-origin effect and value-in-use lenses, how the implementation of digital services creates opportunities for cultural industries to expand internationally. This study employs a unique consumer dataset with information on the internationalization of British cultural digital services.

3.2 Procedures for the thematic analysis

The procedures of data organization comprised the creation of an excel workbook to record and compare articles in chronological order. Each article was provided with a protocol number. Then, we content-analyzed each article to collect the following data: authors, title, year of publication, journal source, volume, issue, pages, and article type (review, conceptual, or empirical). In addition, in a following step, we extrapolated the aim of the study and findings. Based on this information, all articles (both conceptual and empirical) were labelled in the research trends analyzed above: digitalization, digital firms and digital internationalization process. This classification was made inductively to facilitate the thematic analysis.

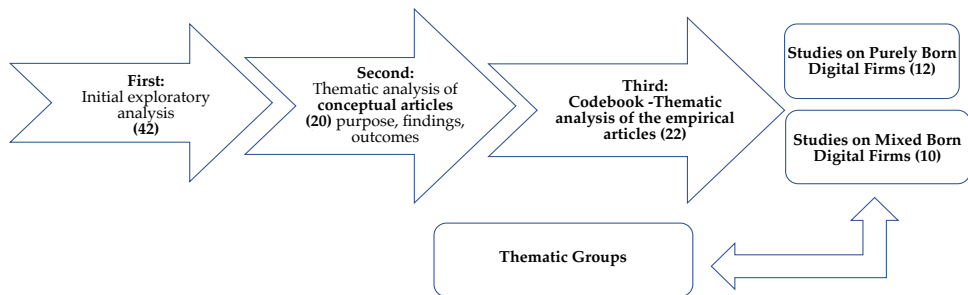
Inspired by the methodology adopted in previous reviews (Fisher and Reuber, 2011) we collected and codified some additional data to support the thematic analysis of empirical articles: (a) "digital" firm's types analyzed, (b) methodological approach, (c) sample (number and characteristics of firms analyzed), (d) keywords, (e) key research findings, (g) industry, (h) country of research. Compared to previous works, some of these fields, like "sample size" and "venture types," were recently introduced.

We developed a thematic analysis and synthesis in three steps: first, we carried out an initial exploratory analysis aimed at pointing out some general features of the literature, the number of articles, article types, methodologies, country of research. In a following step, we conducted a thematic analysis of

conceptual articles based on purpose, findings, and the outcomes of each article. Thereafter, through the data organized in the codebook, we carried out the thematic analysis of the empirical articles. The above-described steps are presented in Figure 1. Given the numerous operational definitions existing in the literature (Coviello et al., 2017; Mahnke and Venzin, 2003, UNCTAD, 2017) and the variety of sampled firms, we choose to analyze the characteristics of firms analyzed in each article, in order to identify the papers that researched born digital firms specifically and separate them from the rest of the articles, which, instead, had a different prevailing focus. Driven by the goal of creating mutually exclusive categories, we established a criterion on which we based the categorization of works: the characteristics of sampled firms and theories adopted in each work.

As a result, through a preliminary reading of the selected articles, we inductively identified two categories of articles regarding the type of digital business model: (1) studies on purely born digital firms, and (2) studies on mixed born digital firms (online born-commerce firms). As a further step, we analyzed the purpose and findings of each empirical study and we identified some thematic groups inside these two categories. Each article was categorized in one of these thematic groups.

Fig. 1: Procedures for the thematic analysis



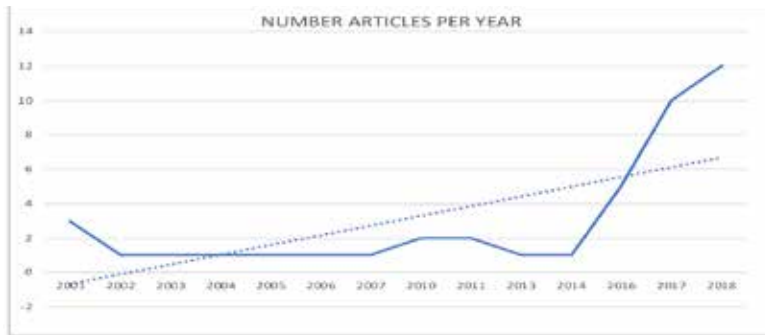
4. Findings and Discussion

4.1 State of the art

This section offers figures on some descriptive elements of the sampled articles. The distribution of articles per year reveals that the topic is extremely young. At first view, the analysis of articles immediately confirms the increased academic interest in born digital firms and their internationalization over the years, as illustrated in Figure 2. The number of articles ranges from 11 in ten years (from 2000 to 2010) to 12 articles in the last year (2018). The results indicate that the number of articles has increased especially since 2014, although the first article appears in the year 2001, in the period between 2000

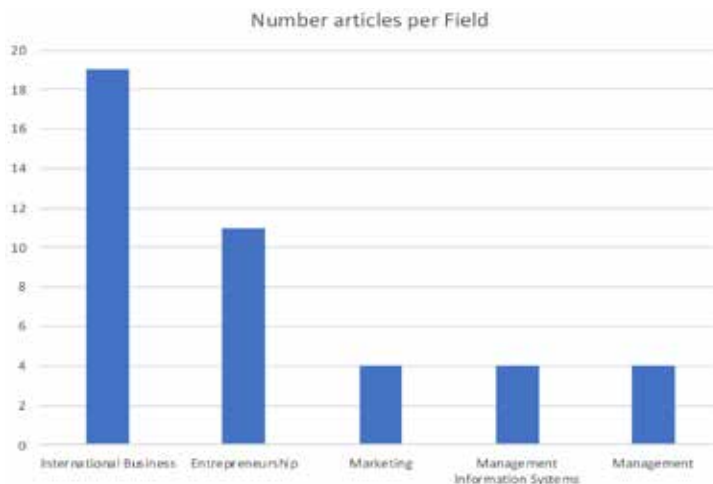
and 2010 the publications are not constant in time and only eleven articles are published in ten years. In the last two years, we find 52% of articles published.

Fig. 2: Number of articles per year



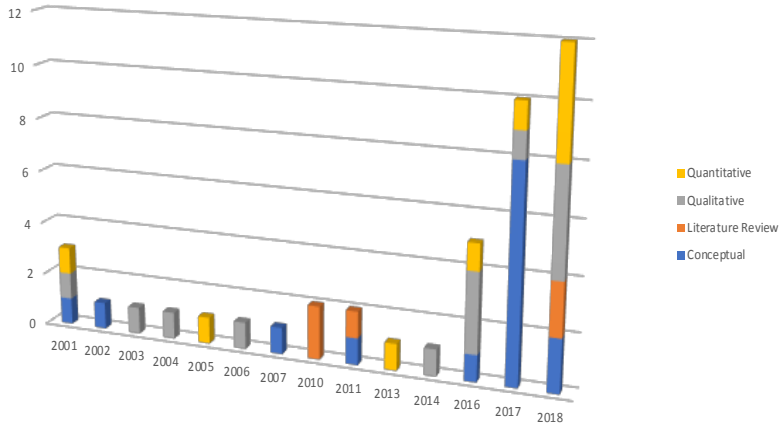
Most of the articles were published in the research field of International Business (19) and Entrepreneurship (11) which all together represent 71% of the literature here analyzed, as illustrated in Figure 3.

Fig. 3: Number of articles per research field



As we mentioned above, the dataset of 42 articles is comprised of the 5 reviews, 15 conceptual studies, and 22 empirical studies, 13 qualitative and 9 quantitative studies. Comparing the type of articles published across the type of articles published across the period analyzed, the conceptual studies raise from 2017 providing theoretical and operational definitions around the concept of born digital firms and their internationalization. The empirical studies were 49% of the total articles analyzed, most of them published in 2018, as illustrated in Figure 4, possibly due to the novelty of the topic.

Fig. 4: Typology of studies per year



4.2 Thematic analysis and discussion

We conducted a thematic analysis of conceptual articles based on purpose, findings, and the outcomes of each article (22 articles). Thereafter, we carried out the thematic analysis of the empirical articles. The empirical studies were categorized within two categories according to the characteristics of the firms analyzed and labels adopted, namely, (1) studies on purely born digital firms (12 articles), (2) studies on mixed born digital firms (e-commerce firms) (10 articles).

4.2.1 Conceptual articles, reviews, and theoretical models developed on born digital firms

The limited existing literature of International Business and Entrepreneurship on digitalization is highly fragmented across multiple streams of research. From the first decade of research, the conceptual studies and reviews were attempting to set up most salient International Business (IB) concepts and describing the probable range of impacts that digital ICT revolution might bring to bear on their fundamental assumptions (De la Torre and Moxon, 2001). Most of these studies addressed the internationalization process of new internet-based companies, in a broad sense, but not specifically to born digital firms, as we defined above.

One stream of research of International Business, which draws primarily on *internalization theory*, has analyzed the role of digital ICTs in coordinating and supporting the international activities of MNEs (Alcacer, Cantwell, and Piscitello, 2016; Coviello, Kano, and Liesch, 2017). This literature has emphasized what firm-specific factors are associated with the propensity of internet-based companies to enhance their international presence

in Internet by developing country-specific websites (Kotha, Rindova and Rothaermel, 2001). Advances in digital ICTs may change the relative attractiveness of different foreign operating modes, by improving communication channels, providing easier access to market information, and allowing for better remote monitoring of operations (De la Torre and Moxon, 2001). For digital firms, in particular, ICTs should greatly diminish the need for market-seeking FDI. As their digital products face minimal transportation costs and relatively few trade barriers when distributed over the internet, digital firms can serve foreign markets by exporting from their home country (Mahnke and Venzin, 2003; Nachum and Zaheer, 2005; UNCTAD, 2017). Accordingly, the extant literature has stressed the potential for born digital firms to enter foreign markets without establishing a physical presence abroad, and without physical products crossing borders, using what has been labelled “online,” “internet-based,” “virtual” or “remote electronic access” internationalization (Pezderka and Sinkovics, 2011; Yamin and Sinkovics, 2006; Strange and Zuchella 2017). Moreover, the findings of these studies are based on a wide range of industries, including manufacturing, which raises doubts about their applicability to digital firms. Finally, while these studies suggest a reduced need for market-seeking FDI, they have not addressed what types of digital ICT-based operating modes born digital firms might use to replace traditional FDI-based approaches.

The second stream of research is predominantly based on *internationalization process theories* and the impact of digital ICT conducting the international business. IB research on digital firms has mainly applied two broad types of internationalization process: the Uppsala model, as well as research more recently on INVs and born global firms as we mentioned above.

Most of the conceptual studies in this stream of research, have developed conceptual models or constructs on not purely born digital firms, named internet-related firms (Reuber and Fisher, 2011; Forsgren & Hagström, 2007; Onetti, Zuchella, Jones, & McDougall-Covin, 2010), or new wave global firms (Bell and Loane, 2010). This research has often focused on a relatively narrow set of website-based businesses, such as “online portals”, which may not be representative of today’s digital firms (Reuber and Fischer, 2011). Conceptual models on purely born digital firms remain relatively scarce.

Several articles have reviewed the IB research field treating the sub-field of *speed of internationalization and entry modes* through digital technologies. Compared to traditional modes of foreign market entry, “virtual internationalization” greatly reduces the cost and risk of expanding internationally (Autio and Zander, 2016; Pezderka and Sinkovics, 2011; Knight and Liesch, 2016; Watson IV, Weaven, Perkins, Sardana, and Palmatier, 2018; Parente, Geleilate and Rong, 2018; Yonatany, 2017). As a result, the risk-mitigating incremental approach to internationalization may be less important, allowing digital firms to enter a large number of foreign markets early in their ex-

istence (Yamin and Sinkovics, 2006). Born digital firms also face pull-factors favouring rapid and extensive internationalization. The scalability and low marginal costs associated with digital goods and services create a strong incentive to serve a larger market, to reap economies of scale (Forsgren and Hagstrom, 2007; Parente, Geleilate and Rong, 2018). Some studies argue that the behaviour of new types of firms like Internet-related firms might deviate considerably from what the Uppsala model predicts (Forsgren and Hagström, 2007). However, as we discuss below, several empirical studies propose that born digital firms are not immune to differences between countries in terms of cultural, administrative, geographic, and economic (CAGE) distances that act as user adoption barriers to impede virtual internationalization (Shaheer and Li, 2017).

From a different perspective, several articles have reviewed the *International Entrepreneurship* (IE) research field (Amit and Han, 2017; Autio 2017), treating the subfield of Resource based View (RBV) and how digitalization of business allows entrepreneurs and managers alike to reimagine the boundary of their resource configurations and, thereby, enhance the value-creation potential of resources. Autio (2017) develops a Strategic Entrepreneurial International framework (SEI) that argues that INVs that adopt and active learning orientation, harness digital infrastructures for cross-border business model experimentation, encapsulate cross-border asymmetries in their activity system, and adopt a niche orientation are more likely to succeed in building sustainable competitive advantage.

In a similar vein, other works have focused on factors impacting on the likelihood of internationalization of new ventures, stressing the influence of entrepreneurs' digital capabilities (Nambisan, 2017; Etemad, 2017). *Digital Entrepreneurship* is generally referred to as the pursuit of opportunities based on the use of digital media and other information technologies (IT) (Reuber and Fisher, 2011).

Even though digital entrepreneurship can occur through the formation of a new firm or the transformation of an existing firm, studies have mostly focused on new firms. Moreover, digital entrepreneurship research recognizes that digital technologies affect individual entrepreneurs by reshaping their mentality (Di Domenico et al., 2014) and studies have been focusing on the new enabled conditions that lower the risk of entrepreneurial activities (Kelestyn and Henfridsson 2014). With the advent of Internet and the emergence of online global markets, entrepreneurial activities of on-line actors, and online intermediaries, regardless of their initial motives, time and location, have impacted the path of international market developments in general and entrepreneurial internationalization (Etemad, 2017). For example, Reuber and Fisher (2011) proposed a conceptual framework in which on-line technological capabilities are a resource related to a firm's successful pursuit of international opportunities. At the individual level

of analysis, this resource may be complemented with the use of social media by founders and the online human branding of founders, to identify international opportunities and mitigate uncertainties. Nambisan (2017) examines how the new digital technologies have transformed the nature of uncertainty inherent in entrepreneurial processes and outcomes. Digitalization creates social data (market networks) and intellectual data (market knowledge) about foreign markets earlier and faster than other methods, while also improving firms' attractiveness, decision processes, and capabilities of decision makers (Clark et al., 2018). Although decisions are often based on historical data or on experiences from other markets, a new market entry is a long-term investment in the future attractiveness of an untested foreign country (Neubert, 2017). This has raised important questions at the intersection of digital technologies and international entrepreneurship.

Digital technologies manifest in the realm of entrepreneurship in the form of three distinct but related elements—digital artifacts, digital platforms, and digital infrastructure (Nambisan et al., 2017). In this analysis, digital artifacts and digital platforms serve as part of the new venture idea (outcome) while digital infrastructure serves as an external enabler (supporting the process). The discussion of how the characteristics and other aspects of these digital technology elements affect the entrepreneurial process should be questioned, for example, why are some entrepreneurs (ventures) more successful than others in acquiring entrepreneurial resources through digital crowdsourcing and crowdfunding systems? How does the use of digital infrastructure (e.g., social media) by different entrepreneurs lead to different types of effectual cognitions and behaviours (and consequently different outcomes)? This research provides one important starting point addressing these questions, by examining the role of specific aspects of digital technologies in shaping international entrepreneurial opportunities, decisions, actions, and outcomes.

Drawing on *Business Models theories*, a new-born research stream has suggested new theoretical frameworks for born digital firms (Yonatany, 2017) and/or firms developing their business model around a new technological platform (Onetti, Zuchella, Jones, and McDougall-Covin, 2010). Strange and Zuchella (2017) provide an assessment of how the widespread adoption of new digital technologies (i.e. the IoT-Internet of Things, big data and analytics, robotic systems and additive manufacturing) may affect the location and organization of firm' activities within global value chain. Global Value Chain concept particularly is referring to adoption and impact of the new digital technologies (commonly known as Industry 4.0). The authors consider the implications of the technologies for IB theory and, in particular, for the nature of ownership, location and internalization advantages experienced by multinational enterprises (MNEs). Indeed, these articles have stimulated new reflections on the mechanisms and fac-

tors that drive born digital firms to engage and enhance their innovations outcomes and processes in the digital world.

In conclusion, there are few *conceptual articles based on purely born digital firms*. Most of these works enhance the IB research and underline its borders by merging concepts from new digital technologies (Strange and Zuchella, 2017; Watson IV, Weaven, Perkins, Sardana, and Palmatier, 2018), providing a taxonomy of digital international market entry strategies. Other works have made impressive efforts to advance in the sub-field of internationalization speed (Forsgren and Hagström, 2007). Others conceptual studies have extended the IB research borrowing concepts from other domains (e.g., management information systems, marketing,) and integrating different theories (Autio, 2017, Etemad, 2017; Reuber and Fisher, 2001). Table 3 summarizes the themes examined in the conceptual articles.

Tab. 3: *Conceptual papers advancing theory on born digital firms*

<i>Conceptual papers advancing theory on born digital firms and their internationalization</i>
Themes
International Business Theories
Internalization: Singh & Kundu (2001); Coviello, Kano, & Liesch (2017); Alcácer, Cantwell, & Piscitello (2016); Bell & Loane (2010)
Speed and Entry modes: Uppsala theories vs Born Global/INVs
Purely digital firms: De la Torre & Moxon (2001); Yonatany (2017); Parente, Geleilate, & Rong (2018)
Others (internet related firms): Forsgren & Hagström (2007); Pezderka & Sinkovics (2011)
Watson IV, Weaven, Perkins, Sardana, & Palmatier (2018)
Networks/Models on Social Media Networks: Reuber & Fischer (2011); Alcácer, Cantwell, & Piscitello (2016)
Resource Base View: Amit & Han (2017); Autio (2017)
 Entrepreneurship Research
Digital Entrepreneurship: Nambisan (2017); Etemad (2017); Autio, Nambisan, Thomas & Wrigh (2018)
 Business Models Theories
Digital Business Models: Onetti, Zuchella, Jones, & McDougall-Covin (2010)
Digital Suply Chain: Büyüközcan & Göçer (2018)
Global Value Chain: Strange & Zuchella (2017); Nambisan, Lyytinen, Majchrzak, & Song (2017)

4.2.2 *Thematic analysis of empirical articles on purely born digital firms and their internationalization*

A better explanation of similarities and differences among purely born digital firms

This category includes studies focused on purely born digital firms, referring to all the companies that internationalize through digital ICTs from

inception and whose products and services are digital (Mahnke and Venzin, 2003). The empirical studies are illustrated in Table 4.

Tab. 4: Empirical studies on “purely born digital firms and their internationalization”

<i>Empirical studies on purely born digital firms and their internationalization</i>
Themes
Factors influencing speed, geography: Kotha, Rindova & Rothaermel (2001); Wentrup (2016); Shaheer & Li (2018); Vendrell-Herrero, Gomes, Collinson, Parry, & Bustinza (2018)
Factors influencing entry modes: Mahnke&Venzin (2003); Brouthers, Geisser, & Rothlauf (2016)
Network Theories, Social Media and Diffussion of Innovation: Fischer & Reuber (2014); Brouthers, Geisser, & Rothlauf (2016); Chen, Shaheer, Yi, & Li (2018); Ojala, Evers, & Rialp (2018)
Digital Business Models/ Value Creation: Hazarbassanova (2016); Köning, Ungerer, Baltes, & Terzidis (2018); Wittkop, Zulauf, & Wagner (2018)

Hence, we focus on ibusiness firms as a special type of e-business companies that use the Internet and other Computer Based Information Systems (CBIS) technologies to provide an Internet-based platform, which allows users to interact with each other (Brouthers, Geisser, and Rothlauf, 2016). These firms provide a platform that allows users to buy and sell products/services (marketplaces transaction brokers) to each other or exchange information (virtual communities) with each other. iBusiness firms generate value by providing the platform and organizing the input of users as well as manage the cross-relationships of the various users. Representative examples of ibusiness firms include social network sites like facebook.com or linkedin.com, which offer a platform for private as well as corporate users to communicate and interact with each other; job websites like monster.com or indeed.com, which allow job seekers and hiring companies to interact with each other; travel sites like hotel.com or tripadvisor.com, which match user demand with the offers of travel service providers.

Other studies (Ojala, Evers, and Rialp, 2018), focus on a new and increasingly important group of firms, namely *digital platform providers*, refers to digital-based INVs developing digital platforms. Digital platforms can be defined as “a shared, common set of services and architecture that serves to host complementary offerings” (Nambisan, 2017, pg. 1032). By using services offered by firms developing and marketing digital platforms, it can listen to music as a service through Spotify or iTunes, watch movies through Netflix, or rent a house in a foreign country through Airbnb. This study posit that the internationalization process of digital platform providers represents a particular case of internationalization.

In a similar vein, Hazarbassanova (2016) proposes that “pure play digital service firms” differ in what their motivation to internationalise, how they deal with their liability of foreignness and how they learn to internationalise. The differences are consistent with the specificities of their value creation.

In this study, Internet firm is defined as a “for-profit organization, which conducts its business exclusively through an Internet-based platform, in a way that if the central servers of the firm are turned-off, the business of company will be interrupted” (Hazarbassanova, 2016, pg. 350). From this, it follows that the core product of the firm must be digital, consisting only of data distributable over digital channels. Based on this definition, we also include in this category empirical studies of firms that offer digital products, termed as digital innovations, which become instantly available across the globe via online platforms. (e.g., mobile apps and online software) (Shaheer and Li, 2018; Chen, Shaheer, Yi, and Li, 2018). This selection is also based on the ibusiness definition provided by Brouthers et al., (2016).

Hence, integrating products characteristics of digital products and services is an important variable in the explanation of internationalization patterns for born digital firms.

Speed and sequence of internationalization process by purely born digital firms

There is little empirical evidence on whether purely born digital firms internationalize faster or slower than manufacturing firms. Some studies suggest that this category of companies is internationalized soon after their outset, which means that the speed of time to first entry is fast (Wentrup, 2016). This behaviour is supported by the born global theory internationalization (Oviatt and McDougall, 2005), and other studies on digital-based international new ventures (Ojala, Evers, and Rialp, 2018), that extent the scope of INV theories where firms internationalize proactively and rapidly after inception.

A driver behind the swift international expansion among born digital firms is the rapid speed and competition in the sector. It is generally stressed, and there is an underlying assumption in the industry, that first-mover advantage is crucial. Chen, Shaheer, Yi, and Li (2018) refer to this as the phenomenon of “winner takes it all”. The online industry is characterized by a pattern in which leading firms capture a disproportionate share of the market during a short time span via network effects, and this puts pressure on competing firms to engage in rapid internationalization. Additionally, in the case of digital start-ups, Shaheer and Li (2018) argue entry barriers may not impede offering its digital innovations. These firms can join globally accessible online platforms that internalize many barriers to internationalization, such as the presence into foreign markets, payment mechanisms, and trust between businesses and users (Autio et al., 2018; Nambisan et al., 2017). Affiliation with such platforms grants digital innovations global accessibility from inception with little or no barriers to entering foreign markets.

This is also evident in terms of “sequencing” or, in other words, the pace of subsequent market entries: the firms keep a high pace going in the early phase of internationalization. Online consumer mobility means that

companies are pushed to act fast to attain a critical mass of customers and manage the competition, leading to compressed sequencing (Brouters, Geisser, and Rothlauf, 2015). This is in line with the theory of the internationalization of other type of Internet firms (Yamin and Sinkovics 2006; Sinkovics et al., 2013) that we discuss below.

However, empirical research has shed light into some critical factors that affecting the rapid pace of internationalization. In this sense, Wentrup (2016) emphasizes the balance in the internationalization process between an online and offline presence (“online-offline interval”). There seems to be a limit on how long a born digital firm can operate fully online without needing a physical presence. This study reveals the importance of home markets as a springboard, and of regional expansion in the early phase of internationalization. In addition, low entry barriers for online entry must be considered in relation to barriers in the offline context (e.g., legal compliance and market-specific requirements). In the case of digital platform, other studies indicate that the early internationalization and subsequent foreign market entries are governed by layered modular architecture, (Ojala, Evers, and Rialp, 2018), and its dependent on the platform provider`s capability to replicate a workable architecture stack in a target country. Therefore, main barriers faced by platform companies in their internationalization endeavours are the weaknesses of local technological infrastructure, the lack of complementary asset providers, and local regulations (Parente et al., 2018).

Regarding digital firms producing digital innovations, there are some salient factors affecting the internationalization speed. Although these category of born digital firms are globally available via online platforms, their international penetration is still subject to cultural, administrative, geographic, and economic (CAGE) distances that act as user adoption barriers to impede firm`s internationalization. These companies may overcome these barriers by employing the demand-side strategies of engaging users in value co-creation (Shaheer and Li, 2018). In this sense, the CAGE distances in cyberspace may act as “user adoption barriers”, instead of market entry barriers.

Explaining entry modes by purely born digital firms

As we mentioned above, integrating products characteristics of digital products and services is an important variable in the explanation of the entry modes of internationalization patterns for born digital firms. Purely born digital firms seek to enter foreign markets through entry modes that allow control in branding and advertising strategies, because of the “experience character of digital goods” (Mahnke and Venzin, 2003). Thus, entry modes may be chosen to seek control regarding possibilities of customer education rather than overcoming the hazards of liabilities of foreignness, consider as a bilateral factor. In a similar vein, Wentrup (2016) argues

that born digital firms prefer to enter international markets via controlled modes (e.g., subsidiaries). This is due to a network effects as well as the nature of online service itself, with a technical complexity.

However, some born digital firms are more likely to assume that online interactions generate insights not only on buyer behaviour and preferences, but also about the underlying market conditions that shape customer preferences and behaviour. The possibility of a “virtuality trap” is stronger in the case of digitalised products compare to non-digitalised products (Yamin and Sinkovics, 2006). By virtuality trap, these authors mean a perception by the internationalising firms that the learning generated through virtual interactions obviates the need for learning about the target market. Thus, digital internationalization is likely to engender a perception of reduced psychic distance.

Since the core offerings of born digital firms are “fully digital” (providing a platform for connecting users), and are transferred over electronic networks, they are instantly accessible from anywhere in the world (Brouthers, Geisser, and Rothlauf, 2016). Due to the cost of transferring from one country to another are relatively small, born digital firms will be influenced to a lesser extent by investment risks related to Liabilities of Foreignness (LoF) (Johanson and Vahlne, 2009). In contrast, digital firms should deal with greater Liabilities of Outsidership (LoO), since the main concern is the creation of a large enough network of users to generate value on its platform, and create thick ecosystems in new countries (Brouthers et al., 2016). Such research would also require a clearer understanding of related factors such as the role of networks and ecosystems, as discussed below.

*The social network theories and diffusion of innovation
by purely born digital firms*

Recent empirical studies (Kotha et al., 2001; Brouthers, et al., 2016; Chen et al., 2018; Fisher and Reuber, 2014; Vendrell-Herrero et al., 2018) analyze how user networks may affect digital firms’ internationalization about country penetrations and how these firms explore the way in which they may build competitive advantages. These studies focus on social network theories and diffusion of innovation theories perspective to analyse how born digital firms may be focus on learning to overcome issues of user-network outsidership by using its existing social network and diffusion of innovation as mechanisms to persuade potential users to adopt the firm’s platform in the foreign market. As we mentioned above, digital firms should deal with greater Liabilities of Outsidership (LoO), because of the lack of embeddedness in the foreign market community. Liabilities of Outsidership, in general, refer to the fact that the internationalization process of a firm is conditioned by its acceptance into segmented business

networks (Johanson and Vahlne, 2009). This is because this theory conceptualizes internationalization as a prolonged process of knowledge development. In the context of born digital firms, a fundamental characteristic is that these firms do not fully control what users or third-parties do or build on their platforms, but instead generate value through maintaining and channelling the exchanges between various participants. The main concern is the creation of a large enough network of users to generate value on its platform. Hence, the success of a born digital firm lies in its ability to encourage mass-market adoption and build a large user network as well as diffusion of the novelty of its offerings (Brouthers, Geisser and Rothlauf, 2016; Chen, Shaheer, Yi, and Li, 2018).

Communication channels are an important element of diffusion on innovation (Fisher and Reuber, 2014) to reduce uncertainty and enhance differentiation. The role of opinion leadership in product diffusion has been long recognized (Iyengar, Van den Bulte, and Valente, 2011). In online social networks, individuals with a larger number of social ties have greater impact on the overall speed and number of adoptions. Drawing upon the notion of country clout, Chen et al., (2018) extend this literature to the user-network level and focus on diffusion across countries. The widespread adoptions in high-clout countries enhance the substantive network benefits that potential adopters in other countries can derive from joining a new network. In a similar vein, other studies (Vendrell-Herrero, Gomes, Collinson, Parry and Bustinza, 2018) evaluate the country of origin, cultural distance, exoticness, brand image, and flag-brand, and how these factors influence positively the purchasing decision of consumers that are hesitant when making a purchase of culturally-based digital services (e.g., music (Apple Music, Spotify), or movies (Netflix)).

This line of research may represent an avenue for future inquiries. In this way, for instance, future research could clarify how these firms deal with their LoF and LoO and the specificities of their value creation, identifying internationalization patterns has not yet been explored.

Impact of business models components on purely born digital firms

A recent emerging theme pertains to Business Models of born digital firms. Digital Firms have been considered innovative firms (Brouthers et al., 2016). The impacts of value creation and delivery infrastructure (e.g., firm-specific capabilities and resources), the specific way of creating value and the individual customer interface used by a digital business play key roles in digital internationalization. On this theoretical basis provided, it is possible to develop a comprehensive understanding of how born digital companies are internationalizing and why their internationalization processes differ. Digitalization impacts on the business model as technologies enable

new ways of value creation and customer relationships. Exemplary is the customer segmentation based on interest-based factors, which is enabled by the analysis of big data derived from social networks (Hänninen, Smedlund and Mitronen, 2018). Digital companies often do not conduct market research before starting their international expansion. The costs and the risk of failure have decreased due to digitalization so that the advantage of trying to enter the market is considered superior compared with a long, costly, and incremental market entry (Autio & Zander, 2016). In this sense, the business model concept can help provide a structure to the large number of variables in the IB theories. A differentiation in the value proposition, value creation and delivery, and value capture is recommendable as a framework for a differentiation of internationalization strategies among different types of born digital firms (Witkop, Zulaf and Wagner, 2018). A differentiated analysis of digital firm's internationalization shows that born digital firms need to be considered as forming a heterogeneous group. Hazarbassanova (2016) proposes that the value creation process of born digital firms causes them to differ from each other, just as much as they differ from traditional firm. The relation of the value proposition to internationalization strategies has strong evidence but is not explained by IB or the IE theories. It has been confirmed that both the customer interface and the value creation logic are relevant variables. The value creation and delivery method is reflected in many of the traditional internationalization theories and remains crucial (Hazarbassanova, 2016). The value capture dimension (revenue model and financial aspects) is found to be less determining, as it itself is a determinant of the first two business model's components (Witkop, Zulaf and Wagner, 2018). Köningm Ungerer, Baltes, and Terzidis, (2018) analyse different patterns in the evolution of digital and non-digital ventures business models through the early stages of the business cycle. Digital ventures focus initially on developing transactions with their customers before searching investments in contrast with non-digital, that require investments beforehand to build capital-intensive assets for value creation.

Future research is needed for a deeper explanation of similarities and differences on business models of Born Digital Firms. That is crucial for a better understanding of strategic and operational implications and its internationalization process.

4.2.3 Thematic analysis of empirical articles on mixed born digital firms (e-commerce)

Types of e-commerce firms

This group of studies includes only full online and online-born commerce companies that internationalized shortly after their foundation. In our review, the studies related to e-commerce channel of traditional busi-

ness and multichannel retailer are excluded of this category. The empirical studies are illustrated in Table 5.

Tab. 5: Empirical studies on “mixed born digital firms”

<i>Empirical studies on mixed born digital firms</i>
Themes
Factors (micro and macro) influencing active online internationalization (speed, foreign market selection): Yamin & Sinkovics (2006); Sinkovics, Sinkovics, & Jean (2013); Schu, Morschett & Swoboda (2016); Schu & Morschett (2018); Luo, Zhao, & Du (2005)
Value creation: Amit & Zott (2001)
Leverage inward-outward capabilities/Network Theories: Loane, McNaughton, & Bell (2004); Grochal-Brejdak & Szymura-Tyc (2018)
Digital Business Models e-commerce platforms: Hänninen, Smedlund, & Mitronen (2018); Li, Shu, Zhang, & Mao
Digital Entrepreneurship: Li, Shu, Zhang, & Mao (2017)

There are few studies in which the issue of “virtual internationalization” is analysed (Grochal-Brejdak and Szymura-Tyc, 2018) regarding to online-born commerce companies. Most of them are mainly about the traditional firms which have started a direct sale through internet, complementing the prior sale executed by foreign intermediaries (Anderson, 2005; Sinkovics, Sinkovics, and Jean, 2013). Furthermore, the studies on mix born digital firms include a wide group of firms which are, in general, defined as enterprises engaged in electronic commerce from inception (Singh & Kundu, 2002), and with essential turnover derived from online transactions (Luo, Zhao and Du, 2005). E-commerce firms are highly differentiated by their main activity (trading, service and production firms), type of products offered (digital or tangible goods and services) to diverse customers, representing various e-business models (e-stores, international intermediary platforms (Alibaba, Amazon, Rakuten, eBay, etc.), having a different size, managed by the owner (entrepreneurial or family firms) or by professional managers. The e-commerce platforms (business-to-business, business to consumer or consumer to consumer platforms) allow firms and users to interact and buy and sell products online (Li, Shu, Zhang, and Mao, 2017). These authors also present new insights into how digital platform service providers can help Small and Medium Enterprises (SMEs) transform and compete, for example, helping entrepreneurs engage in new social networks, pushing to create, e.g. Chambers of Net Commerce. As a digital platform, back-end data processing is powerful. It provides to SMEs allow them to understand their visitors and customers better.

Their common characteristics is taking advantage of the Internet-based information and communication technologies (ICT) to expand sales domestically and internationally.

The internationalization process, path, and strategy of mixed born digital firms

This category of studies, refers exclusively “active online internationalization” (AOI) (Yamin and Sinkovics, 2006; Harzabassanova, 2016; Sinkovics, Sinkovics and Jean, 2013), in contrast with “passive or default online” internationalization, that refers to firms with a domestic website, and which do not actively pursue or target foreign customers. In AOI, the internationalising firm creates websites intended as vehicles for conducting online business in particular foreign countries. Given the inherent risks of e-commerce, particularly in the cross-border context, AOI is likely to target countries that have reached ‘e-commerce readiness’ (Luo, Zhao, and Du, 2005,) in terms of adequate electronic infrastructures, credible payment systems and supporting legal and institutional structures (macro-level factors). In contrast to ‘default or passive’ online internationalisation, AOI can be considered as a significant investment in ‘entering’ a particular country or regional market. As such, it has features similar to traditional foreign market entry and international expansion, such as the relevance of intangible and firm-specific assets, as has been argued by Kotha et al., (2001) and Singh and Kundu (2002). However, there are also significant differences between traditional market entry and AOI.

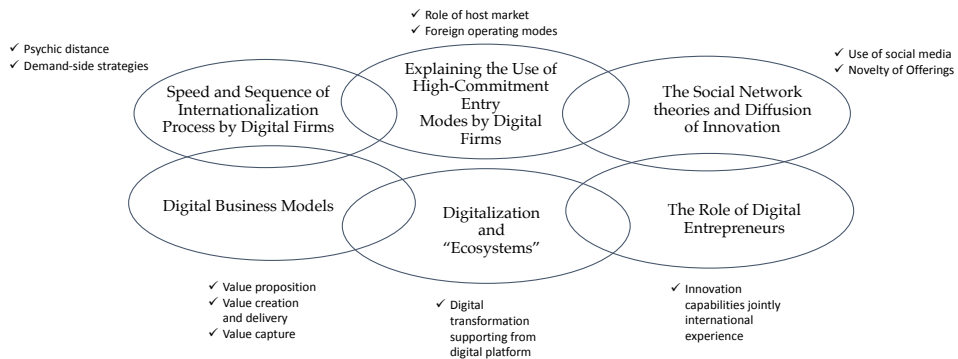
The fundamental difference between traditional market entry and AOI is that the latter does not necessarily entail any level of foreign investment in assets or activities. In AOI, the distinction between pre- and post-entry is blurred. Cyber-transactions with customers are for the most part managed from home. Thus, relative to traditional internationalisation, online internationalisation is more likely to be under the direct control of top level decision-makers who reside in the home country of the internationalising firm. It is, therefore, reasonable to conclude that compared to traditional internationalisation, AOI is a much more ‘home’-centred phenomenon (Yamin and Sinkovics, 2006). Regarding the sequencing of foreign market entry, AOI is likely to be much more time-‘compressed’ compared to traditional internationalisation. A consequence of near-simultaneous entry into several markets may be to reduce the extent of deliberate knowledge acquisition about markets to be entered. The two distinctive features, namely ‘market isolation’ and ‘dilution of sequencing’ (Yamin and Sinkovics, 2006) indicate that the online internationalisation is somewhat disengaged or disconnected from the business and institutional environment in the foreign market which it is entering, certainly compared to traditional market entry situations. These authors also propose that online internationalisation may induce a general reduction of psychic distance because of the experience of online interactivity is likely to generate insights on customer preferences and behaviour. However, the results of their empirical study demonstrate that facilitating effects of online internationalisation would not fully substitute for cultural and business learning associated with physical presence

in foreign markets (e. g., via export agent or an export office), and reduces the possibility of a ‘virtuality trap’. Like other Internet-based firms, the born-online commerce firms internationalise their activity easier and faster than traditional firms (Forsgren & Hagström, 2007), but their internationalisation paths might differ depending on various factors (Luo, Zhao, and Du, 2005; Yamin and Sinkovics, 2006; Sinkovics, Sinkovics, and Jean, 2013; Schu, Morschett and Swoboda, 2016; Schu and Morschett, 2017; Grochal-Brejdek and Szymura-Tyc, 2018). Luo et al., (2005) analyse both micro-level (firm) and macro-level (host-country) factors affecting the speed of international expansion of born e-commerce companies, concluding that the speedy foreign market entry by e-commerce firms was positively influenced by top management team’s international experience, innovative and marketing capabilities. Depending the digital or non-digital nature of the product/service, Yamin and Sinkovics (2006) proposes differences in two distinct value chain contexts. In this sense, in the case of digital goods, the totality of the cross-border value-chain can be created online (e.g., software, music or online banking financial services) (Kotha, Rindova and Rothaermel, 2001; Mahnke and Venzin, 2003). When products and services are not digitalised (manufactured products), online internationalization refers only to those aspects of the value-chain that are conducted online (e.g., the sales and some after sales service and support). Regarding born online retailers of physical goods, Schu, Morschett and Swoboda (2016) highlight the imitability of an online shop as the most important factor influencing the internationalization speed. In the same context of firms, Schu and Morschett (2017) analyse the factors influencing the foreign market selection. The results indicate that market size, rule of law, and local market knowledge, as well as a common language and the logistics performance of a target country have a positive effect on the likelihood of selecting a target country. Although the Internet is said to reduce the impact of distance, both cultural and geographic distance as well as added geographic distance still show a negative impact on the selection of foreign markets by online retailer. From the analysis of multi-sided digital platforms (e-commerce) and the impact on the retail sector, Hänninen et al., (2018) suggest that platform-based business models are less capital intensive, easier to scale and more profitable in the long-term as their earnings model is based on selling services to their user base rather than just maximizing the sales margin. Since the research of mixed digital firms as a born-digital commerce firms remain scarce, future research could investigate how entry speed is jointly interacted with other entry decisions, and how such interactions impact overall evolutions of born e-commerce firms internationalization and overall consequences of foreign investments.

5. Trends and future research directions

The paper's goals were to conduct a systematic review to develop a more complete understanding of how the emergence of born digital firms presents a distinct phenomenon of an internationalizing enterprise, and to explore opportunities for future studies about firms' internationalization process from different lens. Our review of 42 studies demonstrates that there is no consensus on the definition of digital firms and their internationalization processes. Based on this systematic analysis, we develop suggestions for future research presented in Figure 5.

Fig. 5: Future research directions



Speed and sequence of internationalization process by born digital firms

Some studies suggest that online internationalization entails a more compressed version of the traditional internationalization process, in which the required resources commitment is reduced by the benefit of the Internet, while the specific market knowledge is obtained by learning-by-exporting. As a result, a faster internationalization process is observed among born digital firms, while the underlying mechanisms of market learning and network strategies may still apply. Moreover, such compressed internationalization processes may still also feature a dependence on various factors as suggested in Reuber and Fischer (2011) study of internationalization based on online reputation, online technological capabilities and online brand communities. More research into the precise nature of the psychic and other factors involved and how these affect online internationalization will be valuable. Furthermore, future research may focus on demand-side strategies based on social sharing and virtual community strategies to reevaluate the drivers behind the internationalization speed of born digital firms.

Explaining the use of high-commitment entry modes by born digital firms

Extant literature has stressed the potential for born digital firms to enter foreign markets without establishing a physical presence abroad, and without physical products crossing borders, using what has been labelled “online,” “internet-based,” “virtual” or “remote electronic access” internationalization (Pezderka and Sinkovics, 2011; Yamin and Sinkovics, 2006; Strange and Zuchella, 2010). However, other factors such as customer norms and habits could also create distances in the digital context. For instance, host country specific customers’ online purchasing behaviors such as pricing (Luo et al, 2005) could possibly disadvantage foreign firms lacking sufficient market or cultural knowledge to acknowledge such behaviours in the host market. Thus, it is suggested that these liabilities or distances do not fade in the digital context, instead, they could even be exacerbated when they are also constrained by liability of smallness and newness. Such local market specific features also highlight the need to gain local market knowledge, which in turn will possibly require a local presence as such market knowledge may not be fully available online. Hence, more research is needed to understand the role of host market presence and resource commitment by digital firms. Additionally, further research should investigate different foreign operating modes used by born digital firms and their potential variation among their internationalization patterns, integrating product/service characteristics.

The social network theories and diffusion of innovation

Another interesting avenue for future research is to link born digital firms up to the use of social media (possibly also linking up to the notion of “ecosystems” as discussed below). Social media is an emerging topic in international marketing (Reuber and Fischer, 2014) and there seem to be crucial but largely unexplored regarding to purely and mixed born digital firms. Digital internationalization process depends critically on users’ collective interactions, and their success lie in their ability to encourage mass-market adoption and build a large user network (Chen et al., 2018). Recent research proposes that the internationalization of born digital firms is conditioned by liabilities of user-network outsidership (Brouthers et al., 2016), yet the source of such liabilities has not been fully explored.

Future studies could focus on internationalization strategies of social media firms (e.g. Twitter, Instagram, etc.), social-media based branding strategies of global brands, use of social media as a vehicle for rapid internationalization, especially in culturally-based digital services. Future research could make investigate, also, the novelty of the firms’ offerings based on efficiency, complementarities and lock-in effects (Amit and Zott, 2001).

The role of digital entrepreneurs

The discussion of how the characteristics of digital technology elements affect the entrepreneurial process should be questioned, for example, why are some entrepreneurs (ventures) more successful than others in acquiring entrepreneurial resources through digital crowdsourcing and crowdfunding systems? How does the use of digital infrastructure (e.g., social media) by different entrepreneurs lead to different types of effectual cognitions and behaviours (and consequently different outcomes)? This research provides one important starting point addressing these questions, by examining the role of specific aspects of digital technologies in shaping international entrepreneurial opportunities, decisions, actions, and outcomes. Future studies may to investigate the effect of entrepreneurs' international experience jointly with their innovation capability and market orientation on the internationalization of born digital firms.

Digitalization and "ecosystems"

One important point raised by the literature on digital platforms is the potential importance of "ecosystems". The idea of business ecosystem highlights that there is an opportunity space that cannot be explored by individual firms but that requires multiple partners, collective action, alignment and convergence of vision towards an overarching value proposition (Li et al., 2018). These dimensions seem interestingly important for value co-creation in the context of increased internationalization within digital economies. Future research could analyse how entrepreneurs with inadequate digital capabilities and limited resources could drive their digital transformation to cross-border e-commerce supporting from digital platform service providers.

Digital business models

A differentiated analysis of digital firm's internationalization shows that born digital firms need to be considered as forming a heterogeneous group. Hazarbassanova (2016) proposes that the value creation process of born digital firms causes them to differ from each other, just as much as they differ from traditional firm. Using the value creation logic framework (e.g., value network, value shop and value chain) its potential to identify internationalization patterns has not yet been explored.

The IB theory has focused on variables such as efficiencies of the value chain, internal capabilities, and resource endowments. Some studies show that these theories still have high impacts on the internationalization strategies of born digital firms (Wittkopp et al., 2018). A differentiation in the value proposition, value creation and delivery, and value capture is rec-

commendable as a framework for a differentiation of internationalization strategies among different types of born digital firms.

Further research needs to investigate other variables to be considered in the highly dynamic digital markets. In addition to the impacts of value creation and delivery infrastructure (e.g., firm-specific capabilities and resources), the specific way of creating value and the individual customer interface used by a digital business play key roles in digital internationalization.

6. Conclusions, limitations and implications

This systematic review has investigated the important current issue of the emergence of international born digital firms regarding to the substantial literature on digital internationalization in International Business and Entrepreneurship spanning the last two decades. It is quite evident that the extant literature on the internationalization of digital firms is quite fragmented and disperse. However, although the literature on international born digital firms is still relatively small, it has been confirmed that digital firms are a very relevant context for rapid internationalization and tend to be INVs or born-global firms. However, the review has also demonstrated that traditional IB concerns highlighted by the Uppsala internationalization model such as the need for local market knowledge and the potential impact of cultural and institutional distance, and the Liabilities of Foreignness and Outsidership, remain valid in the digital context. Although born digital firms tend to internationalize more rapidly, there is also evidence that they are following a “compressed” sequential internationalization process whereby factors such as psychic distance still play an important role, and it may carry out to born digital firms making high resource commitments to host markets. Therefore, the present literature review has demonstrated that many issues related to born digital firms and their internationalization remain understudied yet.

This study, however, has also several limitations. Firstly, the selection of studies focused on the concept of digital firm may not be free of possible omissions given lack of clarity in the adoption of definitions of digital enterprise in the current literature. For this reason, the exclusion criteria used may seem subjective when trying to categorize the articles. Moreover, we acknowledge the limitations that stem from the exclusion of some sources (e.g., books, book chapters, and other journals) and from the choice of the keywords. The second limitation concerns the identification of categories and themes. Many of the studies refer to the digital enterprise as those that base their business model on digital technologies such as those that, although not strictly digital, use the Internet as a sales channel to internationalise. The two categories used are based both on the business model

provided by Brouthers et. al., (2016), as well as in the definition of the digital product/ service according to Mahnke and Venzin (2003). It could be interpreted by researchers that there are more categories, such as high-tech companies, knowledge intensive firms, or lean global start-ups (Neubert, 2018), as categories to be included. For example, in the case of studies on global start-ups, in which they are defined as a new international venture that create a new market niche using innovative technology and a new business model (Tanev, 2017), some doubts were raised. Although we selected articles related to these types of companies in the first selection of the 146 studies, we finally decided to exclude them because many articles published during the period 2000–2018 did not specify the samples' characteristics or did not properly adopt the digital firms labels in accordance with the firms' features. Thus, we excluded all those articles in which the products/ services of the sample were not digital, or because their business model was not included on the two categories provided by Brouthers et. al., (2016).

While primarily a guide for research, this review may also function as a practical guide for managers who seek to internationalize their digital new ventures. We shed light on the highlighted factors and strategies that drive active online internationalization and determine better international performance during the pre-entry and entry phases. Moreover, a branch of studies has highlighted how born digital firms may develop demand-side strategies based on social sharing and virtual community strategies to reevaluate the drivers behind their internationalization speed. Another important aspect concerns the benefits that born e-commerce companies may derive from their relationships with digital platforms, which may become fundamental in developing successful strategies in the international landscape.

Last, our study has confirmed the existence of born digital firms and rapid internationalization suggesting that this phenomenon remains an object of interest, which offers insights on how new and young digital ventures internationalize, but also on the failures and risks (e.g., virtuality trap), that these companies encounter during their evolution.

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**INTERNATIONAL NEW VENTURES IN THE DIGITAL AGE: THE
CASE OF A BIG DATA AND ANALYTICS PROVIDER**

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Abstract

In the international competition context, new opportunities for new venture internationalization arise in sectors related to Industry 4.0 digital technologies. However, little is known about these technologies so far. This aspect can pose challenges as well. In particular, when internationalization and digitalization merge, the dynamics can change. This aspect gives rise to a new area of research. To contribute to enrich the scarce research on these topics, we adopted a case study approach to investigate the internationalization process of a digital international new venture offering services related to big data and analytics. Preliminary findings highlight factors influencing the international growth process of this company, showing opportunities and challenges related to digitalization. Practical implications and future research directions are discussed.

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1. Introduction

As widely recognized by scholars and practitioners around the world, the Fourth Industrial Revolution is coming, as an evolution of the Third Industrial Revolution triggered by the advent of Internet and Information and Communication Technologies (ICTs) in the Seventies. Recently, Coviello, Kano and Liesch (2017) have stressed that digitalization, which expresses the technological context in which modern firms operate, should be now actively considered by mainstream theories, underlining the importance of this aspect at the macro-level (Coviello, Kano and Liesch, 2017). Indeed, since the spreading of internet, technology has increasingly become part of everyday routines of companies, permeating almost all their activities. Consequently, over the years, a growing attention has been devoted to the influence of ICTs on different activities of companies. In particular, several studies have shown that ICT advances are factors that facilitate the internationalization of new ventures (Knight and Cavusgil, 1996; Knight and Cavusgil, 2004; Cavusgil & Knight, 2015). Along this line, most of the studies on international new ventures (INVs), companies that establish international activities soon after their foundation, have analyzed firms operating in high-tech contexts (Rialp et al., 2005).

In this landscape, over the last decades, technological advances have progressed at an accelerated pace. Recently, this evolution has been related to the Industry 4.0 paradigm, with an increasing number of digital technologies evolving fast, interacting with each other and being implemented in different activities of the value chain (Chiarvesio and Romanello, 2018; Hannibal and Knight, 2018). Industry 4.0 digital technologies, though, differentiate themselves from past advances related to ICTs for their functionalities and potentialities. Industry 4.0 includes, among the others, e.g. Internet of Things, Big Data and Analytics (BDA), the Cloud – which can all interact with each other and hence enhance their potential impact. The radical acceleration due to the digital transformation has affected all-sized companies around the world. However, since these technologies are less known, they can pose challenges to small and young companies willing to doing business in related industries (Kleindienst and Ramsauer, 2015). As a counterpart, in a context where internationalization has increasingly become accessible to small and young companies also due to ICT advances, new opportunities related to digitalization activities and sectors can become more and more interesting at the international level. So far, few studies have explored the topic of digital companies in the International Entrepreneurship (IE) field of research, although recent efforts have emerged to summarize the extant research on internationalizing digital companies (Piqueras, 2019). In this framework, though, there is a lack of research on INVs operating in sectors related to the digitalization (Piqueras, 2019) and,

in particular, related to the emerging Industry 4.0 paradigm (Romanello & Chiarvesio, 2019). As ICTs have contributed to determine the internationalization of new ventures, we might expect some impacts of Industry 4.0 technologies on early internationalization as well (Hannibal, 2020). So far, there are few articles investigating the impact of digital technologies, such as e.g. the recent work of Hannibal (2020) addressing the potential impacts of additive manufacturing on early internationalization. Our research aims at contributing to enrich the scarce research on INVs operating in Industry 4.0 sectors, by seeking to understand the determinants characterizing the international growth process of INVs providing Big Data and Analytics (BDA) services.

To this purpose, we developed a case study research based on interviews with the founder-entrepreneur of a high tech SMEs located in Bozen (Italy) that provides BDA-services to both large and small companies. BDA represents one of the nine pillars of Industry 4.0 (Rusmann et al., 2015) and is considered one of the most powerful digital technologies of this digital era (La Valle et al., 2011). We analyzed the internationalization process of the INV by using the growth process framework proposed in prior studies (Gabrielsson et al., 2008; Romanello and Chiarvesio, 2017).

The analysis has highlighted some factors that influenced the internationalization of the INV. More interestingly, the analysis has shown that factors change during the growth of the firm. Responding to recent calls (Romanello and Chiarvesio, 2019), this study mainly contributes to IE literature by investigating INVs, companies that achieve early and rapid internationalization, in relation to the Fourth Industrial Revolution. Moreover, in line with a rising stream of studies on internationalizing digital companies (Piqueras, 2019), this study contributes to INV literature by adding an empirical evidence on digital INVs, a relevant topic in IE literature.

2. Theoretical Background

The internationalization process of INVs

The literature on early and rapid internationalization has its roots in the late Eighties (McDougall, 1989; Knight and Cavusgil, 1996; 2004; Oviatt and McDougall, 1994). In 1989, McDougall noted that among a group of new ventures, some companies distinguished themselves by showing an international orientation. Then, a following study has formally named International New Ventures (INVs) the firms that, soon after foundation, derive most of their competitive advantage by committing resources and selling outputs in foreign countries (Oviatt and McDougall, 1994). Moreover, differing from born global companies which are focused on exporting

activities, INVs coordinate multiple value chain activities across borders (Coviello, 2015; Zander et al., 2015). Scholars have generally highlighted INVs as successful companies because they are able to develop multiple activities of the value chain abroad while being in a start-up phase and launching new products/services. These companies stood up for their capability of overcoming simultaneously the risks related to new products' launch, new venture creation, and internationalization activities (Knight & Cavusgil, 2004).

Since the first published studies on INVs (McDougall, 1989; Oviatt and McDougall, 1994), the literature in this area has rapidly evolved over the years (Rialp et al., 2005; Garcia De Lillo et al., 2017). In this context, a relevant topic concerns the drivers of the internationalization process of INVs (Romanello and Chiarvesio, 2019). Past studies have shown that early internationalizing firms, such as BGs and INVs, tend to experience specific phases during their growth (Gabrielsson et al., 2008), and, more interestingly, that determinants can change according to the growth phase (Efrat & Shoham, 2012; Romanello & Chiarvesio, 2017). Nordman & Mélen (2008) have shown the importance of the pre-founding phase for early internationalizing firms, whereas Gabrielsson et al. (2008) have identified the existence of other two phases beyond this one, including the entry internationalization phase and the post-entry internationalization stage. During the entry phase, the company is founded and achieves early and rapid internationalization, while the post-entry phase concerns the international growth of the company on the long run (Gabrielsson et al., 2008). In addition, Romanello and Chiarvesio (2017) have identified the existence of an additional phase, called Turning Point, which lies between the entry and the post-entry phase and occurs around the 4-5th year of life of the company.

About the pre-founding phase, Nordman and Mélen (2008) have highlighted that different knowledge types possessed by the founders become relevant for the subsequent internationalization of ventures in the biotech industry, because during this stage companies develop a product embedding a global market potential.

During the entry internationalization phase, determinants have been identified at different levels: individual, organizational and environmental. Evers (2010) has underlined the importance of both environmental and individual characteristics for the creation of INVs, where the first ones push companies towards internationalization, but the founders' background and network ties facilitate the decision to internationalize. Evangelista (2005) has, instead, shown that this process of creation implies the interplay of founders, the environment, business processes, and the organization itself. For instance, in the manufacturing industry, evidence has shown the importance of entrepreneurial capabilities to achieve early internationalization (Karra et al., 2008), whereas other studies have underlined that

the first international opportunity discovery process determines the subsequent internationalization process (Di Gregorio et al., 2008; Chandra et al., 2012). Studies examining high-tech born globals have highlighted that environmental factors determine performance outcomes during the entry phase, whereas firm variables become fundamental to survive in the long run (Efrat & Shoham, 2012). According to past literature (Efrat and Shoham, 2012), during the fourth-fifth year of life, early internationalizing firms exit the entry-internationalization phase and enter the post-entry phase. During the transition from the entry to the post-entry phase, these companies face a “Turning Point”, during which the founders need to transfer their entrepreneurial capabilities to other employees and transform them into organizational knowledge (Romanello and Chiarvesio, 2017; Turcan, 2013). However, a general agreement has been achieved on the importance of firm resources and capabilities when firms enter post-entry growth phase, both in manufacturing and high-tech sectors, in order to survive in the long term (Efrat and Shoham, 2012; Hagen and Zucchella, 2014; Turcan and Juho, 2014; Johanson and Martin, 2015). For example, some studies have underlined the importance of firm strategy focused on the product super-premium positioning in order to survive and to, subsequently, finalize a successful exit strategy, such as being acquired by a huge multinational corporation (Coehlo et al., 2014). Another longitudinal study has highlighted that early internationalizing firms experience growth cycles where innovations affect the governance, strategy, organization, processes and products/services. The openness of the entrepreneurial/managerial team and an effective organizational learning process drive the long-term growth (Hagen and Zucchella, 2014).

Although past research has widely analyzed the topic of drivers and determinants of early and rapid internationalization (Rialp et al., 2005; Garcia De Lillo et al., 2017), the literature on this topic has not reached a consensus yet, since findings change according to the sample features and context of analysis (Romanello and Chiarvesio, 2019).

Big data and analytics in the fourth industrial revolution

As the Fourth Industrial Revolution era is beginning, the literature has called for studies investigating early internationalization among digital companies (Piqueras, 2019) and in relation to the under-investigated Industry 4.0 technologies (Romanello & Chiarvesio, 2019). In this context, one of the most impactful Industry 4.0 advances is represented by Big Data and Analytics (Russmann et al., 2015). BDA are techniques used to analyze data derived from multiple sources, and are considered a powerful technology that can be applied at different activities of the value chain, with strong impacts (Chiarvesio & Romanello, 2018; Veglio & Romanello, 2019).

Moreover, this technology can further interact with other digital technologies such as the Cloud and Internet of Things (IoT). In particular, Internet of Things (IoT) allows the inclusion of sensors in physical products and can be applied both in production processes and finished products (Ng and Wakenshaw, 2017). In this last case, it leads to the creation of Smart and Connected Products (SCPs), which include physical, smart, and connectivity components (Porter and Heppelmann, 2014), and can generate a huge amount of data related to, e.g., the location where products are used, people that are using them, or even how these products are used (Porter & Heppelmann, 2015). Through BDA, firms can learn about consumers' behavior during the utilization of the product, increasing their knowledge about customers' preferences and habits after sales (Veglio and Romanello, 2019; Ng and Wakenshaw, 2017). Another situation can concern, for example, production processes and logistic flows. When applied to these products, BDA techniques can become a fundamental asset in order to extrapolate strategic knowledge from raw data and improve productivity (Wamba, Gunasekaran, Akter, Ren, Dubey, and Childe, 2018). Overall, companies could even leverage these technologies for specific uses in order to increase their marginality, with positive returns in terms of overall international competitiveness (Veglio and Romanello, 2019; Wamba et al., 2018).

However, despite the general interest for BDA in management research, studies from an International Business perspective are rare (Sheng, Amankwah-Amoah, and Wang, 2018). Indeed, these techniques have huge potential impacts, but pose even challenges and problems to companies offering these services. There might be problems related to privacy security or lack of regulations defining the rules of the game in these sectors, or related to the use of these tools (Kleindienst and Ramsauer, 2015; Sommer, 2015). Another problem can be related to the general lack of knowledge and information on how these techniques can be used and with which benefits. These problematic aspects can become obstacles to the development of new businesses in this area and their internationalization abroad. For these reasons, it becomes important to analyze companies operating in these sectors and offering BDA services, even in relation to their internationalization process.

3. Research Methodology

Purpose and case selection

The purpose of this study is to investigate the internationalization process of an INV offering BDA services. To this purpose, we decided to analyze a single case study of INV (Eisenhardt, 1989). We selected a single

information-rich case because it was unique and revelatory (Eisenhardt and Graebner, 2007). We chose this firm because it is the most relevant internationalizing BDA provider in South Tirol. A single case study has the advantage to provide rich descriptions of the phenomenon object of study, and is particularly useful when empirical evidence lacks on a particular topic (Eisenhardt, 1989).

Established in 2012, TK is a company that responds to the features of INV as defined by Oviatt & McDougall (1994) since: 1) it has entered foreign markets within 3 years from the establishment, 2) it has opened subsidiaries abroad; 3) it has exported globally and with a Foreign Sales on Total Sales (FSTS) > 25% within three years from the foundation (Knight and Cavusgil, 2004; Coviello, 2015); 4) is still a new venture. According to the entrepreneurship literature, the threshold to distinguish new ventures from other companies is 6 years of life (Cabrol and Nlemvo, 2009). For all these reasons, TK can be considered a successful INV, which is particularly suitable for exploratory purposes (Eisenhardt, 1989).

Data collection and analysis

We collected data through in-depth interviews with the founder of the company in two different points of time: April and June 2019. Each interview lasted between 1 hour and 2 hours. In-depth interviews were fully recorded and transcribed, resulting in 25 pages of transcriptions. Interviews were based on semi-structured questionnaires. The first interview addressed the history of the company, from origins to the contemporary growth phase, whereas the second one explored in-depth the internationalization process of the firm by investigating how foreign clients and opportunities were found during the different growth phases. We also collected additional data from archival documents such as private documents and public ones, like national press and website, for triangulation purposes. Table 1 provides a brief case description.

Tab. 1: case description.

TK		
Features	Main activity	Internationalization
Location: Bozen Foundation Year: 2012 Employees: 10	Industry: Services Main activities: Big data and analytics services related to production, marketing and consumer behavior	Entry timing: Instant exporter First Foreign Sale: USA, 2012 Foreign countries: USA, Canada, UK, France, Spain, Germany FSTS: 90% Foreign Subsidiary: Germany

TK was founded in 2012 in Bozen and benefited from being hosted within a local accelerator. The company was founded by a group of entrepreneurs who had prior working and entrepreneurial experiences in the same sector. The main activities of the firm are related to BDA services in production, marketing and human resources for large and small clients. The firm is focused on the collection and analysis of data derived from sensors and cyber physical systems included in devices, which can collect localization data related to the people interacting with the objects or walking close to the devices. Clients typically belong to retail industry, but devices can be used to collect and analyze data for different purposes: from logistics and production processes improvements, to consumer activities monitoring.

The company is an instant exporter. The first foreign sale was carried on in the USA in 2012, the same year of the firm foundation. Then, TK entered multiple other foreign markets, including Canada, Spain, Germany, France. They entered Italy only after 5 years of activity and it still represents a marginal market in terms of turnover.

We analyzed the internationalization process of the INV by using the growth process framework proposed in prior studies (Gabrielsson et al., 2008; Romanello & Chiarvesio, 2017), which considers four different phases: the pre-founding phase, the entry-internationalization phase (from the establishment to the fourth year), the turning phase (about the fifth year of life) and the post-entry phase (after the sixth year of life).

4. Case Analysis

Pre-founding phase

TK was created by three founders, all of them already involved in the creation of a prior start-up. The first business created was a university spin-off, which is now a consulting company focused on European grants, and research and development activities in ICT industries. This business was founded in 2010 and counts 10 employees.

During this prior entrepreneurial experience, the three founders carried on a pilot project on BDA in the retail industry and had the idea of creating a new business focused on a new innovative service of BDA based on data collected through in-door localization devices and systems.

As regards backgrounds, one of the founders worked for 20 years for a multinational company operating in high-tech sectors and mainly focused on ICT consulting projects. In particular, he was in charge of managing huge ICT design and development projects with public administrations across Europe. For several years, then, he worked on localization systems related to mobile phones.

“For almost 20 years, I was in charge of international contract projects in a large multinational company operating in three sectors: postal automation, banking security and mobile telephony. In this last sector, I worked on a project aimed at developing the first systems of reserving taxis based on the localization of text messages. Through this experience, I developed my interest in localization systems, which evolved over time, offering always more opportunities. Thanks to technical skills and the sector knowledge gained through this experience, many years later, I conceived the idea of creating a venture offering BDA analytics based data collected through localization indoor devices and systems.”

(The founder)

Then, after this working experience, he applied for a European grant which allowed him to move to Japan and work for a leading high-tech multinational company in this industry for two years. After all this, he gained a strong industry experience, a strong technical knowledge, managerial capabilities related to the application and management of grants, contests and projects, and a strong international experience derived from his Japanese working experience. Moreover, he and the other founders had already created a successful high-tech start-up, which now has become a small company. All these elements were fundamental to create a successful start-up, but also to manage the rapid international development of the venture.

The founders leveraged their knowledge, reputation and networks to create a start-up mainly based on the supply of BDA services related to the inclusion of sensors and cyber physical systems in devices positioned inside locations, in order to create in-door localization services of big data collection and analysis. During their prior entrepreneurial experience, they had the idea of selling these services in the retail industry, targeting large scale retail distribution, but they had no strong direct experiences with these types of clients. Their past experiences were useful, though, to search funding and potential investors, overcoming the problems of finance that characterize so many start-ups in this phase.

Entry-internationalization phase

After the creation of the company in 2012, the founders decided to attend an important high-tech contest where they met a hardware provider from Finland. During this contest, they introduced their services to a Finnish hardware infrastructure provider and suddenly understood that their products could be complementary. After this meeting, the Finnish provider invited them to collaborate in a pilot project with an American client interested in including sensors inside its stores to monitor the coverage of salesforce of the different areas of the store. The project was successful, as the American client was able to identify the salesforce who was performing worse,

develop ad-hoc training strategies and change the localization of salesmen inside the store, with subsequent strong marginal improvements in terms of customer sales. After this collaboration, always in 2012, the Finnish provider became a tight supplier of the company with whom the company developed other joint-projects. This was the first international opportunity for the firm, which represented the first approach to internationalization.

“In 2012 our company attended an international contest, where I met the founder of a spin-off of a known multinational company. As I very well knew this sector, I had heard of the reputation of this start-up, which was famous as manufacturer of superior quality indoor localization systems. I suddenly understood our businesses could be complementary. They invited us to take part in a pilot project with an American owner of a chain of home décor and furniture stores. We developed this pilot project together, and, through this experience, we developed a tight relationship with them. Our collaboration has been mutually profitable over the years.”

(The founder)

This first foreign opportunity, which was reactive for TK, became a valuable source of new knowledge about the world of large retailers and the retail industry. Founders understood the global potential of their product and clearly identified North America as an interesting area for their business, for several reasons. First, large supermarket chains are well developed and open to innovation. In contrast, the founders declared that “in Italy, large retailers are absolutely resistant to change and innovation. They look at innovation suspiciously and ask us to develop expensive pilot projects, which can even last for years before we finalize the final contract” (the founder). The second reason, instead, relates to the fact that privacy issues in USA are limited, whereas in Italy and in Europe this aspect has to be carefully managed. In fact, when the firm decided to enter European markets, it became necessary to build specific foreign market knowledge related to these delicate aspects. For these reasons, the founders initially invested in the USA and other North American countries, like Canada.

After this successful first foreign sale, they developed the second international opportunity in Canada in 2016, which again happened serendipitously. They were contacted by a leading Canadian large retailer, which was looking for start-ups specifically specialized in localization devices and BDA services for an on-invitation contest. In the past, this MNC had had a deluding experience with an high-tech supplier who had not been able to successfully solve a problem related to customer-profiling. Hence, this company decided to launch a contest to find a new supplier. TK applied to the contest and won. They suddenly understood the importance of this opportunity because large supermarket chains generally require their suppliers to overcome a long certification process, whereas this contest

represented a chance to rapidly become a supplier skipping this process. The Canadian client had established a budget for the pilot project, so this second order allowed TK to build knowledge on retail industry, to improve their BDA services by developing a huge pilot project with a leading MNC, to become a long-term supplier of this large retailer and to build the foreign market knowledge related to Canada.

“We didn’t know the world of large scale distributors. To become their suppliers, we’ve learnt that a lot certifications and bank guarantees are generally required. Instead, it was possible to skip this process by winning contests for start-ups. This multinational company opened a contest and invited us to apply. They actually found us through web search. So, this was a serendipitous opportunity, but it actually opened a new market and sector.”

(The founder)

After this second international entry, the firm developed other opportunities in France, UK, Germany, Spain. The company leveraged past experiences abroad to identify new international opportunities through contests and fairs, while the founders kept on developing synergies with their main Finnish infrastructure supplier. This relationship always remained a source of new clients and new business opportunities. During this phase, the firm benefited from these profitable collaborations, which then turned into product/service improvements and new foreign market knowledge.

Turning point phase

The initial years led the firm to create a digital platform where free-trials of their services are available. In fact, the founders identified a potential problem in their business model related to the fact that new clients often require a pilot project, which – however – requires high fix costs (device positioning, time to collect data, infrastructures). To be able to answer requests, without being forced to invest in pilot projects or to require huge investments to potential clients, they improved their platform to develop economies of scale related to their main industry: retail.

Besides these technical solutions, they hired new workforce dedicated to sales and marketing activities because the firm was mainly focused on research and development activities during the first years of life and only the founders were committed to commercial activities. In particular, the firm hired a human resource specifically dedicated on managing communication and promoting, who is now searching for opportunities in the domestic market. In addition, the founders decided to open a commercial subsidiary in Germany, where an export manager is in charge of managing and coordinating sales activities for European markets, and partially, for the United

States. However, the relationships with the first clients – who are located in United States and Canada – are partially still in the hands of the founders. Now, the approach towards foreign markets has become more proactive and systemic, particularly in relation to new business opportunities abroad. In general, the founders are supervising the work of new employees to transfer the knowledge gained during their past entrepreneurial activities in this sector and the experience obtained during the first years of activity. Also, founders are particularly conscious of the importance of inter-organizational knowledge inside the company, especially due to the fact that BDA services are relatively new in the marketplace and not yet formally ruled. In this sense, offering this technology makes much more important to preserve the knowledge gained during the past operational years, because this becomes the real source of competitive advantage over competitors.

Moreover, some new Italian shareholders have entered the firm, bringing reputation, market knowledge and network ties. Thanks to these new entries, the firm has recently approached the development of the domestic market, in 2018. After five years of firm activity, the founders still underline that Italian clients require a completely different approach if compared to foreign customers, and Italy for this reason remains a country is less profitable in terms of sales.

“Our company was born global. We have recently approached the domestic market, just because our new shareholders have brought us new Italian clients. However, still it is required a different approach for them, compared with our Canadian and American clients. To this purpose, we hired an employee specifically focused on marketing and pre/post sales activities. This allows us to have a customer orientation, which is particularly needed in Italy to inform and train new customers.”

(The founder)

Table 2 summarizes the most influential variables emerged during the case analysis. As illustrated in the table below, the influence of variables change according to the growth phase.

Tab. 2: Brief description of the most influential variables emerged during the different growth phases of an INV.

Influential Variables	Description of Variables	Growth Phase
Individual	<i>Founders’ backgrounds and knowledge: serial entrepreneurs, strong industry knowledge, strong technical product knowledge, strong international experiences and global mindset, networking capabilities</i>	Pre-founding, Entry-internationalization phase, and Turning point
Environmental	<i>Home country characteristics:</i> Italian clients closed to innovation and resistant to changes <i>Industry and host country characteristics:</i> Lack of regulations depending on the country	Entry internationalization phase

Firm	<p style="text-align: center;"><i>Research & Development investments:</i> Technical investments to improve or innovate the product/ services</p> <p style="text-align: center;"><i>Sales and marketing:</i> New salesforce to manage pre-sale and marketing activities, and post-sales</p> <p style="text-align: center;"><i>Knowledge sharing at the interorganizational level:</i> Team meetings and daily/ weekly collaborations to share knowledge among founders and employees</p>	Pre-founding and Turning point
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5. Discussion

The case of TK shows that influential factors change during the growth process of INVs, in line with prior evidence (Efrat & Shoham, 2012; Romanello & Chiarvesio, 2017). In fact, the international process of TK is not dissimilar to those of INVs operating in manufacturing and other high tech sectors. However, three main findings emerged from this research.

During the pre-founding phase, individual variables related to the background and the knowledge possessed by founders were fundamental to conceive a successful service on which develop a new business. Founders can be considered “serial entrepreneurs” (Karra et al., 2008), who leveraged their knowledge and capabilities related to their past working and entrepreneurial experiences to launch successful BDA services and identify potential contests and clients mainly focusing on the retail industry. Meanwhile, founders used their network and reputation to find financial supporters, an aspect that becomes fundamental at this stage to launch the company and progress its initial development. In particular, during this phase, the founders developed a clear orientation towards international markets due to the immaturity of the domestic market regarding the understanding of the potential of BDA. This highlights a clear influence of the environment in the decision of internationalization.

During the entry-stage, the founders leveraged their knowledge related to the industry and the contests to develop the first international opportunity in the United States, while the second opportunity arrived serendipitously. However, it is undoubtable that founders leveraged their industry, technical knowledge and managerial skills to exploit these opportunities and develop a profitable long-term relationship with the second client. In this phase, founders started building new foreign market knowledge and improving their industry knowledge. In general, the founders had a strong global mindset from the beginning and decided not to target the domestic market because Italian people tend to be resistant to change and innovation, while Anglo-Saxon countries are more used to start-up dynamics and interested into their potentialities. In fact, the founders actively looked for

international opportunities, concentrating most of the firm's resources on the technical side, while the international development depended on the ability of the founders who leveraged their industry knowledge (mostly derived from their previous international working and entrepreneurial experiences) at both national and international level. However, the early and rapid international development was possible thanks to the strong technical BDA skills of both founders.

In the entry-internationalization phase, almost all the resources were focused on internationalization activities and foreign market building. According to past literature (Efrat and Shoham, 2012; Romanello and Chiarvesio, 2017), TK has overcome the entry stage and is experiencing the turning point phase. After the fifth year, however, founders hired new employees and trained them to be able to manage the complexity of the business, which is derived both from the fact that technical skills and BDA knowledge are required, and that the company has strongly internationally developed during previous years. The founders are actively managing this transition process by supervising employees working activities and sharing knowledge at the inter-organizational level, in line with past evidence (Hagen and Zucchella, 2014).

Actually, the founders have adopted a group of measures aimed at improving their firm variables. In fact, the founders of the firm are providing incentives for developing the marketing and sales department through new hiring processes, highlighting a clear willingness to transfer to the new workforce the knowledge gained through the first years of activity. For instance, they have hired a new employee fully dedicated to sales and marketing activities. In addition, they have continuously invested in product improvements over the years, but these efforts mostly concentrated during the pre-founding and the turning point phases.

6. Conclusions

This research provides a first evidence of INV offering BDA services. Since Industry 4.0 technologies are relatively new, we analyzed the determinants of the international growth process of the firm. The case of TK, though, once again shows that factors influencing the internationalization of new ventures belong to the individual, environmental and firm levels, in line with prior evidence (Zucchella et al., 2007). Moreover, our analysis also confirms the importance of international opportunities development among early internationalizing firms (Chandra et al., 2012). In this sense, our research on the INV operating in Industry 4.0 sector is aligned with the broader literature on manufacturing and high tech INVs.

However, in our case, environmental variables strongly influenced the internationalization decision. Indeed, the success of a start-up company

depends on the possibility to place orders and grow up, overcoming the different growth phases. Unfortunately, home countries do not always represent the best environment to find opportunities for growth, such as in this case – where Italian customers were not enough responsive to innovative services five years ago. In this case, the founders' global mindset allowed them to recognize and develop the international opportunities, on which they based the future prospects of growth of the firm. In this sense, individual and environmental variables were both highly relevant during the initial phases of growth of the INV, while already during the turning point stage, firm variables became more necessary to survive. Although this is an initial evidence, our findings seem to be aligned with other studies on the determinants of the international growth process of INVs (Gabrielsson et al., 2008; Efrat and Shoham, 2012). Still, further research is needed to analyze more in-depth this aspect in larger and different samples. Moreover, comparisons among internationalizing and domestic new ventures may lead to different and interesting results.

Our work contributes to International Entrepreneurship literature, by providing an initial evidence on INVs operating in Industry 4.0 sectors and enriching the scarce research on this topic (e.g. Hannibal, 2020; Chiarvesio and Romanello, 2019). Also, this study offers some insights for future researches. Our results show, surprisingly, that the determinants of the internationalization process of BDA service INVs, which can be considered an internationalizing digital firm, are similar to the determinants identified in the past, both in manufacturing and high tech contexts. More interestingly, our study confirms that drivers change during the growth process of INV, even if the role of the founders and their individual knowledge and capabilities remain fundamental for the success of the firm along the three phases: pre-founding, entry-phase and turning point. In this sense, our research is aligned with past studies underlining the fundamental role of founders in the creation and growth process of INVs (Karra et al., 2008; Romanello and Chiarvesio, 2019). In fact, individual variables seem to remain the most influential along the whole growth process of the internationalizing digital firm. However, longitudinal future researches could detect whether influential variables change during the post-entry internationalization phase.

Limitations of this study relate to the fact that this is a single case study. Although we carried on methodological measures such as recording interviews and analyzing transcripts in different points of time, still we underline that results could never be generalized to other cases or population. We recognize as a limitation the fact that we interviewed just one informant of the firm, although, considering the firm size, we chose as informant one of the founders, who is the founder and has the overall view of the historical and international growth of the company. The aim of this study was ex-

ploratory in nature. Another aspect concerns the fact that this digital company is focused on BDA, but future researches could explore INVs adopting or developing other Industry 4.0 technologies, such as 3d printing or augmented reality. Future studies could identify other technologies that could be used to facilitate international activities, e.g. in the case of merger and acquisitions or to build new foreign market knowledge. Digital INVs related to Industry 4.0 could behave differently from other high-tech companies or maybe not. Still, research is needed to clarify this point.

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INDUSTRY 4.0 ADOPTION AND INTERNATIONALIZATION:
DOES SIZE MATTER?

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Abstract

Industry 4.0 technologies (I4.0) have the ability to transform the competitiveness of manufacturing firms, providing opportunities to redesign their production and market activities at the international level. However, little is known regarding if and how both small and larger firms exploit such opportunities. Drawing on an original database of Italian firms that have adopted 4.0 technology, this paper explores which new technologies firms adopt, their motivation for doing so, and the impact of this investment. To fill a gap in the literature, it distinguishes between small and medium-large firms, and between global and domestic small firms. The results suggest that small and medium-large firms differ in terms of number and the type of technology adopted, which is shaped by their reasons for doing so and in turn influences the effectiveness of the technology. Starker differences emerge when comparing small firms engaging with global sourcing and global markets, suggesting that a firm's strategy might play a greater role than size in explaining 4.0 adoption patterns.

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1. Introduction

The fourth industrial revolution is generating new opportunities for manufacturing firms in terms of value creation and the ability to control their value chain activities. This is the result of the adoption of new digital technologies, collectively known as *Industry 4.0* (Reinhard *et al.*, 2016). On the one hand, Industry 4.0 (hereafter I4.0) can influence firms' internationalization strategies (Strange and Zucchella, 2017). Scholars suggest global firms might relocate their production processes due to changes in location advantages (Ben-Ner and Siemsen, 2017). The adoption of new technologies may enable firms in high-cost countries (i.e. Europe or US) to reshore their manufacturing activities as the new technologies enable improvements in production processes as well as in relationships and control along their value chain (Ancarani *et al.*, 2019; Dachs *et al.*, 2019). Moreover, the new technologies allow firms being closer to the final markets, reducing the time to market response and increasing interaction with the final customers (Laplume *et al.*, 2016). Additive manufacturing (AM), such as 3D printing, is considered one of the driver of this relocation of manufacturing activities, where the geography of production is based on the ability to personalize the product working shoulder-to-shoulder with the customer and to redesign entire value chains at the global level (Rehnberg and Ponte, 2016). On the other hand, firms can exploit technologies such as robotics and other automation technologies to drive production efficiency and productivity, or implement AM to increase production variety based on new market requests (Martinelli, 2018). In bespoke production processes, economies of scope are more beneficial than economies of scale. In so doing, I4.0 allows small firms getting advantages from the adoption of new technologies reducing the differences with large firms. However, so far little is known about how firms implement I4.0 technologies with respect to the differences in how small firms and large firms invest in I4.0 technologies respect, by taking into account different forms of internationalization strategies. The paper aims at addressing this gap by exploring how firms adopt I4.0 technologies, considering for different size and internationalization strategies (upstream and downstream). Based on an original dataset of more than 1,200 Italian firms, the paper provides empirical analysis on which types of technologies firms are using, the motivation that lead to the investment in I4.0 and the outcomes of those investments. The results of the exploratory multivariate analysis suggest small and large firms differ in terms of number and type of technology adopted when investing in I4.0. However, our analysis indicates the firm's strategy is also relevant, as it can lead to different patterns of adoption in relation to their competitive strategy and degree of internationalization.

The paper is structured as follows: the second section is dedicated to theoretical background and focuses on the difference adoption pattern between

small and large firms and on the relationship between internationalization of small firms and I4.0 technologies. In this section our research questions are presented. The third section presents the methodology used for the empirical study. The fourth section highlights the results we gathered from the study. The final section discusses the results and presents implications from a theoretical, managerial and policy making perspective.

2. Theoretical background

2.1. Differences in I4.0 adoption between small and larger firms

I4.0 embraces a set of technologies—from advanced robotics to 3D printing, from big data to Internet of things (IoT)—that affect the organization of a firm’s production processes and value chain activities involving both suppliers and customers. The growing literature on the topic emphasizes the rise of a new industrial revolution where firms can create value in radically new ways (Piccarozzi *et al.*, 2018; Roblek *et al.*, 2016): more customized product, increase service quality, build innovative products by using new materials, new forms and new processes.

Recent research often focuses on the new cyber-physical systems that have the ability to reconfigure operations (Agostini and Filippini, 2019; Dalenogare *et al.*, 2018; Klotzer *et al.*, 2017). Factories become “smart”: more flexible and able to adapt automatically to events (maintenance, customized orders, breakdowns, etc.). This allows firms to increase productivity and control production more effectively. Many processes can be automated, changing the role of workers that now overlook and maintain machines more than being physically involved in production. Ubiquitous connectivity increases data availability and transparency of manufacturing activities and offers the possibility to further develop product and process innovation (Babiceanu and Seker, 2016). Moreover, these technologies allow greater flexibility and an increase in product variety, particularly when combined with AM. 3D printing solutions reduce barriers to customized production and enable customers to be involved in the production process (Petrick and Simpson, 2013).

According to literature on Industry 4.0 (Mittal *et al.*, 2018; Rauch *et al.*, 2018), also small firms can exploit this new set of technologies, applying them to several processes and even traditional machines (i.e. retrofitting is the practice of transforming an analogic machine into a digital one adding sensors and computing power) and this allows firms to facilitate access to and exchange of information on key processes. Small firms could improve their operational performance goals, including quality, flexibility, productivity, cost reduction, and delivery time. Yet small firms have to deal with

barriers to the adoption of I4.0, including expensive technological investments given the number of tools to be adopted (Frank *et al.*, 2019; Reinhard *et al.*, 2016) and do not have the resources for capability development (Moeuf *et al.*, 2018, Schröder, 2016). In addition to resource scarcity, small firms may lack specific digital strategies related to prior investments in information and communication technology (ICT) (Moeuf *et al.*, 2018).

Mittal *et al.* (2018), in their review of studies on the relationship between small and medium-sized (SMEs) and I4.0, explore nine levels of maturity in I4.0 adoption. Maturity model suggests the existence of different steps to reach a more sophisticated stage of I4.0 implementation and use. Although small firms often reach different levels of I4.0 maturity as the larger firms (Sartal *et al.*, 2017), they could differ regard the data management activities. Moreover, at the managerial level, I4.0 implementation relates to the assessment of small firms' goals, strategic vision, and changes in operations and other business areas (Agrawal *et al.*, 2018). This suggests small firms might follow the investment path of larger firms, adopting the same range of technologies, but implementing I4.0 in a differ manner. Prior studies on technological investments that consider the relationship between digital technologies in the context of ICT and firm strategy indicate this is not necessarily the case (McAfee, 2004). In fact, firms may decide to take into account their specific needs and their competitive environment, and invest in the right technological solutions (Chen and Kamal, 2016). In this respect, there is a strategic alignment between IT and the business (Strnadl, 2006; Wu *et al.*, 2006). It follows that this could also occur when small firms consider I4.0 technologies.

2.2. Industry 4.0 and internationalization

Small firms' I4.0 investment strategies should be further explored, taking into account firms' internationalization strategies. Technology has always influenced internationalization of firms in a complementary way (Nosi *et al.*, 2017). The rise of digital technologies affects a firm's ability to control distributed production processes and to share information from a distance with multiple actors within the value chain (Alcácer *et al.*, 2016). Digital technologies have led to the development of the "iBusiness firm," which exploits the connectivity potentialities of technologies to coordinate a geographically dispersed network of suppliers in order to co-create a product with the customers (Brouthers *et al.*, 2016).

Recent studies on I4.0 discuss how it offers firms the opportunity to rethink where and how value is created. According to Strange and Zucchella (2017), the range of I4.0 technologies can radically reshape the configuration of international firms, influencing their location and ownership. Automation may push firms to reshore their activities due to a change in

location advantages (Müller *et al.*, 2017). The use of new technologies increases the levels of productivity making labor cost (Ancarani *et al.*, 2019).

Most research focuses on 3D printing, which allows firms reducing their distance from the market and enables them to move their production activities close to buyers for customized production (Ben-Ner and Siemsen, 2017; Petrick and Simpson, 2013). In this manner, firms can reduce transportation costs, reduce delivery time and increase customer's satisfaction. At the same time, 3D printing affects the division of labor within the value chain; manufacturing processes can embark upon multiple paths of development, from substitution to complementarity (Rehnberg and Ponte, 2018). The role of firms within the value chain may vary depending on the impact of 3D printing on power distribution as well on the level of integration obtained. Large global firms may coordinate a distributed network of small factories as well as new independent producers, often according to the industry considered (Laplume *et al.*, 2016).

The availability of the extensive amount of information collected through big data and IoT transforms a firm's relationship with the market, as the firm can know their customers better (McKinsey Global Institute, 2015; Uden and He, 2017). This reduces both the geographical and cognitive distance firms have from their customers, which can improve the process of product development through customers' interaction with the product. This new digital connectivity, or *digital ubiquity*, becomes the strategy through which firms control and empower their distributed activities and network of partners (Iansiti and Lakhani, 2014). At the same time, "smart" products reconfigure the entire value chain and the competitiveness of firms (Porter and Heppelmann, 2014).

Past research emphasizes that small firms differ both from medium and large firms in their forms of internationalization (Coviello and McAuley, 1999; Coviello *et al.* 2002). Smaller firms tend to internationalize upstream mainly through global sourcing, and rely more on export and flexible downstream investments abroad (Di Gregorio *et al.*, 2009; Fernandez and Nieto, 2006). Moreover, studies Global Value Chains (GVC) stress that firms and in particular SMEs can internationalize through export, being part of Global Value Chains governed by global lead firms (De Marchi *et al.*, 2018). Recent studies suggest the internationalization processes in a digital world will be more network-centered, emphasizing the relationship view of connections among dispersed actors (consistent with the Uppsala model) (Coviello *et al.*, 2017).

Despite the relevant role that the different I4.0 technologies can have on internationalization strategies, however, the relationship between internationalization of small firms and I4.0 technologies is unclear. Limited knowledge is available on whether small firms differ from large firms in their adoption of I4.0 technologies, considering for their international com-

petitiveness and their strategical purposes. Studies discussing about the impact of I4.0 on international firms do not explicitly examine firm size (one notable exception is Chiarvesio and Romanello, 2018), or eventually adopt the perspective of Multinational Enterprise (MNEs) (Hannibal and Knight, 2018). In this respect, the aim of the paper is to explore the relationship between I4.0, international strategies and firm size, through the following main research question: is there a difference in I4.0 adoption paths between small and larger international firms?

To further develop our investigation we also consider that not all firms are internationalized, but they carried out their production activities domestically. From this point of view, even domestic firms can be interested in investing in Industry 4.0 technologies to achieve the benefits promised in such new technological scenario (Roblek et al. 2016). This could be particularly relevant for firms located in high-cost countries (de Treville et al., 2017). In this respect, our second research question investigates whether there is any difference in terms of adoption between internationalized small firms and small firms operating only domestically (both upstream and downstream).

3. Methodology

3.1. Sample and measurements

To answer the above-mentioned research questions, we use data collected through an original survey targeting Italian manufacturing firms coming from sectors in which the export rate is high (primarily automotive, fashion, and furniture and home products) located in the North of Italy. In 2016 the Italian government adopted the “National Plan for Industry 4.0” to provide financial and fiscal support to manufacturing firms adopting I4.0 technologies (Mise, 2018), which makes Italy an interesting setting to understand investments in I4.0 technologies. The country, however, is quite heterogeneous in terms of gross domestic product potential, innovation capabilities and internationalizations attitude (Berman *et al.*, 2019; De Marchi and Grandinetti, 2016; Missiaia, 2019): accordingly we decided to focus just in the most competitive part of the country, where we expect investments in new technologies is a more recurrent strategy.

The population consists of 7,714 manufacturing firms (73.5% small firms) drawn from the Aida–Bureau van Dijk database, which contains comprehensive economic and financial information on companies in Italy. The specialization considered refers to medium-tech and low-tech industries characterizing the Italian economic system. In fact, we sampled firms in eleven *Made in Italy* industries (automotive, clothing, electronic appliances, eyewear, furniture, jewelry, leather/footwear, lighting, rubber

and plastics, sports equipment and textiles), most of which have an annual turnover higher than one million euros. However, in the eyewear, jewelry, lighting, and sports equipment sectors, we also selected firms with a lower turnover, because those industries are characterized by a strong presence of industrial districts, where even small firms can be competitive due to their high specialization within the local value chain (Becattini *et al.*, 2009).

We distributed a structured questionnaire designed and conducted using computer-assisted web interviewing (CAWI) technology to entrepreneurs, chief operation officers, and managers in charge of manufacturing and technological processes. We collected 1,229 questionnaires (15.9% of population; 84.9% small firms), 205 of which had adopted at least one of seven I4.0 technologies (16.7% of sample; 71.7% small firms). The questionnaire aimed to determine, through a dichotomous variable (*yes* or *no*), the adoption of certain I4.0 technologies (Almada-Lobo, 2016; Dalenogare *et al.*, 2018): (1) robotics, (2) AM, (3) laser cutting, (4) big data/cloud, (5) 3D scanner, (6) augmented reality (AR), and (7) IoT and intelligent products. These technologies are those that support the strategic needs of manufacturing firms both in Business to Consumer (B2C) and in Business to Business (B2B) markets (Bonfanti *et al.*, 2018). The questionnaire also sought to assess the firm's *upstream* (percentage of products created abroad and of suppliers located abroad) and *downstream* (percentage of export on turnover) international strategies.

Moreover, basing on the literature (Agostini and Filippini, 2019; Liao *et al.*, 2017), we explored the reasons underlying the firm's decision to adopt (using a 5-point Likert scale, from *not at all important* to *very important*) or not adopt (dichotomous variable, *yes* or *no*) the I4.0s technologies. Finally, we assessed through a dichotomous variable (*yes* or *no*) both the value chain activities where firms focused their I4.0 investment and the effect of adoption, measured in terms of business results achieved with the new technologies (Dalenogare *et al.*, 2018). The use of different measures (percentage, binary and Likert scale) for the different variables investigated minimize the existence of a common method bias, considering the single respondent design (Podsakoff *et al.*, 2003).

3.2. Descriptive statistics of adopting firms

In order to analyze the differences in I4.0 adoption and strategy between small and large firms, we divided the sample between small and medium-large (ML) firms. This choice is motivated by the fact that research shows that, in the process of technology adoption, small firms differ from medium firms, and the process of the latter is closer to the larger firms (Bharati and Chaudhury, 2006; Dosi *et al.*, 2008). According to EU size classes based on turnover, small firms are those with an annual turnover of less than 10

million euros, while ML firms have an annual turnover greater than 10 million euros. We obtained two groups of adopting (and non-adopting) firms (European Union, 2015). We focus on the adopting firms, of which there are 147 small firms (71.7%) and 58 ML firms (28.3%).

The descriptive statistics reported in Tab. 1 show no particular differences between the two groups of adopting firms. The only significant differences pertain to international activities upstream (suppliers) and downstream (export). ML firms are more international than small ones.

Tab. 1: Descriptive statistics of the adopting firms, considering for different size classes

Export	Small firms	ML firms	Sig.
% Export on turnover (2016)	41.9%	55.5%	0.023
% First export country	25.9%	32.3%	
Research & Development (R&D)			
% R&D expenditure on turnover (2016)	6.3%	5.5%	
Production and supply chain			
Share of B2B firms	60.8%	60.3%	
Share of B2C firms	39.2%	39.7%	
Production of bespoke products	47.0%	46.0%	
Production of standard products	33.0%	36.4%	
Production of customizable products	20.0%	17.6%	
% of production (in value) realized in the region	61.8%	63.9%	
% of production (in value) realized in Italy	31.5%	25.0%	
% of production (in value) realized abroad	6.7%	11.1%	
% of suppliers located in the region	38.1%	28.5%	
% of suppliers located in Italy	47.0%	48.1%	
% of suppliers located abroad	14.9%	23.4%	0.072

Note: Small firms N = 147; ML firms N = 58. All variables are measured as percentage value. Source: our elaboration.

4. Results

4.1. Differences in I4.0 adoption between small and medium-large firms

We perform a three-step analysis to determine the differences in I4.0 adoption and degree of internationalization between small and ML firms. All statistical analyses were performed using SPSS software (version 25.0). Firstly, we compare I4.0 adoption strategies of small and ML firms; secondly, we compare small and ML internationalized firms; thirdly, we compare global and domestic small firms.

Tab. 2 reports the results analysis small and ML firms highlighting few differences. Statistically significant differences refer to the adoption of spe-

cific technologies: ML firms have higher investments in robotics (55.2% vs. 38.5% of small firms) and big data/ cloud (53.4% vs. 34.5% of small firms). Furthermore, ML firms adopt higher average number of technologies (2.54) than small firms (2.05). As far as the value chain activities where firms focus the I4.0 investment are concerned, differences refer to use of I4.0 in the production processes and the management of supply chain activities.

In terms of motivation of adoption, ML firms differ from small ones as they are more likely to adopt I4.0 technologies mainly to compete in the international arena (3.86 ML vs. 3.30 small firms). Both groups aim at increasing efficiency and stated that new technologies allowed them improving their production efficiency. From the international point of view, ML have improved competitiveness in 31.6% of the cases (vs. 17 % of small firms) and are more likely (13%) than small firms (4.5%) to reconsider how they divide production between Italy and other countries (also this difference is statistically significant).

Instead, small firms implement I4.0, in a significantly higher percentage, in the prototyping and marketing processes. Data shows small firms more often invest in I4.0 to exploit new marketing opportunities (3.34) than ML firms (2.94). Even if there are no significantly differences for small firms in terms of impacts respect to the ML ones, it is interesting to see that 54.9% of small firms state they adopt I4.0 technologies to improve customer service, while 44.7% of ML firms claim they do so for this reason. This step of analysis reveals ML firms seem to be more focused on process and value chain management when choosing to adopt I4.0 technologies, while small firms are more concerned with the marketing activities, in term of new products development, new market opportunities and customer service.

Tab. 2: I4.0 technologies adoption rate of small and medium-large (ML) firms

Variables	Small firms	ML firms	
I4.0 technologies adoption ^a	%	%	Sig.
Robotics	38.5	55.2	0.030
Additive manufacturing (3D Printing)	33.1	37.9	
Laser cutting	47.3	41.4	
Big Data/ Cloud	34.5	53.4	0.012
3D scanner	16.2	24.1	
Augmented reality	14.2	12.1	
IoT & Smart products	20.3	29.3	
Average num. of I4.0 techs adopted ^c	2.04	2.53	0.016
Value chain activities where focused the I4.0 investment ^a	%	%	Sig.
New products development	44.6	46.5	

Prototyping	54.5	41.9	
Production activity	57.9	72.1	0.099
Production management	44.2	33.1	
Logistic & Supply Chain Management	8.3	18.6	0.062
Marketing	28.1	11.6	0.029
Spare parts & Post-sale services	2.50	11.6	0.017
Impacts of adoption ^a	%	%	Sig.
Production efficiency	61.3	60.7	
Productivity	60.5	54.5	
Products diversification	36.6	37.2	
Product customization	17.9	18.6	
Customer service	54.9	44.7	
New markets penetration	23.9	18.4	
Reorganization of activities Italy / Abroad	4.5	13.2	0.063
International competitiveness	17.0	31.6	0.055
Environmental sustainability	17.9	13.2	
Motivations of adoption ^b	Mean	Mean	Sig.
Efficiency seeking	3.60	3.74	
Increasing variety	3.12	3.11	
Exploiting new marketing opportunities	3.34	2.94	0.092
Maintaining production in Italy	2.73	3.03	
Reshoring of production activities	1.57	1.87	0.094
Facing international competition	3.30	3.86	0.018
Imitating competitors	1.87	1.97	
Improving customer service	3.97	3.84	
Environmental sustainability	2.75	2.73	

Note: Small firms N = 147; ML firms N = 58; ^a Binary variable, Chi-square analysis; ^b 5-points Likert scale, ^{bc} Independent sample T-test analysis. Darker gray are the higher values of the statistically significant differences. Source: our elaboration.

4.2 Differences in I4.0 adoption between small and ML international firms

The second step of the analysis examines only the firm's internationalization strategies in order to determine if small firms differ from ML firms in their I4.0 approaches (technology, value chain, motivation, and impact of adoption). Based on the questions about export strategies, the location of suppliers, and the value of production from abroad, we divided the groups into global and domestic firms. For this analysis we take into consideration firstly the global firms with an upstream international strategy in terms of production and/or supply activities (*global sourcing*) and, secondly, those with a downstream international strategy, in terms of export (*global market*).

In so doing, of the 100 international adopting firms with a global sourcing strategy, 71% are small firms and 29% are ML firms. Within the global market group, 150 are adopting firms, 109 (72.7%) of which are small firms and 41 (27.3%) are ML firms. As Tab. 3 shows, even with the introduction of the degree of internationalization in terms of upstream and downstream strategies, results are in line with what has emerged from the comparison between the overall groups of small and ML firms reported in Tab. 2. Where they differ is that, on average, global firms (both upstream and downstream) report a more intense adoption of I4.0, meant as average number of new technologies and a significantly higher adoption of robotics and big data / cloud for the ML firms respect to the small ones.

The main important differences concern the value chain activities where firms focused the I4.0 investment. ML firms that source globally mainly use I4.0 technologies in production (72.4%) and also differ from the small ones for a higher investment in the management of the supply chain activities (24.1% ML vs 10.6% small firms), also in the case of global market firms (19.4% ML vs 7.1% small firms), and for post-sales services (13.8% ML vs 1.5% small firms). Small firms that source globally use I4.0 technologies primarily to create prototypes, while global market small firms focus on marketing. The strategy of the firm and the pattern of adoption are cohesive. ML firms are more motivated to become more competitive by adopting new technologies that give them greater control over production and supply activities. Small firms adopt new technology in order to respond to frequent demand changes.

Tab. 3: I4.0 differences between international small and medium-large (ML) adopting firms

Variables	Global sourcing		Global market	
	Small firms	ML firms	Small firms	ML firms
I4.0 technologies adoption ^a	%	%	%	%
Robotics	31.0**	58.6**	41.3°	58.5°
Additive manufacturing (3D Printing)	36.6	34.5	31.2	36.6
Laser cutting	46.5	44.8	46.8	46.3
Big Data/Cloud	38.0*	62.1*	37.6°	56.1°
3D scanner	15.5	27.6	17.4	26.8
Augmented reality	14.1	17.2	14.7	14.6
IoT & smart products	22.5	37.9	19.3	29.3
Avg num. of I4.0 techs adopted ^b	2.07*	2.89*	2.08*	2.68*
Value chain activities and I4.0 investment ^a	%	%	%	%
New products development	53.0	51.7	46.9	47.2
Prototyping	59.1°	37.9°	55.1	44.4
Production activity	50.0*	72.4*	55.1	69.4

Production management	28.8	44.8	34.7	41.7
Logistic & Supply Chain Management	10.6°	24.1°	7.1*	19.4*
Marketing	27.3	17.2	31.6*	13.9*
Spare parts & Post-sale services	1.5*	13.8*	3.1	8.3
Impacts of adoption^a	%	%	%	%
Production efficiency	56.5	60.7	54.9	61.3
Productivity	46.8	57.1	48.4	61.3
Products diversification	42.9	32.1	39.1	38.7
Product customization	22.2	21.4	18.5	22.6
Customer service	55.6	53.6	53.3	45.2
New markets penetration	20.6	17.9	25.0	19.4
Reorganization of activities Italy / Abroad	4.8*	17.9*	3.3*	16.1*
International competitiveness	16.1*	35.7*	18.7	29.0
Environmental sustainability	17.7	14.3	15.4	12.9
Motivations of adoption^b	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>	<i>Mean</i>
Efficiency seeking	3.64	3.82	3.54	3.75
Increasing variety	3.31	3.08	3.20	3.14
Exploiting new marketing opportunities	3.36	2.92	3.37	2.97
Maintaining production in Italy	2.78	3.28	2.84	3.03
Reshoring of production activities	1.61°	2.05°	1.58	1.88
Facing international competition	3.53*	4.17*	3.50	3.86
Imitating competitors	2.00	1.77	1.84	1.85
Improving customer service	3.98	3.88	3.94	3.77
Environmental sustainability	2.86	2.91	2.61	2.75

Note: ^aGlobal Sourcing: Small firms N = 71, ML firms N = 29; Global market: Small firms N = 109, ML firms N = 41; ^a Chi-square analysis; ^b Independent sample t-test analysis. ***p <0.001; **p <0.01; *p <0.05; °p <0.10; Darker gray are the higher values of the statistically significant differences. Source: our elaboration.

4.3 Differences in I4.0 adoption between global and domestic small firms

In the third step of the analysis, we focus on the group of small firms in an attempt to understand if upstream or downstream international strategies differ in their influence the I4.0 adoption of the global small firms in comparison to the domestic small firms.. The sub-sample of small firms that have international upstream strategies is composed by 71 (48%) global-sourcing firms vs. 76 (52%) domestic-sourcing firms. As far as the downstream strategies are concerned, there are 108 (73.6%) global-market small firms vs. 39 (26.4%) domestic-market small firms. Tab. 4 reports the results of the analysis.

There are many interesting differences between domestic and global sourcing firms when it comes to adopting I4.0 technologies. Domestic-sourcing small firms have a higher rate of adoption of robotics (45.5%)

compared to the global-sourcing ones (31.0%), highlighting greater need to improve production processes and activities to become more competitive. It is interesting to note how global and domestic firms vary in their reasons for adopting I4.0 technologies. Efficiency, customer service, and the possibility of new marketing opportunities are the main motivations for both for global and domestic small firms. However, global-sourcing small firms significantly differ from domestic ones, in adopting I4.0 technologies to become more competitive internationally (3.53) and to increase product variety (3.31). Indeed, global-sourcing small firms focus I4.0 investment primarily on new product development (53.0% vs 34.5% of domestic-sourcing small firms; the difference is significant). Meanwhile, domestic-sourcing firms concentrate, in a significantly way compared to the global-sourcing ones, more on production activities (respectively 67.3% vs 50.0%). In addition, domestic-sourcing small firms report a significant impact of new technologies on productivity (64.0% vs. 46.8% of global-sourcing small firms), notwithstanding the improvements in efficiency and customer service both types of small firms achieved. Interestingly, domestic-market small firms present the highest value (3.33) in terms of the relevance of environmental sustainability in the adoption of I4.0.

Tab. 4: I4.0 differences between global and domestic small firms

Variables	Global sourcing	Domestic sourcing	Global market	Domestic market
I4.0 technologies adoption ^a	%	%	%	%
Robotics	31.0°	45.5°	41.3	30.8
Additive manufacturing (3D-P)	36.6	29.9	31.2	38.5
Laser cutting	46.5	48.1	46.8	48.7
Big Data/Cloud	38.0	31.2	37.6	25.6
3D scanner	15.5	16.9	17.4	12.8
Augmented reality	14.1	14.3	14.7	12.8
IoT & Intelligent products	22.5	18.2	19.3	23.1
Avg num. of I4.0 techs adopted ^b	2.04	2.04	2.08	1.92
Value chain activities and I 4.0 investment ^a	%	%	%	%
New products development	53.0*	34.5*	46.9	34.8
Prototyping	59.1	49.1	55.1	52.2
Production activity	50.0°	67.3°	55.1	69.6
Production management	28.8	38.2	34.7	26.1
Logistic & Supply Chain Management	10.6	5.5	7.1	13.0
Marketing	27.3	29.1	31.6°	13.0°
Spare parts & Post-sale services	1.5	3.6	3.1	0.0
Impacts of adoption ^a	%	%	%	%

Production efficiency	56.5	66.0	54.9**	85.7**
Productivity	46.8 ^o	64.0 ^o	48.4*	81.0*
Products diversification	42.9	30.0	39.1	28.6
Product customization	22.2	14.0	18.5	19.0
Customer service	55.6	54.0	53.3	61.9
New markets penetration	20.6	28.0	25.0	19.0
Reorganization of activities Italy / Aborad	4.8	4.0	3.3	9.5
International competitiveness	16.1	18.0	18.7	9.5
Environmental sustainability	17.7	18.0	15.4	28.6
Motivations of adoption^b	Mean	Mean	Mean	Mean
Efficiency seeking	3.64	3.54	3.54	3.85
Increasing variety	3.31*	2.87*	3.20	2.74
Exploiting new marketing opportunities	3.36	3.32	3.37	3.21
Maintaining production in Italy	2.78	2.68	2.84	2.32
Reshoring of production activities	1.61	1.53	1.58	1.53
Facing international competition	3.53*	3.00*	3.50	2.42
Imitating competitors	2.00	1.71	1.84	2.00
Improving customer service	3.98	3.95	3.94	4.11
Environmental sustainability	2.86	2.62	2.61*	3.33*

* Global sourcing N = 71, Domestic sourcing N = 76; Global market N = 108, Domestic market N = 39

^a Chi-square analysis, ^b Independent sample t-test analysis; **p <0.01; *p <0.05; ^op <0.10; Darker gray are the higher values of the statistically significant differences. Source: our elaboration.

In terms of downstream strategies, international small firms differ from domestic ones in that they have a higher propensity to focus investment on marketing activities (31.6% vs. 13.0% of domestic-market small firms), confirming their market-based competitive feature. The domestic-market small firms show significantly higher outcomes compared to global market small firms in terms of production efficiency (85.7% vs. 54.9%) and productivity (81.0% vs. 48.4%), highlighting in this case the focus on production competitive strategies.

5. Discussion and conclusion

Using an original dataset, our research provides empirical evidence on how firms of different sizes and with different internationalization strategies, pertaining to both upstream and downstream activities, adopt I4.0 technologies. Currently, global sourcing and its relationship to a firm's adoption of I4.0 technologies is a popular research topic given the value I4.0 technologies adds to reshoring strategies (Ancarani *et al.*, 2019; Dachs

et al., 2019; Müller *et al.*, 2017) and its potential to improve relationships along the value chain (Alcácer *et al.*, 2016). Similarly, I4.0 technologies are described as having the capacity to enable global-market firms to achieve higher export propensity, thanks to its ability to increase production efficiency and flexibility and provide a deeper understanding of customers (Kagermann, 2015).

ML firms compared to the small ones are more likely to adopt specific technologies such as robotics and big data / cloud, and to adopt more technologies than one at once. Same differences emerge considering the international strategy of small and ML firms. The relatively higher investments in production and data management technologies may be explained because larger firms face more complex activities when doing business on a global scale. The higher predisposition of ML firms toward production activities is confirmed by examining the business areas where firms invested in I4.0 technologies that refer to the management of production processes.

Firm size is an important factor that affects the adoption path of I4.0, but it is not the only relevant variable, as the study emphasizes the role of international strategies in shaping the manner in which a firm invest in I4.0 technologies. This is evident when comparing international small and ML firms and even more noticeable when viewing the data on global and domestic small firms. Both groups of small firms (global and domestic) exhibit a similar adoption rate for the seven technologies investigated. Only the domestic-sourcing small firms have a significantly higher adoption rate for robotics, highlighting the key role of production activities in local sourcing strategies. If small domestic firms want to stay competitive, all other factors being equal, they must increase their production efficiency and productivity, which may explain why they are keener to invest in robotics, interpreted as a proxy for production automation. However, it is interesting to notice that this does not eliminate (although reduce) the firms capabilities in personalizing the product. Automation is not embraced at the expenses of flexibility. On the contrary, small domestic firms demonstrate the original trait of mixing automation with variety of production.

Internationalization strategies play a key role when considering why firms adopt I4.0 technologies. If we focus on small firms, both global and domestic, we can see that the main motivations of adoption are: firstly improving customer service and then efficiency. This confirms that small firms are more reactive than proactive in the use of I4.0 technologies (Prause, 2019). Small firms tend to respond to a need originating in the market than to anticipate it. Efficiency is also important as it could be expected. All firms declared the need to improve efficiency, especially in a competitive market as the one Italian small firms are specialized in: traditional, medium-tech or low-tech products. In addition to efficiency and customer purposes, for global-sourcing small firms, increased global competition and the need to

improve product variety are two of the most compelling reasons to invest in new technologies. Meanwhile, domestic-market small firms are more likely to adopt new technology to increase their environmental sustainability, which is a means by which domestic firms can differentiate themselves and attract the interest of the market (Chiarvesio *et al.*, 2015). These strategies are clearer when examining where they invest in I4.0 technologies. Global-sourcing small firms apply the technology to new product development. The choice aligns with their need to increase product variety to be able to compete globally. On the other hand, domestic-sourcing small firms focus their investment on production activities. Again, this choice appears rational for specialized manufacturing firms in a high-cost country (like Italy). This result confirms previous findings about the role technology plays in supporting the management of customers at the international level (Leeflang *et al.*, 2014). Overall, the findings highlight the fact that small firms, like larger firms, take different trajectories when implementing the I4.0 paradigm, but the results are consistently favorable and show that the implementation of I4.0 is related to the firm strategy (Agrawal *et al.*, 2018) that affects also the internationalization strategies (Phillips and Moutinho, 2018). Our findings reveal several interesting theoretical, managerial and policy implications. From a theoretical perspective, the relationship between I4.0 and international firms is shaped by firm size, but more significantly, by international firm strategy. Rather than new technology altering a firm's international strategy, firms are more likely to view I4.0 technologies as tools to help them achieve that strategy. There is an alignment between I4.0 adopted and firm's international strategy. It is not so much the type of technology adopted as the motivation to do so that distinguishes the approaches of small and ML firms to I4.0. In particular, ML firms focus their I4.0 goals on becoming more competitive and on improvements to the production processes, whereas small international firms concentrate on market-driven activities. When comparing global and domestic small firms the business areas where firms implement the new technology represent the main difference between the two groups. This means that technology *per se* does not improve competition if it is not guided by a coherent strategy. On the contrary, is the fit between technology and the international strategy of the firms that pays off.

It is vital for managers to consider I4.0 as part of the firm's strategy in terms of international positioning. Managers should evaluate areas where they may need to implement new technology in relation to their overall and international strategies. Managers of small global firms should focus on marketing and innovation activities because certain I4.0 technologies enhance their ability to meet demand and make changes as the market shifts.

From a policy making point of view, in relation to the need of fit between technology and international strategy of the firm, the policy should

take into account two main objectives. The first one is to lower the cost of adoption of I4.0 in order to foster experimentation and the learning curve of the firm. The alignment between I4.0 and the international strategy of the firms needs constant maintenance and exploration. The second one is to increase the internal competences of the firms in terms of I4.0 technologies. From this perspective, supporting training initiatives could help firms closing the gap between I4.0 and international strategy.

The limitations of this study create opportunities for future research. First, our results could be influenced by the specific structure and organization of Italian firms and their manufacturing activities. Moreover, the use of different industries within a small sample prevents a more detailed analysis on the role of sector in the I4.0 adoption path related to the internationalization strategies. In this sense, future studies should consider other countries and consider also different manufacturing sectors, focusing on few or only one sector. Second, because our study is cross-sectional, we are not able to determine the timing of internationalization strategies and I4.0 adoption in order to define the direction of the relationship between the implementation of I4.0 technologies and the international outcome. Future studies should use a panel-based methodology in order to take into account how technologies influences strategies over time. Finally, the last limitation involves the use of different types of new technologies at the same time. Future research should consider groups of technologies (operations vs. data management) in order to specifying the analysis on how the different group of I4.0 technologies affects the firm's international activities and strategies.

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**BOARD INTERLOCKS IN SMES
AND THE FORMATION OF INTERNATIONAL JOINT VENTURES**

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Abstract

Small and medium sized enterprises (SMEs) are known for being less prone to international expansion due to the many hazards and challenges that are difficult to face with limited financial and managerial resources. Joint Ventures (JVs) with foreign partners may thus represent strategic weapons for growing internationally, reducing the risks of investments in uncertain environments and allowing access to critical resources not available otherwise. However, due to the high uncertainty of the future behaviour of partners with different national cultures and the complexities related to the entrance in new foreign markets, SMEs usually engage in JVs only at domestic level and are reluctant to engage in such ventures internationally. Drawing on resource dependence and agency theory, we hypothesize and test that the board of directors has an important effect on the willingness to engage in international JVs. Specifically, we found that board interlock ties to other firms increase the likelihood of SMEs to engage in international rather than domestic JVs. Moreover, we found that the positive effect of board interlocks on the formation of international JVs is amplified when there is high ownership concentration. Our study aims to contribute at both theoretical and practitioner level to the literature at bridge between governance and internationalization of SMEs.

1. Introduction

Joint ventures (JVs) – i.e. “organizational arrangements where two or more independent organizations establish and maintain a separate legal organizational entity to collaborate for mutual strategic interests under an incomplete contract” (Nippa and Reuer, 2019: 566) – represent important strategic vehicles for gaining access to new technologies, to combine partner strengths and to diversify risks (Volberda, 1996). Moreover, in the current global scenario, where firms are put under an enormous pressure to quickly adapt and change, the formation of JVs is drastically increasing not only domestically, but also at the international level (Beamish and Lupton, 2016). International JVs (IJVs), which are formed when “at least one parent is headquartered outside the JV’s country of operation” (Geringer and Hebert, 1989: 235), act as boundary spanners in the international transfer of knowledge (Debellis, De Massis, Petruzzelli, Frattini, and Del Giudice, 2020), allowing to share the risk of investing in uncertain environments and to tap into the skills and technology of foreign firms (Westman and Thorgren, 2016, Nippa and Reuer, 2019). Especially for small and medium enterprises (SMEs) – that are often prevented from independently doing business abroad due to financial and managerial constraints (Carney, 2005) – IJVs represent thus a strategic opportunity to cross national boundaries at reduced risk.

However, JVs are also prone to conflicts of interests, drawbacks, inefficiencies, and enduring losses (Reuer and Leiblein, 2000, Nemeth and Nippa, 2013, Perkins, Morck, and Yeung, 2014). Indeed, JVs rely on contracts that are incomplete by nature (Reuer, Klijn, van den Bosch, and Volberda, 2011) where input suppliers are paid *ex post* from the profits of the venture (Hennart, 1988). These ventures are thus complex to manage as they involve a “double-layered” acculturation, i.e. bridging differences in corporate culture and the necessity to cope with a foreign culture (Barkema, Bell, and Pennings, 1996, Brouthers and Hennart, 2007). In addition to the hazards and uncertainty that any JV implies, IJVs are thus exposed to the challenge of managing these relations across cultural, institutional and geographic boundaries, which increases the costs of monitoring due to higher information asymmetries (Boone, Field, Karpoff, and Raheja, 2007, Reuer, Klijn, and Lioukas, 2014). These issues are especially threatening for SMEs due to emotional and cultural barriers as well as a fear of losing control (Sestu & Majocchi, 2018). Therefore, it is important for both researchers and practitioners to better understand what factors enhance SMEs’ propensity to engage in IJVs. On this regard, recent research (e.g., Debellis et al., 2020) has argued that the board of directors plays a key role in overcoming motivational gaps, thus increasing their propensity to form IJVs. We contribute to this debate by shedding light on how board of directors may facilitate SMEs’ recourse to IJVs.

To overcome the above mentioned limits and face the hazards, the board of directors, which is the “apex of firms’ decision control system” (Fama and Jensen, 1983: 311), assumes indeed a critical role. Specifically, as suggested by resource dependence theory, directors have access to knowledge and control of valuable external resources or influential groups (Bettinelli, 2011) thus providing human, relational and information capital (Hillman and Dalziel, 2003, Zahra, Filatotchev, and Wright, 2009). Therefore, board interlocks, which are formed when “a person is on the board of directors of two or more corporations, providing a link or interlock between them” (Fich and White, 2005: 175), have a strong influence on firms’ critical strategic decisions, such as those related to internationalization strategies (Gulati and Westphal, 1999, Kor and Sundaramurthy, 2009) and thus cover a critical role in leading an SME to take the choice to engage in a domestic or an international JV. For instance, the information resources made available through multiple board memberships is likely to be relevant and of high quality, so increasing firm overall social capital (Kor and Sundaramurthy, 2009). Moreover, their embeddedness in critical networks enable these directors to assist managers in better identify the potential and risks of new international opportunities. Therefore, interlocking directors may bring tether multiple perspectives increasing the pool of knowledge and connections at disposal of the firm (Sundaramurthy, Pukthuanthong, and Kor, 2014), letting the firm be more able to cope with the complexities of an IJV. Studies on board composition, however, have neglected to analyse how interlocking directorates affect SMEs’ entry mode choices (Zona and Zattoni, 2007, Zona, Gomez-Mejia, and Withers, 2018)

This paper aims to investigate the effect of board interlocks on SMEs likelihood to undertake IJVs. Specifically, we aim to respond to the following research question: *how do board interlocks affect the firm’s choice to engage in a domestic or in an international joint venture?* Drawing on both agency and resource dependence theory arguments, we hypothesize that board interlocks, due to their superior social capital, knowledge and experience gained through membership on other boards (Stevenson and Radin, 2009), may positively affect SMEs’ willingness to engage in IJVs. Moreover, as the parents’ JVs’ ownership affects also the JV’s board composition and influence its strategies (Reuer et al., 2011), we explore the moderating effect of concentrated JVs’ ownership. Our results, based on a sample of 841 Italian SMEs that engaged in domestic and/or international JVs, show that board interlocks facilitate the formation of IJVs. Moreover, the positive effect of board interlocks on opting for IJVs is amplified when the ownership of the JV is more concentrated.

Our study contributes to the literature that examines how corporate governance mechanisms influence the internationalization of SMEs in two main ways. First, we contribute to the debate on how governance mech-

anisms affect the strategic change of SMEs (Brunninge, Nordqvist, and Wiklund, 2007) by shedding light on the link between board interlocks and the formation of IJVs. Second, whereas prior international management literature on SMEs has mainly focused on exports, we examine a high-commitment entry mode, i.e. JVs, that requires a larger endowment of specific knowledge (Stoian, Dimitratos, and Plakoyiannaki, 2018). In so doing, we identify board interlocks as facilitators of SMEs' internationalization through IJVs.

2. Theoretical background and hypotheses

2.1 Domestic and international joint ventures

This paper examines the effect if governance mechanisms on SMEs' propensity to undertake international JVs. Several definitions of JVs exist in literature, but the prevailing opinion is to define them as subset of strategic alliances (Nippa and Reuer, 2019). JVs, in fact, allow partnering firms to combine their strategic assets (Volberda, 1996) without losing independence and without suffering the acquisition costs of integrating two different organizational structures (Reuer and Koza, 2000). JVs are especially convenient when high information asymmetries make costly and uncertain to obtain an accurate evaluation of another firm's assets (Balakrishnan and Koza, 1993). JVs are thus very useful to expand not only at the domestic level, but also to grow beyond national borders. In fact, recent research shows that the occurrence of international JVs has increased dramatically over the last years (Perkins et al., 2014, Debellis et al., 2020). The growing importance of global competition has indeed increased the importance of international JVs as a means to gain access to foreign markets, to share the risks of investments in uncertain environments and to tap into to the skills and technology of firms in other countries (Beamish and Lupton, 2016). As information asymmetries are particularly high across national contexts, JVs are especially valuable for reducing the risk of entering unfamiliar business environments (Westman and Thorgren, 2016) and helping bridge the gap between the firm's present resources and the expected future requirements (Eisenhardt and Schoonhoven, 1996, Hoffmann and Schlosser, 2001). This is particularly important for SMEs that often struggle with the development of independent internationalization strategies due to financial and managerial constraints (Narula, 2004, Carney, 2005).

Indeed, while the expected benefits of JVs are well known, it is also the case that these ventures are often unstable and prone to failure, due to the many hazards and drawbacks that they imply (Reuer et al., 2011) as well as the impossibility to forecast all future contingencies in a contract that is

incomplete by nature (Reuer et al., 2014, Nippa and Reuer, 2019). In a JV both partners are thus in a mutual hostage situation (Kogut, 1988), where parent firms are exposed to the risk of opportunism by the other parent firms while at the same time they still need to adapt reciprocally (Williamson, 1991). JVs are thus more complex than unitary organizations due to the multiple relationships among parent firms, the JV's management's relationships with the parent organizations, and the relationships between the managers of the JV (Reuer and Koza, 2000). In addition, IJVs have also to deal with the challenge of managing these relations across cultural, institutional and geographic boundaries, forcing the firm to engage in difficult evaluations regarding transaction-specific assets and potential free-riding behavior of the other firms (Anderson and Gatignon, 1986). National diversity is generally seen as an obstacle to effective cooperation in IJVs as it is a source of differences in managerial practices, goals and policies and gives rise to '*us versus them*' perceptions (Hofstede, 2001).

To reduce the exposure to the abovementioned risks, international business literature shows that board of directors can play a paramount role (Debellis et al., 2020). Indeed, directors are deeply involved in the making of complex strategic decisions, such as that of engaging in an IJV (Finkelstein and Mooney, 2003). However, how board characteristics affect firm internationalization remains still an open question (Kano and Verbeke, 2018). Resource dependency theory argues that firms need to hire directors that bring unique resources to the firm, such as social capital (Hillman and Dalziel, 2003) in terms of external connections developed via multiple board appointments. On this perspective, board interlocks, which are formed when "a person is on the board of directors of two or more corporations, providing a link or interlock between them" (Fich and White, 2005): 175) may help parent firms accumulate a variety of information, knowledge and experience (Tian, Halebian, and Rajagopalan, 2011), thus undermining significant barriers to JVs' formation.

2.2. Board interlocks and IJVs.

Resource dependence theory (RDT) (Aldrich and Pfeffer, 1976, Salancik and Pfeffer, 1978) describes firms as open systems that depend on the external environment (Katz and Kahn, 1978, Hillman, Cannella, and Paetzold, 2000). To survive, organizations must be able to exert control over environmental conditions (such as competition, social forces and regulation) and procure critical external resources through exchanges with other firms (Salancik and Pfeffer, 1978, Hillman, Withers, and Collins, 2009). Under a RDT perspective, the board of directors adds value to the firm by tapping into external resources, thus acting as organizational "boundary spanners" (Carpenter and Westphal, 2001). The primary role of the board is thus to

provide organizations with human (i.e. skill, experience and expertise) and relational (i.e. network of ties to other firms) capital (Salancik and Pfeffer, 1978, Dalton, Daily, Ellstrand, and Johnson, 1998, Reuer and Koza, 2000). In so doing, directors both affect the company's decision making process (Oh, Labianca, and Chung, 2006) through advice and counsel (Westphal, 1999, Carpenter and Westphal, 2001) and provide access to important resources such as capital (Mizruchi and Stearns, 1988), customers (Pennings, 1980) and power (Salancik and Pfeffer, 1978).

Outside directors with multiple directorships – i.e. directors who sit on the boards of several organizations – thus act as ties that link different organizations together, facilitating inflows and outflows of both information and tangible resources. Such ties among boards of different organizations enable directors to accumulate a variety of information, knowledge and experience (Tian et al., 2011), which is especially valuable for identifying business opportunities and threats in foreign markets (Sciascia, Mazzola, and Chirico, 2013). Board interlocks are thus especially valuable as a mean to control environmental conditions because they provide access to larger portfolios of external resources, more extensive industry and market knowledge (Zahra and Pearce, 1989) and broader social capital (Pennings, 1980, Mizruchi and Stearns, 1988). In addition, since directors' strategic perspective and base of expertise (Carpenter and Westphal, 2001) as well as their ability to manage uncertainty and to develop quick adaptive responses (Zona et al., 2018) grow with their presence in other boards, interlocks provide substantial value to an organization. In fact, empirical evidence has shown that board interlocks are positively associated to firm growth (Kor and Sundaramurthy, 2009) and value (Bøhren and Strøm, 2010). More importantly for the context of this paper, board interlocks have been found to facilitate successful internationalization (Connelly, Johnson, Tihanyi, and Ellstrand, 2011). Indeed, while directors that have earned experience in only one organization may be entrenched with specific strategies, directors with multiple board interlocks are likely to have those general skills and knowledge that can produce value and cope with complexities in different international settings (Kor and Misangyi, 2008).

Based on the above, parent firms with more board interlocks are likely to be better able to control and manage the higher risks stemming from establishing an international JV thanks to a broader social capital, more expertise and more industry- and market-knowledge. Consequently, we predict that:

HP1: parent firms with more board interlocks are more likely to form international joint ventures.

The moderating role of ownership concentration

So far, we argued that the resource endowments provided by directors may foster parent firms' propensity to undertake IJVs. Following a similar logic, also IJVs should benefit from the contribution provided by their directors. Past research, in fact, has shown that more diverse boards can benefit the effectiveness of an IJV through a broader endowment of resources, perspectives and social capital (Cox & Blake, 1991, Robinson and Dechant, 1997, Pinelli, Cappa, Franco, and Peruffo, 2018). More specifically, board interlocks may benefit firms by acting as a channel for communicating information between external organizations and the firm, creating a competitive advantage especially in uncertain and complex foreign environments (Connelly et al., 2011)

Yet, a more structured, diverse and effective board requires a certain equilibrium of the rights that allow parent firms to nominate the IJV's directors. For example, the board of an IJV where four parents can nominate an equal number of directors will be more heterogeneous than the board of an IJV where one parent can nominate 80 percent of the directors and the other parent only the remaining 20 percent. However, since equity ownership and parent firms' ability to be represented on the board of directors are linked, IJVs with more diverse boards imply a certain dispersion of the IJV ownership across its parents. Such ownership dispersion may expose IJVs' parents to serious agency risks, thus affecting their propensity to engage in this form of internationalization.

In fact, management research has shown that JVs' failure and success are profoundly affected by governance and agency issues that stem from shared ownership and control (e.g., Franko, 1971). When ownership is fragmented, owners both struggle to effectively monitor the firm's activities and have less incentive to do so, which increases the risk of opportunistic behavior (Dalton, Hitt, Certo, and Dalton, 2007) and negatively affects the firm's performance (Devers, Wiseman, and Holmes Jr, 2007). In the presence of fundamental differences in ownership and agency incentives, partnerships between parent firms thus become unstable (Reuer and Miller, 1997) and the exposure to expropriation risks increases. Additionally, comparative corporate governance research has shown that agency conflicts among JVs parents are particularly severe in international contexts (Perkins et al., 2014). Instead, such agency-related problems can be mitigated if corporate owners are able to effectively monitor both the management and other co-owners. This, however, requires that ownership is concentrated (Tosi and Gomez-Mejia, 1989, Hambrick and Finkelstein, 1995, Werner, Tosi, and Gomez-Mejia, 2005) because ownership of larger portions of a company's equity allows exerting stronger influence on corporate actions, strategy and operations (Bergh and Sharp, 2015).

In other words, while a more fragmented ownership of the IJV implies high agency risks, a concentrated IJV ownership implies lower exposure to agency risks and more influence on the IJV strategic decisions. Based on this premise, we argue that this variable influences the strength of the parent firm's board interlocks on the propensity to undertake an IJV. More specifically, we argue that such an effect will be stronger when ownership is concentrated because the benefit of board interlocks are even more crucial when the IJVs' board is less balanced due to highly concentrated ownership. In so doing, the parent firm's board interlocks act as a substitute for the inferior resources provided by IJVs board that do not adequately represent the IJV's minority owners. The contribution of the parent firm's board interlocks on its propensity to engage in IJVs should thus be higher when the parent firm can have a significant portion of its equity.

HP2: the effect of board interlocks on the likelihood of forming an international JV is stronger if they can have a majority ownership of the JV.

3. Methodology

3.1 Sample and data

All data were obtained from the Italian Digital Database of Companies (AIDA), the Italian branch of Bureau Van Dijk group. In order to improve the accuracy of this dataset, we double-checked and hand-collected ownership and governance data from official public filings obtained from the Italian Chamber of Commerce, which represents a reliable source of information for Italian companies (Miller et al. 2017). In order to identify SMEs, we selected only those with less than 250 employees and a turnover below 50 million euros, following the definition given by European Commission. Among these firms, we selected only those that possess at least one JV in the year 2007, 2008, and 2009. In order to identify JVs, we used AIDA dataset and we considered only those subsidiaries controlled by at least two partners each with a control percentage between 10 and 90%. This is in line with the definition provided by both Organization for Economic Cooperation and Development (OECD) and International Monetary Fund (IMF), which considers FDIs only those subsidiaries held abroad with a stake of at least 10% (i.e. excluding purely financial investments), which is regarded as an ownership threshold that leaves a minimum grey area of "ultimate control" (Buckley, 2014: 237). Our final dataset comprises 604 domestic and 247 international JVs, for a total of 841.

The dependent variable *internationaljv* is a dummy that equals 1 if the JV was international and 0 if the JV was domestic.

The independent variable *board interlocks* is an ordinal variable that reflects the total number of the parent firms' board interlocks, i.e. the number of other companies' boards on which sit the directors of the parent firms (Kor & Sundaramurthy, 2009).

The moderating variable *ownership concentration* reflects the degree of dispersion of a JV's ownership. It was computed as the Herfindahl–Hirschman Index of the percentage of ownership held by the JV shareholders, i.e. the sum of the squares of the ownership stakes. Larger values of this measure reflect more concentrated ownership.

We also controlled for a number of factors that may affect the formation of international over domestic JVs: *family shareholder* is a dummy variable that equals 1 if the largest owner is a family firm; *number of shareholders-managers* is an ordinal variable that reflects the number of managers that work in the JV that previously worked for any of the parent companies; *independence* is an indicator computed by Bureau Van Dijk that reflects the extent to which a company is independent of its owners; *assets (ln)* is a continuous variable that reflects the JV's size and it has been computed as the natural logarithm of the JV's assets; *number of parents* is an ordinal variable reflecting the total number of owners of the JV; *parent1 assets (ln)* and *parent2 assets (ln)* are two variables reflecting the size of the two owners having the larger number of shares and they have been computed as the natural logarithm of their assets plus 1 (non-corporate owners have zero assets); finally, *parents in same industry* is a dummy variable that equals 1 if the two largest owners operate in the same industry (same NACE code) and 0 otherwise. In Table 1 we report descriptive statistics and correlations among the variables. More specifically, Table 1 indicates that 28% of the JVs are international. On average, JVs in our sample are owned by about 4 parents and the parents with the majority stakes tend to be bigger in size than the others. Interestingly, only about 11% of these parent firms operate in the same industry and about 40% of these parents are family firms. It is also interesting that a relatively small number of the JV's managers previously worked for the parent firm (0.63 on average). Finally, the average number of board interlocks for the parent firms is 11.43 and the standard deviation of 12.24 indicates that the distribution is skewed to the right.

Tab. 1: Descriptive statistics and correlation matrix

	Obs	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	
1 internationaljv	841	0.28	0.45	0.00	1.00	1.00													
2 board interlocks	831	11.43	12.24	1.00	87.00	0.12	1.00												
3 ownership concentration	841	0.38	0.16	0.02	0.80	0.13	0.07	1.00											
4 family shareholder	831	0.40	0.49	0.00	1.00	-0.05	-0.02	-0.01	1.00										
5 number of shareholders-manag	841	0.63	0.97	0.00	9.00	-0.17	-0.07	-0.22	0.02	1.00									
6 independence	841	2.64	0.86	0.00	5.00	-0.04	0.01	-0.26	0.03	0.11	1.00								
7 assets (ln)	841	7.86	1.63	0.28	13.92	-0.03	0.08	0.04	0.10	-0.02	0.02	1.00							
8 number of parents	841	3.86	5.23	2.00	93.00	-0.06	0.00	-0.30	0.02	0.31	0.15	0.01	1.00						
9 parent1 assets (ln)	841	2.79	2.21	0.00	10.79	0.05	0.13	0.11	0.17	-0.09	-0.10	0.24	0.04	1.00					
10 parent2 assets (ln)	841	2.02	2.62	0.00	13.29	0.24	0.30	0.22	0.08	-0.29	-0.06	0.16	0.02	0.39	1.00				
11 parents in same industry	841	0.11	0.31	0.00	1.00	-0.01	-0.03	-0.07	-0.03	0.05	0.07	0.00	0.05	-0.08	0.03	1.00			
12 y2008	831	0.36	0.48	0.00	1.00	-0.10	-0.01	-0.08	0.14	0.07	0.02	0.00	0.08	0.02	-0.02	0.00	1.00		
13 y2009	831	0.21	0.41	0.00	1.00	0.08	-0.09	0.06	-0.16	-0.03	0.02	-0.04	-0.08	-0.04	-0.06	0.00	-0.39	1.00	

4. Results

Before testing our hypotheses, for each model we make sure that our results are not dependent on unusual and influential data. For every model, we thus computed the Cook's D to derive its influence score on the dependent variable (Sharma & Yetton, 2003, Gong, Louis, & Sun, 2008, Dikova, Sahib, & Van Witteloostuijn, 2010). Cooks' D combines information on outliers (i.e. observations with high residual) and leverage (observations that strongly deviate from the mean). Based on the predicted Cook's D value, we excluded excessively influential observations (i.e. those that scored higher than $4/n$, where n is the number of observations in our sample). As the number of observations that exceed the Cook's D threshold varies in every model, there is a slight variation in the number of observations from model to model. We then proceeded to test our hypotheses through Probit regressions with heteroskedasticity-robust standard errors; for each model, we also checked the absence of potential multi-collinearity issues through a VIF (Table 3).

Tab. 2: Results of the Probit regressions

	Model 1			Model 2			Model 3		
number of observations	808			807			807		
Prob > F	0			0			0		
R-squared	0.124			0.122			0.212		
	Coef.	Rob. Std. Err.	P> t 	Coef.	Rob. Std. Err.	P> t 	Coef.	Rob. Std. Err.	P> t
board interlocks				0.003	0.001	0.027	-0.006	0.003	0.068
ownership concentration	0.117	0.094	0.212	0.143	0.094	0.127	-0.031	0.121	0.798
board interlocks X ownership concentration							0.015	0.005	0.003
family shareholder	-0.035	0.031	0.262	-0.024	0.031	0.444	-0.021	0.031	0.503
number of shareholders-managers	-0.048	0.014	0.001	-0.053	0.014	0.000	-0.050	0.014	0.000
independence	-0.012	0.017	0.480	-0.016	0.017	0.335	-0.011	0.017	0.524
assets (ln)	-0.020	0.009	0.032	-0.020	0.009	0.030	-0.018	0.009	0.043
number of parents	-0.008	0.003	0.029	-0.002	0.003	0.452	-0.002	0.003	0.394
parent1 assets (ln)	-0.004	0.008	0.640	-0.007	0.007	0.331	-0.005	0.008	0.505
parent2 assets (ln)	0.043	0.007	0.000	0.037	0.008	0.000	0.037	0.007	0.000
parents in same industry	-0.103	0.045	0.022	-0.104	0.045	0.020	-0.110	0.044	0.013
y2008	-0.075	0.033	0.022	-0.073	0.033	0.024	-0.067	0.032	0.039
y2009	0.056	0.043	0.190	0.069	0.043	0.107	0.069	0.043	0.106
_cons	0.421	0.103	0.000	0.389	0.103	0.000	0.455	0.110	0.000
Probit Regression									
	Model 1			Model 2			Model 3		
Number of obs	808			807			808		
Wald chi2	99.95			100.92			109.48		
Prob > chi2	0			0			0		
Pseudo R2	0.116			0.115			0.118		
Log pseudolikelihood	-419.126			-417.609			-417.101		
	Coef.	Rob. Std. Err.	P> z 	Coef.	Rob. Std. Err.	P> z 	Coef.	Rob. Std. Err.	P> z
board interlocks				0.007	0.004	0.082	-0.032	0.016	0.045
ownership concentration	0.281	0.283	0.321	0.301	0.288	0.296	-0.480	0.442	0.278
board interlocks X ownership concentration							0.069	0.027	0.012
family shareholder	-0.148	0.105	0.158	-0.116	0.105	0.268	-0.112	0.105	0.287
number of shareholders-managers	-0.239	0.074	0.001	-0.245	0.075	0.001	-0.232	0.073	0.002
independence	-0.043	0.058	0.455	-0.049	0.059	0.402	-0.028	0.060	0.643
assets (ln)	-0.071	0.031	0.022	-0.071	0.031	0.021	-0.067	0.031	0.028
number of parents	-0.066	0.030	0.031	-0.060	0.030	0.045	-0.063	0.030	0.034
parent1 assets (ln)	-0.011	0.025	0.651	-0.023	0.025	0.359	-0.017	0.025	0.487
parent2 assets (ln)	0.126	0.022	0.000	0.111	0.023	0.000	0.113	0.023	0.000
parents in same industry	-0.421	0.186	0.024	-0.413	0.185	0.026	-0.432	0.183	0.018
y2008	-0.249	0.116	0.032	-0.244	0.116	0.036	-0.222	0.116	0.056
y2009	0.175	0.129	0.175	0.209	0.130	0.107	0.201	0.129	0.118
_cons	0.139	0.341	0.684	0.093	0.344	0.788	0.418	0.386	0.279

Tab. 3: Variance Inflation Factor (VIF)

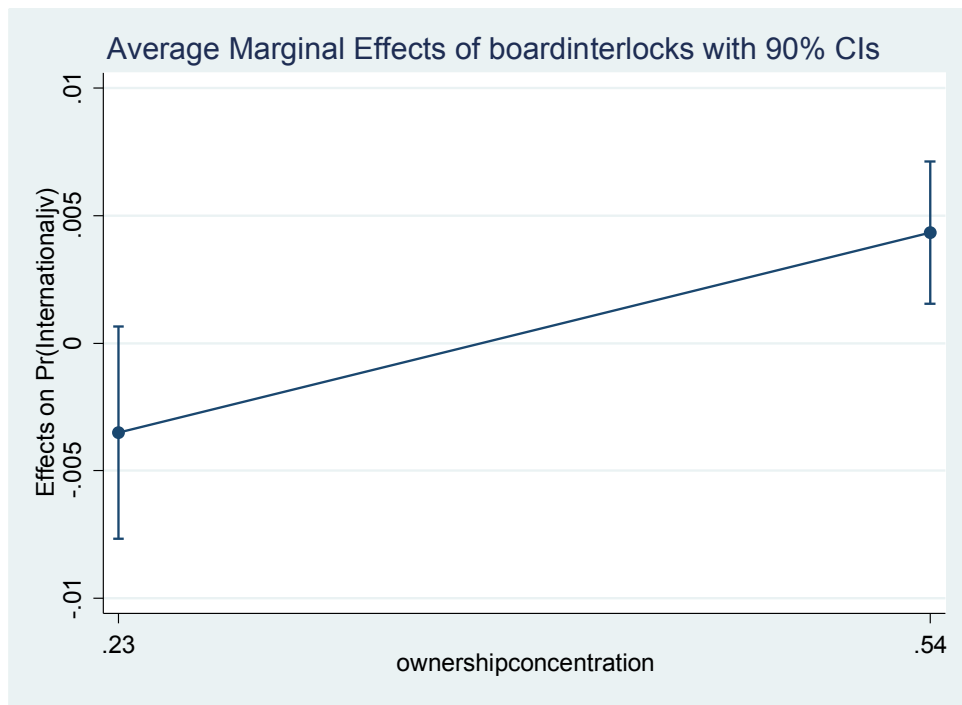
Variable	VIF	1/VIF	VIF	1/VIF
board interlocks X ownership concentration			10.49	0.095
parent2 assets (ln)	1.43	0.699	1.42	0.706
number of shareholders-managers	1.29	0.774	1.30	0.769
number of parents	1.26	0.795	1.26	0.794
ownership concentration	1.25	0.802	2.29	0.437
parent1 assets (ln)	1.23	0.810	1.25	0.801
y2009	1.21	0.827	1.21	0.826
y2008	1.19	0.837	1.20	0.836
board interlocks	1.13	0.882	8.71	0.115
independence	1.09	0.922	1.09	0.921
family shareholder	1.08	0.927	1.08	0.925
assets (ln)	1.07	0.932	1.07	0.931
parents in same industry	1.02	0.980	1.02	0.981
Mean VIF	1.19		2.47	

Our first hypothesis was that a larger number of board interlocks at the parent firm would facilitate the formation of IJVs based on the argument that board interlocks act as a mean to reduce information asymmetries in a foreign country and decrease exposure to the liability of foreignness. As shown, in Model 2 of Table 2, the coefficient of our independent variable *board interlocks* is positive and statistically significant. This result is consistent with our arguments, which provides empirical support for our first hypothesis.

Our second hypothesis was that such positive effect of the parent firms' board interlocks on the formation of an IJV would vary depending on the JV's ownership concentration. More precisely, we argued that the more concentrated is a JV's ownership and the more board interlocks mattered for establishing a JV in a foreign country. Model 3 of Table 2 shows that the interaction term *board interlocks X ownership concentration* is positive and strongly statistically significant. In Figure 1 we present a graphical representation of the conditional effects of *board interlocks* at various level of the moderating variable *ownership concentration* (one standard deviation above and one below the sample mean). As the figure shows, the effect of *board interlocks* is negative but not statistically significant at one standard deviation below the moderator's mean. At one standard deviation above the mean, however, the effect becomes positive and statistically significant, indicating that the positive main effect of *board interlocks* is amplified when the majority owner holds a significant portion of the JV's shares. Based on the marginal effects of the Probit model, each board interlock increases the likelihood of undertaking an international rather than a domestic JV of about 0.2%, which implies that such probability increases by 2.29% with 11.43 board interlocks (our sample mean) and by 4.75% with 23.67 board

interlocks (one standard deviation above the mean). The analysis of the conditional effects represented in Table 1 indicates that, when our measure of ownership concentration is 0.54 (one standard deviation above the mean), each board interlock increases the likelihood of undertaking an IJV of about 0.42%. At this level of the moderator, 11.43 board interlocks thus increase the likelihood of establishing an IJV by 4.84% and by 10.01% with 23.67 board interlocks, which is twice as strong of an effect than the one we obtain without considering the moderating effect of ownership concentration. These results are aligned with our arguments, thus providing support also for our second prediction.

Fig. 1: marginal effects of the independent variable (board interlocks) at 1 standard deviation above and below the sample mean of the moderator (ownership concentration).



To further comment on the results reported in Table 2, we can see that some of our control variables have a statistically significant effect on the formation of IJVs. First, the negative coefficient of *assets (ln)* indicates that JVs of larger size are more likely to be domestic than international. This may be due to an attempt to control the size of the investment exposed to risks deriving from doing business in a foreign market. Second, the negative coefficient of *number of shareholders-managers* indicates that JV managers previously working for the parent companies is negatively associated to the formation of IJVs. An interpretation of this finding is that IJVs prob-

ably require foreign managers who have knowledge of the local market. Finally, the positive coefficient of *parents in same industry* indicate that two companies that operate in the same industry tend to form domestic rather than international JVs, possibly because firms that form JVs to leverage synergies deriving from economies of scope prefer domestic environments whereas in international contexts they rather tap into synergies that are not industry-related.

5. Discussion and conclusion

Global competition and the need to access to resources that are not available in domestic markets force firms to expand beyond national borders, and international JVs can represent for SMEs a great strategic means to grow despite resource constrains. However, information asymmetries and the lack of knowledge about foreign markets often discourage SMEs to engage in IJVs. Board of directors have a key role in overcoming this “motivational gap” and in leading the firms to the formation of these ventures (Debellis et al., 2020). In this article, we have contributed to the emerging debate about boards in SMEs by investigating how board interlocks affect firms’ likelihood to engage in IJVs. Prior research in SMEs has rarely investigated on the involvement of board in determining firms’ strategies (Machold, Huse, Minichilli, and Nordqvist, 2011) and this study aims to advance research on this regard. Moreover, research on the effects of director interlocks has produced mixed and sometimes contradictory results (Zona et al. 2018). Some authors, adopting an agency perspective, argued that board interlocks negatively affect performance, as they represent an additional way for directors to pursue their own interests at the expense of shareholders (Fich and White, 2005, Conyon and Read, 2006). However, this perspective mostly applies to large and resource-rich firms where the potential for executive opportunism is heightened (Jensen, 1986). In this study we refer to SMEs, so we combine agency theory with a resource dependence theory perspective, paying also attention on the reduction of external dependencies due to board interlocks. In particular, board interlocks appear very important especially for resource-constrained firms and their efforts to manage their dependencies, such as the majority of SMEs (Zona et al., 2018).

In HP1, we argue that interlocking directorates may help to overcome the motivational gap to engage in IJVs, which is usually ascribed to SMEs (Hoffman and Schlosser, 2001). Our empirical tests support our hypothesis. The verified HP 1 thus shows that in SMEs, which are usually characterized by financial and managerial constrains, board interlocks may cover a crucial role in leading firms’ expansion at international level. These find-

ings also corroborate recent claims of Arzubiaga, Kotlar, De Massis, Maseda, and Iturralde (2018) who argued that many family-owned SMEs do not internationalize much because they use their board as mere “rubber stamping” body. The limited use of board potential, intended as low level of board interlocks, can be an explanation of why many SMEs do not overcome the motivational gap to engage in IJVs, although these constitute a strategic weapon for their growth.

In the HP 2, we measure the moderating role of ownership concentration. In a JV, ownership concentration affects the way a firm may influence JV activities (Kumar and Seth, 1998). On this regard, concentrated ownership allows to align the owners’ interests and facilitates effective monitoring of parents’ behaviour, whereas a lack of predominant control of the JV may represent constraining factors to the willingness to form IJVs. Moreover, if ownership is dispersed, it is likely that the firm, and consequently their directors, will not be able to exercise much influence in the JV and they will be less prone to engage in such ventures. Therefore, in HP2, we hypothesize and demonstrate that the positive effect of board interlocks is amplified in case of high ownership concentration.

Our study brings two main contributes to the literature at bridge between governance and internationalization of SMEs. First, we enhance the debate on how governance mechanisms affect the strategic change of SMEs (Brunninge et al., 2007) and we shed light on the link between board interlocks and firms’ strategic decisions, which have reached quite diverse and sometimes contradictory results (Zona et al., 2018). Although SMEs are usually associated with low propensity to expand internationally, our study shows that if they make full use of their boards, especially relying on the skills and knowledge of directors that cover positions in different firms, they can overcome the willingness gap and expand internationally.

Second, we advance research on SMEs internationalization beyond exports. On this regard, Stoian et al. (2018) highlight that when operating with equity entry modes such as IJVs, SMEs need to acquire three types of knowledge: in-depth worldwide network knowledge, i.e. industry knowledge which allows to have a visionary outlook toward the future; hands-on foreign market knowledge, i.e. the ability to conduct daily business operations abroad; and international set-up knowledge, i.e. the ability to set up abroad via modes beyond exports. Considering that these types of knowledge are the result of the complex interplay among individuals and organizations, board interlocks become a crucial factor for internationalization as they enhance the exchange and the transfer of tacit experiential knowledge (Athanasidou and Nigh, 2000, Stoian et al., 2018). Our study thus puts in evidence the role high board interlocks as critical differentiator to gain the knowledge required to internationalize through JVs.

On a managerial perspective, we highlight the crucial role of the board

of directors in leading SMEs' internationalization. Many SMEs use the board as mere rubber-stamping mechanism (Arzubiaga et al., 2018) and this may explain why SMEs, which are often family-owned (Pukall and Calabrò, 2014), are less willing to engage in IJVs. Directors that sit in multiple boards can be really important for overcoming information limits and gaining legitimacy needed for engaging in IJVs. On this perspective, our study may help SME entrepreneurs to better evaluate the positive effects of those directors that have multiple board interlocks.

Our study is not exempted by limitations, which may however open new doors for future research. First, we did not measure all the features of our Italian focal firm's parent (e.g. age, ownership characteristics). We call future studies to advance this stream of research investigating on the aspects that may enhance SMEs propensity to engage in IJVs, also analysing the choice of partners. Second, our study focuses only on the *ex-ante* stage of IJV formation, while it would be interesting to investigate how SMEs structure IJV boards and if they are more or less successful than large MNEs in managing IJVs *ex-post*. For instance, it would be interesting to investigate if the IJV board established by SMEs is structured differently and what combination of governance mechanisms (e.g. contractual, relational) they would adopt compared to large MNEs. Investigating this phenomenon in detail would be important in order to shed new light on governance design by SMEs and how they anticipate and control for behaviour uncertainty and how they resolve conflicts when they occur. Finally, we do not take into account the partner firm characteristics. Recent research (e.g., Sestu and Majocchi, 2018) has shown that it is very important to investigate the nature of both partners. Future research should pay more attention to how host market institutional variables as well as partner firm organizational characteristics affect the entry mode choice.

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**TECHNOLOGY AS PERCEIVED BENEFIT OR BURDEN IN THE
FIGHT AGAINST CORRUPTION AT INTERNATIONAL SMEs'?
THE ROLE OF TRUST AND REDUCED HUMAN INTERACTION**

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Abstract

In light of the disclosed organisational corruption scandals over the last decades, firms have been increasingly adopting information and communication technologies (ICTs) to fight corruption. Scholars and practitioners alike have particularly highlighted the potential benefits of such anti-corruption-related ICTs for internationally operating small and medium-sized enterprises (SMEs): On the one hand, such ICTs could cure SME's lack of knowledge on the business practices in geographically and institutionally distant markets. On the other hand, they could compensate for SMEs' scarce resources and limited bargaining-power to reject a corrupt offer. Building on interview and documentary data, the aim of this case study is not only to explore whether such opportunities are indeed experienced by SMEs, but also what risks and challenges may arise from using ICTs in the fight against corruption in foreign business. We find that involved actors indeed arrive at more contradictory conclusions regarding the usefulness of ICTs: While some actors regard the prevention of improprieties as a key benefit resulting from an increasingly transparent digital business environment, others perceive potential cyber-crime as a central risk when using ICTs. Crucially, though, we find that the degree of trust and the perceived lack of human interaction between the SME and its stakeholders play a central role in explaining whether benefits or risks prevail in the SMEs' perception of the usefulness of anti-corruption ICTs.

1. Introduction

Globalisation and digitalisation have enabled firms of all sizes to enter and operate in international markets and foreign countries. While this has opened up many doors for small and medium-sized enterprises (SMEs), it has also exposed them to considerable dangers. Their lack of resources and low bargaining-power make them especially susceptible when facing a corrupt business offer (Hauser and Kronthaler, 2014). The process of globalisation has multiplied the risks of corruption given that firms now increasingly operate in countries with high levels of perceived corruption (Schembera and Scherer, 2017). While the focus in the anti-corruption literature and in practitioner discourses has been on larger firms, the results of a global World Bank survey suggest that the likelihood of being confronted with corruption is higher for smaller firms (Schiffer and Weder, 2001). Furthermore, SMEs make up half of the economic value creation worldwide (Wymenga et al., 2011). Identifying appropriate means to help SMEs, especially those operating internationally, tackling corruption risks effectively seems crucial.

Digitalisation has led enterprises to adopt technological innovations, so-called information and communication technologies (ICTs), to counter corruption and to develop transparency and openness (Bertot et al., 2010). Technology has, for example, enabled them to digitalise and thus better monitor business transactions and activities. This “data revolution” entails large amounts of data being made accessible for auditing and identifying corrupt behaviour by professionals and the public (Heimann and Mbiyavanga, 2018, p. 250). Technology has also allowed the public to better access financial and sustainability reports of organisations. However, critical voices arise highlighting potential risks resulting from such an increase of transparency in business transactions: For example, the availability of the massive amount of data provided through ICTs can also be used for corrupt purposes (Heimann and Mbiyavanga, 2018). As more and more knowledge about ICT-related dangers and unintended side-effects becomes available, a closer scrutiny of their actual usefulness seems urgently needed.

Although the effort to reduce corruption has attracted increasing scholarly attention, little research has been conducted on the influence of ICTs in the fight against corruption. The few existing studies on this topic have focused on the public sector, for instance, on government-initiated ICTs such as e-governance or open data portals (e.g. Bertot et al., 2010; Davies and Fumega, 2014; Hlatshwayo et al., 2018). In contrast, only few studies have been conducted on digital anti-corruption practices and initiatives at the firm level. What is more, while much of anti-corruption research has focussed on multinational enterprises (MNEs) and their efforts in this context (Branco and Delgado, 2012; Rodriguez et al., 2006; Weyzig, 2009), little re-

search has been undertaken on anti-corruption ICTs at international SMEs.

This research paper aims to provide a better understanding of the perceived opportunities and risks of using ICTs at international SMEs in their fight against corruption. This paper therefore aims at answering the following question:

What are the perceived opportunities and risks of using ICTs in the fight against corruption at international SMEs?

We use a primarily inductive qualitative research design to answer our research question (Gioia et al., 2013). That said, a thorough literature review was performed before starting the actual empirical analysis in order to identify central characteristics of international SMEs. Our data consists of five interviews with members of international SMEs based in Switzerland and Germany, one follow-up correspondence with one of the interview partners, as well as of 165 pages of corporate documentary data.

In the following, we present the literature on corruption, SMEs and ICTs to form a first theoretical grounding. Next, we outline the qualitative research process, data base and analytical approach. We go on to present the findings that emerged from the analysed data. Finally, we discuss our findings against existing academic and practical knowledge, including the limitations of our study as well as opportunities for further research.

2. Theoretical Background

Organisational corruption

Corruption is commonly defined as *the misuse of public power for private gain* (Aguilera and Vadera, 2008, p. 433; Habib and Zurawicki, 2002; Robertson and Watson, 2004; Rodriguez et al., 2005; Theobald, 1990). However, this definition has been criticised for not including actors in the private sector. In the wake of globalisation of business in the 1980s and 1990s, as companies have expanded to international markets, and in light of disclosed corporate corruption scandals, researchers have acknowledged the scale of corruption at an organisational level and the need to understand it better. In that respect, the generally used definition of corruption has been adapted to *the misuse of authority for private gain*, where *public power* has been replaced by the word *authority* to include corruption that involves private parties such as organisations or individuals in organisations (Aguilera and Vadera, 2008, p. 433; Ashforth and Anand, 2003; Branco and Delgado, 2012; Gans-Morse et al., 2018; Rodriguez et al., 2006). Social and economic literature suggests that corrupt acts are the result of negotiation processes, usually involving two parties. In such a negotiation process, either a due monetary or non-monetary advantage is offered, agreed upon or granted

in exchange for undue influence over a decision at the discretion of the beneficiary. Alternatively, a decision-maker demands an undue monetary or non-monetary advantage and threatens to make a decision to the detriment of the other party if they should not comply (Hauser and Kronthaler, 2014). For the purpose of this paper, we will focus on corruption including at least one private party, be it in interaction with the public sector, such as public officials, or “private-private” corruption, where both parties involved are private actors (Argandoña, 2003).

Challenges of international smes in fighting corruption

While corruption is a barrier for any kind of organisation, large or small, local or global, in the business or governmental environment, it hinders especially small and medium-sized firms in their international development. A study by Schiffer and Weder (2001) has shown that the smaller an enterprise is, the more likely it is to be confronted with corruption-related problems and perceive corruption as a business obstacle. Larger firms or firms with fewer competitors regard corruption as less of an issue and pay bribes less often (Bennedsen et al., 2009). Compared to employees working in larger companies, international SME employees are more likely to believe corruption to be part of the *modus operandi* and more common in their specific country. There is a particularly high risk of corruption for internationally operating SMEs (Becker et al., 2012). Why international SMEs are more susceptible to corrupt actions compared to larger companies can be explained by their specific characteristics, which will be discussed in the following section.

A lack of resources can cause a threat to SMEs when facing corruption. For instance, it can be caused by insufficient knowledge of foreign markets. Internationally active SMEs operate in different regions with different business practices and customs from their own. When engaging with actors from foreign markets, SMEs can have inadequate information about the country-specific business practices, for example concerning the handling of unofficial payments. This also makes it difficult to distinguish between legal and illegal dealings, as there are many grey areas. A larger company usually has a market development expert or team instructed to inform and familiarise itself and the company with a country’s specific procedures and culture, whereas an SME with few human resources and little know-how of foreign countries and markets is more challenged in that regard (Amal and Filho, 2010; Hauser and Kronthaler, 2014). SMEs with little capital and smaller profit margins tend not to have the capacity to refuse corrupt offers because the consequences of refusing could cause them to go out of business (UNIDO and UNODC, 2012). SMEs are strongly dependent on networks to ensure their survival in the international market. By being

part of stakeholder networks they gain access to additional resources and information while also sharing their resources among other stakeholders. Stakeholder networks can help SMEs overcome their resource limitations, strengthen their strategic position and enhance their legitimacy (Amal and Filho, 2010; Ellis, 2011; Loane and Bell, 2006; Nyuur et al., 2018). Their dependency on stakeholder networks can also be a liability for SMEs when facing corruption. For example, delays in a cost-intensive foreign engagement, for instance if a supplier cannot deliver products in time, can have serious financial consequences for SMEs because they cannot offset temporary losses in one division against surpluses in other divisions, and the risk of insolvency can become critical very quickly. Therefore, SMEs have limited financial and temporal endurance, especially in the context of avoiding corrupt behaviour, because they are more economically dependent (Hauser and Kronthaler, 2014). Most aspects of coordination, such as communication and work processes, and the organisational culture, such as interpersonal and power relationships, within SMEs are often informal, while larger firms' structures tend to be formalised and hierarchical (Murrillo and Lozano, 2006; Wickert, 2016). The ethical behaviour of SME employees is based on their own moral beliefs, principles and values rather than guided by formal rules. This informality manifests itself in less rigid documentation, control systems and processes (Jenkins, 2006; Spence, 2007; Spence and Lozano, 2000; Wickert, 2016). The informal structures in SMEs and personal relationships between SME employees can be a reason for a corruption-tolerant organisational culture (UNIDO and UNODC, 2012). The lack of formalised documentation and processes can be an enabler of corruption, be it within the organisation or involving external parties, as corrupt practices cannot be exposed as easily. Another reason for SMEs to engage in corruption is to avoid government regulations, which can be a growth barrier for smaller firms (Aterido et al., 2011). "The more activities public officials control or regulate, the more opportunities exist for corruption" (USAID, 1999, p. 13, cited by Bertot et al., 2012, p. 265). Adhering to regulations can be a challenge for SMEs, as human and capital resources are needed to deal with the formal and complex administration and to build up an extensive compliance system. The financial costs needed to comply with regulations are often not proportional to company size, which puts SMEs at a disadvantage and makes evading regulations through corruption seem advantageous (Djankov et al., 2004). Research has shown that firm size as well as other factors have a positive influence on the bargaining power of a company (Grunert and Norden, 2012; Hauser and Kronthaler, 2014; Lepoutre and Heene, 2006). Due to the SMEs' low power in bargaining and influencing higher-level or political decisions, they may often perceive no other options than to accept a corrupt business offer (Hauser and Kronthaler, 2014; UNIDO and UNODC, 2012).

In sum, one may conclude that SMEs are even more likely than their larger counterparts to engage in corrupt behaviour when operating abroad, be it by choice or perceived obligation to ensure the firm's survival. Corruption can hence constitute a substantial barrier in the internationalisation of SMEs. It is therefore not only important for SMEs to be able to protect themselves against and to prevent corruption, but also to meet stakeholder expectations of being fair and transparent market actors. In order to achieve these goals, firms increasingly adopt digital tools and anti-corruption measures.

Anti-corruption ICTs

The Internet is one of the most revolutionary technological inventions of our time, and the basis of many ICTs. It may help specifically to increase transparency by making it possible to collect, distribute and access information at an extremely low cost (Bertot et al., 2010). As outlined above, SMEs seem particularly dependent on 'low-cost' solutions in the fight against corruption. Specifically, ICTs are a new approach for organisations to heighten their anti-corruption efforts and, more broadly, to achieve transparency. They are defined to "include relevant technologies, products and services as well as IT-related economic activity" (Smith, 2001, cited by Shim and Eom, 2009, p. 105). Anti-corruption ICTs find more and more use in organisations, and are analysed valuable and efficient tools to improve transparency, accountability and reduce corruption (Davies and Fumega, 2014). Scholars have suggested that corruption can be reduced through ICTs by endorsing good business governance and tracing, monitoring and controlling of business activities and by minimising opportunities for corrupt practices (Bertot et al., 2010; Shim and Eom, 2008). Threats to the use of anti-corruption ICTs are the sheer mass and reach of the accumulated data accessible through the Internet. They have heightened the possibilities of cyber-crime (Heimann and Mbiyavanga, 2018).

Often, when firms implement anti-corruption ICTs, the purpose is not solely to fight corruption, but also to improve management efficiency and services. The reduction in corruption opportunities and consequently less corruption cases in business environments is then often a welcome benefit of improved digitalised processes rather than an intended goal. This can be explained by the fact that according to some indicators including the Transparency International Corruption Perception Index (TI, 2018), corruption is perceived to be less common in developed countries compared to developing countries. Consequently, using ICTs to fight corruption may seem particularly relevant for SMEs from developed countries with operations in developing countries (Bhatnagar, 2003; Davies and Fumega, 2014; Mahmood, 2004). Commonly used anti-corruption ICTs are digitally published corporate reports such as financial and sustainability reports, codes of conduct,

anti-corruption initiatives and external reporting mechanisms (Branco and Delgado, 2012; Davies and Fumega, 2014; Gordon and Miyake, 2001; Mahmood, 2004; UNIDO and UNODC, 2012). A code of conduct, for example, can generate trust of an internal or external stakeholder towards the disclosing firm, which can be a business advantage. Trusted firms acquire contracts and clients, which in turn results in higher profitability. It can also have a positive effect on firms' public image, which can increase the likelihood of political and regulatory support (UNIDO and UNODC, 2012).

3. Methods

To answer the research question, we conduct a qualitative study on ICTs in the fight against corruption at international SMEs based on interview and documentary data (Corbin and Strauss, 2014). In particular, we conducted five semi-standardised interviews with corporate decision-makers to be able to acquire comprehensive knowledge on the topic of our study by exploring the individual perceptions of our interviewees (Hopf, 2017). In addition, we were able to engage in a follow-up correspondence with one interview partner to gain further insights into the most relevant cues from the initial data collection and analysis round. Finally, we considered company documents to complement individual perceptions with organisational-level statements.

Sampling approach

We chose international SMEs that differed on their general commitment toward sustainability and corporate social responsibility (CSR) assuming that sustainability-committed firms are more likely to be active in the fight against corruption compared to firms without any such commitment. A search for more CSR-committed firms was carried out by filtering companies according to their publishing of sustainability reports and experience of corruption and corruption reporting. Additionally, international SMEs that are members of the UNGC were of interest. The GRI's Sustainability Disclosure Database and the UNGC website were used for this search. The search was filtered for firms based in Switzerland and Germany, as both countries tend to be at similarly low levels of corruption risks (TI, 2018). The first author further filtered the search by scanning the firms' websites for codes of conduct, as well as for reports and brochures on SMEs' anti-corruption effort and organisational integration of digitalisation. Table 1 provides an overview of the conducted interviews including a description of the represented organisations and a brief explanation as to why they were asked for an interview.

Tab. 1: Overview of interview data

Abbreviation	Firm type	Function	Purpose	Interview date and type
IA	Professional services company	Managing Director	His knowledge on the firm's internal processes and its sustainability and digital orientation seemed relevant.	15 May 2019 (by phone)
IB	Bank	Head of Sustainability	Her position promised deep practical insight into the sustainability-conscious and transparent firm.	22 May 2019 (by phone)
IC	Food and beverage company	Business Development and International Clients	Interviewing an expert on international business seemed relevant for this thesis as it promised practical insight into the opportunities and risks of a small firm in foreign markets.	17 May 2019 (by phone)
ID	Industry association	Chief Executive Officer (CEO)	His position suggested a deep understanding of the international development of SMEs.	24 May 2019 (in person)
IE	Bank	Director Innovation Management	He is a digitalisation expert whose knowledge of digital risks, for example, seemed relevant.	10 May 2019 (by phone)

Our interview sample is comprised of organisational representatives and experts at different organisational levels in order to gain varied practical insights. In line with the recommendation of Meuser and Nagel (1989), the majority of respondents are middle management employees as they tend to not only be involved in decision-making, but also know internal processes and events better than the highest level.

To obtain information from as many different SMEs as possible, given the resources available to us, we chose to interview one informant per organisation. We developed an interview guide for each interviewee based on previous background analyses of the interviewee and the represented

organisation, as well as on cues deemed as potentially relevant along the research process (see Appendix).

Case context

Interviewee A is the Managing Director at a professional services firm. His task for the last two years has been to integrate digital processes and products into the firm. His knowledge on the firm's internal processes and its sustainability and digital orientation were reasons why he was contacted for an interview. The firm is an internationally active SME that produces hygiene products and silicates based in Switzerland. It employs around 120 people and reports an annual turnover of around 30 million CHF. It owns international subsidiaries in Taiwan, Singapore, Czech Republic, Germany, France and is a part of a joint venture in Slovakia. It sells to over 50 countries across Europe, America and Asia. The firm does not possess a code of conduct or has not published a corporate report since 2016.

Interviewee B is the Head of Sustainability at a Swiss bank. She was asked for an interview because her position promised deep practical insight into the sustainability-conscious and transparent firm. The firm provides ethical banking services, employs 120 people and reports an annual turnover of around 2 million CHF. Although the bank is not active internationally, they were requested for an interview as they are known to publish highly transparent business and sustainability reports, including lists of loans granted. The SME has a code of conduct. Interviewee C is responsible for Business Development and International Clients at a food and beverage company. He focusses on the export to and business development in the Middle East, Asia, Italy and kosher markets. The firm was requested for an interview because it is an internationally active and sustainability-aware SME. Interviewing an expert on international business seemed relevant for this study as it promised practical insight into the opportunities and risks of a small firm in foreign markets. We were able to conduct a second correspondence with him in order to follow up on relevant aspects he had mentioned in the first interview. We focussed the questions on his perception of the role of trust and the lack of human interaction when using anti-corruption ICTs for international SMEs. The SME is a traditional family business based in Switzerland that produces chocolate goods. They have a total of 200 employees and an annual turnover of 60 million CHF. A quarter of its production is distributed internationally. The firm does not publish corporate reports or a code of conduct. Interviewee D is the CEO of an investment promotion firm. He was requested for an interview because his position suggests a deep understanding of the international development of SMEs. The firm is an internationally active SME based in Switzerland. It focusses on economic development, export and location promotion on

behalf of the Swiss government and supports SMEs in their internationalisation process. They have around 100 employees and an annual turnover of 11 million CHF. The firm uses a code of conduct. As part of their SME development services they suggest adopting and offer company- and industry-specific codes of conduct to clients.

Interviewee E is the Director of Innovation Management at a bank headquartered in Germany. He specialises in digital innovation topics such as new business models, services and products. He was requested for an interview because he is a digitalisation expert whose knowledge of digital risks, for example, seemed relevant. The firm offers digital financing solutions in the real-estate industry, has a total of 2788 employees and its annual turnover generally exceeds 1 billion Euros. They operate in more than 20 countries on three continents. They are a member of the UNGC, regularly publish sustainability reports and possess a code of conduct.

According to the European Commission, a company with 250 or fewer employees and either an annual turnover of 50 million euros or less, or a balance sheet total not exceeding 43 million euros is defined as an SME (European Commission, 2019). A few of the interviewed firms exceed the technical SME criteria. Interviewee C's firm generates an annual turnover by 6 million euros over the limit set by the European Commission, and Interviewee E's firm's employee count and annual turnover exceed the limit considerably. However, we justify our classification of these firms by the fact that the interviewees themselves consider their firms as SMEs. For Interviewee E's firm, this may be the case because the bank is surrounded by competing banks that are much larger in size.

Data collection

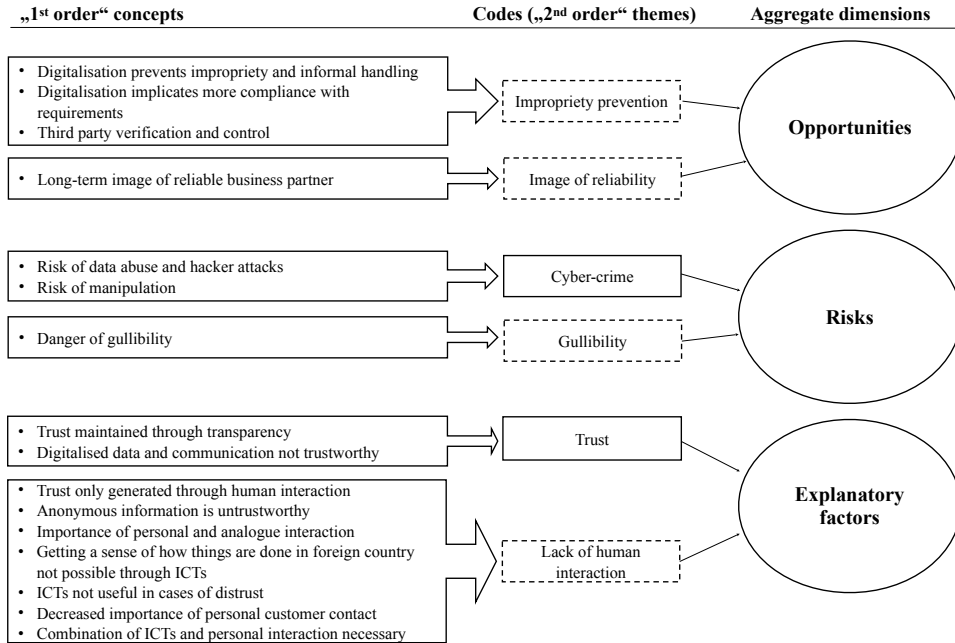
Interviews. At the beginning of the interview, we gave a brief introduction into the research topic. We chose, however, not to specifically and directly frame our research topic because of the sensitivity of the issue of corruption. Instead, we presented our research topic as the influence of digitalisation, specifically ICTs and transparency, on sustainable stakeholder interaction at international SMEs. The interview questions were based on the content of the two thematic blocks from the guide, such as the firms' opportunities and risks in an international market, their most important stakeholders, the firms' internal and sustainability practices and the influence of digitalisation on those practices (see Appendix). After the interview, the first author transcribed the recordings of the conversations (see Table 2 for exemplary evidence from the interview data). The respective abbreviations from Table 1 have been used to title the interviewees. As an example, statements by Interviewee A have been marked "IA". The quotations shown in the findings refer to the respective interview and quote and

are indicated as follows: (Abbreviation, quote number). *Documentary data.* In addition to the interview data, we collected a total of eight public and corporate documents published between 2013 and 2019, amounting to 165 pages. We initially focussed on documents referred to by the interviews, and included further documents that appeared relevant in these contexts (Kalina et al., 2003).

Data analysis

In order to analyse the data generated from the expert interviews, we used the methodology by Gioia et al. (2013), also known as the Gioia Methodology. The Gioia Methodology is a systematic approach to conducting inductive research, and guiding and presenting its analysis. It is designed to ensure that organisational dynamics are understood by “capturing concepts relevant to the human organisational experience in terms that are adequate at the level of meaning of the people living that experience *and* adequate at the level of scientific theorizing about that experience” (Gioia et al., 2013, p. 16). This approach presents a “1st order” analysis of “informant-centric terms and codes” and a “2nd order” analysis such as “researcher-centric concepts themes and dimensions” (Gioia et al., 2013, p.18). Coding the interview and documentary data with the software Atlas.ti, the first author created “1st order” concepts by relying closely on the informant’s expressions, and regularly discussed with the second author the potential relevance of the identified concepts, as well as their similarities and differences. Based on such discussions, the first author grouped similar and potentially relevant “1st order” concepts into “2nd order” themes, labelled “codes” in our study. We initially focussed our analysis primarily on the perceived opportunities and risks of ICTs for international SMEs in the fight against corruption. For example, we treated emerging concepts such as trust, impropriety prevention, lack of human interaction and cyber-crime as such opportunities or risks. Furthermore, whenever we realised that our story became too complex, we decided to eliminate codes, e.g., those distinguishing between different “affordances” related to ICTs. This iterative process was performed multiple times. Only in a later stage of our analysis, we came to realise that trust and the lack of human interaction actually play an explanatory role in why SMEs perceive the use of ICTs more as an opportunity or a risk, rather than constituting an opportunity or risk themselves. Once a certain maturity became evident regarding the nature, amount and labelling of the 2nd order themes, we jointly discussed how to further integrate them into a smaller set of – ultimately three – “aggregate dimensions”. The final data structure (see Figure 1) emerging from this process “provides a graphic representation of how we progressed from raw data to terms and themes in conducting the analyses” (Gioia et al., 2013, p. 20).

Fig. 1: Data structure



The inductive codes are distinguished from the deductive codes by means of dashed lined boxes. Once the data structure has been built, we finalised the analysis by creating a theoretical model to show the dynamic interrelationships between the generated codes and aggregate dimensions (Gioia et al., 2013). The theoretical model (see Figure 2) shows how the explanatory factors trust and lack of human interaction are embedded in this dynamic.

4. Findings

To answer our research question as to why SMEs perceive ICTs more as opportunities or risks in the fight against corruption, we first outline the identified opportunities and risks, and then elaborate on the role of trust and the lack of human interaction as the two central explanatory factors in the relation between SMEs' use of ICTs and perceived opportunities vs risks. The results are presented as "1st order" concepts that rely on representative excerpts from interview and documentary data (see Table 2). Unless otherwise noted, a code is generated deductively.

Tab. 2: Exemplary evidence from interview data

Code	"1 st order" concept	Quote
Impropriety prevention	Digitalisation prevents impropriety and informal handling	"Digitalisation brings a lot of transparency into processes and prevents improprieties and informal handling." (ID, 1)
	Digitalisation implies more compliance with requirements	"Digitalisation creates more transparency, more requirements that must be met." (ID, 2)
	Third party verification and control	"Third party verification and control [are opportunities that arise for SMEs when using ICTs in their fight against corruption when there is no trust in the business relationship]." (IC, 1)
Image of reliability	Long-term image of reliable business partner	"[...] but at least after two or three years, word gets around that you're clean and reliable, and then you get a completely different clientele. Then you'll be approached by those who are looking for reliability, thoroughness and honesty." (ID, 3)
Cyber-crime	Risk of data abuse and hacker attacks	"A month ago my CFO came to my office and said, "Ah, you're here. Look, I've just received an email from you". The email said: "Dear Anja, please transfer 64,000 francs immediately to this account and I will give you the necessary forms this afternoon. But this is urgent. I'm not in the building right now." And it was signed by me. Digitalisation can also bring dangers. The processes must then of course be done right. Someone suddenly has access to my email and gives out such an order from my email account to my CFO. I know companies where such orders were followed, where people don't check such processes internally. With us, you can't give out a cent if the necessary forms aren't available, and not even if the CEO says: "I'll give them to you in the afternoon. Do it now. It's urgent."" (ID, 4)
		Risk of manipulation
Gullibility	Danger of gullibility	"ICTs can lead to gullibility when even false information is communicated professionally." (IC, 3)
Trust	Trust maintained through transparency	"That is transparency, but at the same time a high degree of trust is placed in us. They want us to be transparent, but at the same time they trust us to do things right. There is no mistrust about what we stand for and who we are." (IB, 1)
	Digitalised data and communication not trustworthy	"Trust in digital anonymous information does not exist." (IC, 4)

Lack of human interaction	Trust only generated through human interaction	"Digitalisation is just anonymity. When you are anonymous, there is a lot you can do and a lot you can hide. But when you have been in personal contact with each other and have worked together for a long time, it is like a relationship. Even a marriage is not digital, it is based on trust. Trust is only possible through human relationships." (IC, 5)
	Anonymous information is untrustworthy	"Trust in digital anonymous information does not exist." (IC, 4)
	Importance of personal and analogue interaction	"Analogue and really talking to each other and not only exchanging data." (IC, 6)
	Getting a sense of how things are done in foreign country not possible through ICTs	"I cannot get a sense for how a customer dialogue is held in a foreign country through Skype or other digital media." (IA, 1)
	ICTs not useful in cases of distrust	"Whether internationally or nationally, if, for example, you don't trust your sales department and don't trust the feeling of the sales department, then you cannot achieve anything with digital tools." (IA, 2)
	Decreased importance of personal customer contact	"The more these platform topics or general digital topics and digital competitors enter the market, the less important personal customer contact becomes in this segment as well." (IE, 1)
	Combination of ICTs and personal interaction necessary	"Exactly, the combination is important. In my opinion all these network issues need to be dealt with in an analogue manner for years to come. But the administration simply has to be done digitally, so that that work can be taken off these people's hands, who are supposed to maintain personal networks and need the time to do so." (IA, 3)

Perceived opportunities of using ICTs in the Fight against Corruption at SMEs

The interviewees mentioned two main opportunities that can arise from the use of anti-corruption ICTs that are relevant for SMEs: First, the prevention of improper transactions and dealings and, second, the creation of an image of reliability. These codes emerged inductively from the analysed data.

Impropriety prevention

Digitalisation prevents impropriety and informal handling. Interviewee D explained that the motivation for actors to conduct improper and informal actions is mitigated because disclosed data may uncover improprieties.

"Digitalisation brings a lot of transparency into processes and prevents improprieties and informal handling." (ID, 1)

Digitalisation implicates more compliance with requirements. Interviewee D also stresses that increased digitalisation not only creates transparency, but also implies more requirements to be complied with.

“Digitalisation creates more transparency, more requirements that must be met.” (ID, 2)

Third party verification and control. For Interviewee C, the opportunity to verify and control third party transactions and processes is relevant when using ICTs to fight corruption.

“Third party verification and control [are opportunities that arise for SMEs when using ICTs in their fight against corruption when there is no trust in the business relationship].” (IC, 1)

Image of reliability

Long-term image of reliable business partner. Interviewee D explains how the firm he works for, as part of its consultancy services, recommends SMEs to adopt a code of conduct to sustainably achieve an image of trustworthiness and signal corruption intolerance.

“We tell our customers, when they go to Indonesia - Indonesia is a highly corrupt country, still – that that’s just the code of conduct, which is part of the contract terms - “We don’t advise you to get involved in something like this and “join in the corruption” because it’s not sustainable”. The companies, specifically in Indonesia - I know a lot, I’m often there - who are not playing along, all say: “It’s hard at the beginning. You lose jobs or you don’t get jobs that you would have gotten if you paid a little bit of money, but at least after two or three years, word gets around that you’re clean and reliable, and then you get a completely different clientele. Then you’ll be approached by those who are looking for reliability, thoroughness and honesty.” They all say that it’s worth it. It’s a little harder at first, but it’s worth it.” (ID, 3)

Perceived risks of using ICTs in the fight against corruption at SMEs

Central risks that arise when SMEs use ICTs to fight corruption emerged from the literature review and the conducted interviews. Cyber-crime, such as hacker attacks and data manipulation, may make anti-corruption ICT ineffective. The danger of stakeholders being gullible when faced with seemingly professional digitalised information was also mentioned repeatedly.

Cyber-crime

Risk of data abuse and hacker attacks. A particular challenge for SMEs using ICTs to fight corruption is related to risks of data security. For example, Interviewee D explained how publishing information and data could enhance the risk of hacker attacks. He illustrated an example of how his email account was hacked and a specific employee of his firm was contacted and ordered to transfer money immediately. He explained how SMEs could be especially

susceptible to such hacker attacks because they may lack formalised processes such as filling out necessary forms in order to execute money transfers.

"A month ago, my CFO came to my office and said, "Ah, you're here. Look, I've just received an email from you". The email said: "Dear Anja, please transfer 64,000 francs immediately to this account and I will give you the necessary forms this afternoon. But this is urgent. I'm not in the building right now." And it was signed by me. Digitalisation can also bring dangers. The processes must then of course be done right. Someone suddenly has access to my email and gives out such an order from my email account to my CFO. I know companies where such orders were followed, where people don't check such processes internally. With us, you can't give out a cent if the necessary forms aren't available, and not even if the CEO says: "I'll give them to you in the afternoon. Do it now. It's urgent."" (ID, 4)

Risk of manipulation. Interviewee C suggests that ICTs, for example digitalised formal processes, may be manipulated and thus not be effective.

"But formal organisational processes and controls can create a false sense of security. Formal organisational processes can be anticipated by frauds, so controls can lose their effectiveness." (IC, 2)

Gullibility

This code was generated inductively from the analysed interview data.

Danger of gullibility. According to Interviewee C, the professional nature of digitally communicated information may make the information appear more believable, which could make stakeholders more gullible towards it.

"ICTs can lead to gullibility when even false information is communicated professionally." (IC, 3)

The role of trust in using ICTs in the Fight against Corruption at SMEs

Trust was frequently mentioned as an important factor for SMEs when using anti-corruption ICTs. While some of the conducted interviews show that firms' use of ICTs and transparency maintain the trust that is placed towards them, others suggest that digitally communicated information is not trustworthy.

Trust maintained through transparency. Interviewee B explained that because their firm's core values relied on sustainability and ethics, and transparency was a key strategy of the firm, their stakeholders trusted the firm. Their disclosure of business activities through publishing reports further built up their stakeholders' trust in them.

"That is transparency, but at the same time a high degree of trust is placed in us. They want us to be transparent, but at the same time they trust us to do things

right. There is no mistrust about what we stand for and who we are.” (IB, 1)

In their codes of conduct, the bank and the industry association at which Interviewee E and Interviewee D are employed respectively explained that maintaining and building stakeholders’ trust in them was one of the main reasons for publishing codes of conduct.

“The fight against corruption, bribery and corruptibility in all its forms is of particular importance due to the complex challenges in our international business. [...] The opportunities arising from sound risk and compliance management in the fight against corruption and bribery lie in building and maintaining the trust of our shareholders, customers and business partners, supervisory authorities and other stakeholders in society. It thus serves to promote long-term customer loyalty and the continuous economic growth of the company.” (IE, nonfinancial report)
“We have summarised our values and basic beliefs in this code of conduct with the intention of maintaining and further expanding this trust.” (IE, code of conduct)

Digitalised data and communication not trustworthy. Interviewee C, on the other hand, maintained that trust could not be generated through the use of ICTs as digitalised communicated data was not trustworthy. According to him, his firm relied on analogue communication channels or face-to-face communication when interacting with other stakeholders such as suppliers. He stated that one could not build trust in a relationship with stakeholders through digital channels, as the data was anonymous and could easily be manipulated. To build and maintain trust in business relationships, he and his firm arranged personal meetings. They set high value on personal interaction and thereby travelled regularly to the stakeholder’s country.

“Trust in digital anonymous information does not exist.” (IC, 4)

The role of the lack of human interaction in using ICTs in the Fight against Corruption at SMEs

The parties involved in the use of ICTs do often not, or no longer, communicate face-to-face. The interviews show that some firms perceive such a lack of human interaction in the use of ICTs as a crucial challenge for SMEs. The inductively emerged code “lack of human interaction” captures this concern. Interviewees argue that for communication to be effective, the communicator, in this case the organisation, and the communicated information need to be reliable and credible. For this to be ensured, personal contact and face-to-face communication is required.

Trust only generated through human interaction. Interviewee C stressed that because communication through digital tools is anonymous, it is neither effective nor does it generate trust. Anonymity acts as an incentive for illicit behaviour and the concealing thereof.

“Digitalisation is just anonymity. When you are anonymous, there is a lot you can do and a lot you can hide. But when you have been in personal contact with each other and have worked together for a long time, it is like a relationship. Even a marriage is not digital, it is based on trust. Trust is only possible through human relationships.” (IC, 5)

Anonymous information is untrustworthy. Interviewee C makes an example of his firm’s relationship with their cocoa bean suppliers in Ghana. He stresses that it is important to the firm that they regularly visit the production site, to be in personal contact with the business partners and their workers, and to scrutinise the operating processes, because only seeing the information digitally is not trustworthy to them.

“Trust in digital anonymous information does not exist.” (IC, 4)

Importance of personal and analogue interaction. On how Interviewee C’s firm generally communicates with stakeholders such as their Ghanaian suppliers, he responded by saying that it was mostly analogue communication which supported good business relationships.

“Analogue and really talking to each other and not only exchanging data.” (IC, 6)

Getting a sense of how things are done in foreign country not possible through ICTs. Interviewee A explained that getting a sense of the how things are done in a foreign country, which is important in international business conduct, is not possible through the use of ICTs.

“I cannot get a sense for how a customer dialogue is held in a foreign country through Skype or other digital media.” (IA, 1)

ICTs not useful in cases of distrust. Interviewee A also pointed out that ICTs were not useful in cases where there was distrust or a lack of trust among the partners. The lack of human interaction when using ICTs could not aid in generating trust, especially not in an already untrustworthy environment.

“Whether internationally or nationally, if, for example, you don’t trust your sales department and don’t trust the feeling of the sales department, then you cannot achieve anything with digital tools.” (IA, 2)

Decreased importance of personal customer contact. Interviewee E contradicts the argument that the lack of human interaction in the use of ICTs is a risk especially in the digital product market, because in that segment the importance of face-to-face communication among stakeholders is decreasing.

“The more these platform topics or general digital topics and digital competitors enter the market, the less important personal customer contact becomes in this segment as well.” (IE, 1)

Combination of ICTs and personal interaction necessary. Asked how digital tools could be used most effectively, Interviewee A said that they needed to be used in combination with personal interaction with stakeholders.

“Exactly, the combination is important. In my opinion all these network issues need to be dealt with in an analogue manner for years to come. But the administration simply has to be done digitally, so that that work can be taken off these people’s hands, who are supposed to maintain personal networks and need the time to do so.” (IA, 3)

The bank at which Interviewee B works at wrote and published a report on ethics and digitalisation in which they stated that business relationships in the banking industry heavily relied on trust and that trust could not be cultivated digitally. The report stressed that communication in consulting processes required a combination of an analogue and digital approach. Only through personal contact could the bank discuss values with stakeholders or assess customers’ creditworthiness.

“We must therefore be able to continue to follow our common sense in a digital society. We must not incapacitate ourselves by completely delegating our autonomy to robots with algorithms.” (IB, ethics and digitalisation report)

5. Discussion

Our analysis has revealed both opportunities as well as challenges for SMEs using ICTS in the fight against corruption. Impropriety prevention can be an opportunity of adopting ICTs and transparency for international SMEs due to the informality of their organisational structure and culture. Informal and improper handlings such as illicit transactions could likely occur at international SMEs because they tend to lack formalisation. For example, strict regulations could motivate smaller firms to engage in corruption. The fact that ICTs enable transparency and require conventions and regulations strengthens the argument that they may also be preventative measures against improper behaviour such as corruption, while on the other hand one can argue that ICTs can enable impropriety because disclosed data can be used for improper handlings (see, for example, ID, 1).

Furthermore, as stated by Interviewee D (ID, 3), using ICTs to signal corruption intolerance in foreign markets, for example through codes of conduct, can be an opportunity for international SMEs. That way an image of reliability and trustworthiness can be achieved and long-term business relationships and networks can be built, which is vital for SMEs.

The use of ICTs and the resulting transparency endangers the disclosed data to be used for cyber-crime purposes (Heimann & Mbiyavanga, 2018). International SMEs’ informality, manifested in a lack of obligatory forms to effect money transfers, for example, may increase the commission of

cyber-crime. The hacker attack on Interviewee D's email account, where the CFO was told by email – seemingly by her boss, Interviewee D – to urgently transfer a high sum of money to a certain bank account, is a notable example of this (ID, 4).

As mentioned in the theoretical background and findings, the perceived trust towards an SME can play an important role when using ICTs to fight corruption. Interviewee B's firm is a prime example for this. The core strategy of the bank, in contrast to other common banks, is based on ethical standards, sustainability and transparency, which is one main reason why their stakeholders have great trust in them. The use of digitalisation through ICTs is a fundamental aid to transparency (Bertot et al., 2010). A statement published in Interviewee E's firm's nonfinancial report, that a reliable risk and compliance management system to fight corruption is especially advantageous to build trust, supports this argument (IE, nonfinancial report). Interviewee D claims that publishing a code of conduct and signalling corruption intolerance creates a sustainable public image of being a trustworthy firm (ID, 3). Nevertheless, a firm is expected to maintain those communicated values continuously. The act of disclosing information about a firm's activities requires critical reflection of those activities. Trust is a valuable factor when using ICTs and being transparent for international SMEs because of the fierce competition and their dependency on networks. A customer's trust in an SME can create a bond between the customer and the firm. This can be an advantage for the SME in a highly competitive market. Furthermore, trust of stakeholders in SMEs can strengthen stakeholder relationships and networks. With regard to anti-corruption ICTs in particular, publishing financial and sustainability reports and codes of conducts can bring about opportunities for international SMEs because they can now easily and at very low cost communicate to a wide range of stakeholders worldwide that they do not tolerate corruption and thus establish trust with such stakeholders. The interviews show, however, that there are not only such optimistic opinions on the role of ICTs in establishing trust: Interviewee C, for example, stated that trust cannot be created through the use of ICTs as it often goes along with a lack of human interaction as a crucial component of establishing or maintaining trust. The lack of human interaction experienced when using anti-corruption ICTs may be hindering for international SMEs because of their informality, low bargaining power, dependency on networks, the fierce competition and cultural differences among stakeholders. As Interviewee C explained (IC, 6), the informality of the international SME that he works for was shown in their attaching great importance to analogue interaction and personal relationships. This, in combination with the communication among users that takes place via technology rather than face-to-face, may lead to ineffective results when using ICTs for international SMEs. Not only because of their low bargaining

position do international SMEs rely on personal connections and relationships with stakeholders and thus stakeholder networks, but also because of their dependency on them. These relationships require frequent personal interaction in order to be maintained, which may not be guaranteed when relying too much on communication through ICTs. Personal relationships with stakeholders can also be a competitive advantage which may differentiate SMEs from their competitors but they may not be taking place when ICTs are used as the main communication channel to customers. In addition, an international SME needs to get to know the many cultural differences and adapt to the country-specific circumstances between itself and its stakeholders, in order to learn how to deal with them. According to Interviewee A this was not possible through digital tools but through personal contact, which is not ensured through the use of ICTs (IA, 2). Interviewee C perceived digital communication as anonymous (IC, 4). He argued that anonymous communication was not trustworthy, whereas personal contact could be conducive to trustworthiness. In an ethics and digitalisation report, Interviewee B's firm warns not to rely too heavily on digitalisation and claims that business decisions still need to be based on common sense (IB, ethics and digitalisation report). Interviewee E's statement, that in an increasingly digitalised and digital market personal contact among stakeholders was becoming less important (IE, 1), is a counter-argument to the lack of human interaction being hindering for international SMEs when using ICTs. ICTs enable exchange with various users and communities of diverse experiences, where personal interaction is not relevant. The lack of human interaction may also be advantageous for SMEs in their fight against corruption when trust is not existent in the business relationship, for instance when a business partner is rated as potentially corrupt. As an example, a Swiss SME needs to get a license in order to establish a foreign subsidiary. Instead of having to deal with local government officials in person, where demanding of bribes would be likely, these transactions could be carried out online and the exact transaction amount disclosed. The lack of human interaction being an advantage can also apply to communication canals such as anonymous whistleblowing sites provided by firms or state institutions, for example, that allow sharing experiences of corrupt handlings with authorities or other organisational members. As mentioned above, the interviews show that there are contradicting opinions on whether the use of ICTs is more of an aid or a hindrance for international SMEs. Interviewee C stated that trust could not be generated through the use of digital tools because of the lack of human interaction that the digital aspect created, and therefore ICTs were not suitable tools for SMEs to use to communicate with stakeholders (IC, 5). The example of the bank at which Interviewee B is employed at shows that while the firm frequently used ICTs and was transparent, stakeholders had trust in them, although this trust was not merely generated through

the use of these ICTs. The firm's ethical standards, their actions that were based on these standards and the personal interaction of the firm with its stakeholders were the basis of this trust. The use of ICTs and the transparency merely strengthened the trust. As Interviewee C mentioned (IC, 5), trust was based and needed to be built on human interaction. Trust needed already to exist before a firm could adopt and rely on ICTs. Only after a basis of trust between stakeholders and a firm had been formed could ICTs be adopted to maintain the trust. Interviewee A's statement (IA, 2), that digital tools were not effective if trust was not already existent between a firm and its stakeholders, supported this argument. Interviewee E's firm also makes this point by explaining that their intention to publish a code of conduct lies in maintaining and further developing trust (IE, code of conduct). As Interviewee A also stated, digital tools were most effective when used in combination with personal, face-to-face communication (IA, 3). In the context of reducing possibilities for corruption, ICTs and transparency could be adopted, but analogue communication with stakeholders to build trust needed to be guaranteed. These relationships between international SMEs and their stakeholders need to be based on a constructive amount of trust in order for the use of anti-corruption ICTs to be efficient. A too high degree of trust in a firm could result in risks such as gullibility (see IC, 3), where someone might blindly trust any information that is given through ICTs. This high degree of trust could be taken advantage of and thus ICTs (Langfred, 2004; Tonoyan, 2004) could be used to publish false information.

Theoretical model

Fig. 2: Theoretical model: ICTs as an opportunity or risk for international SMEs in the fight against corruption (in italics).

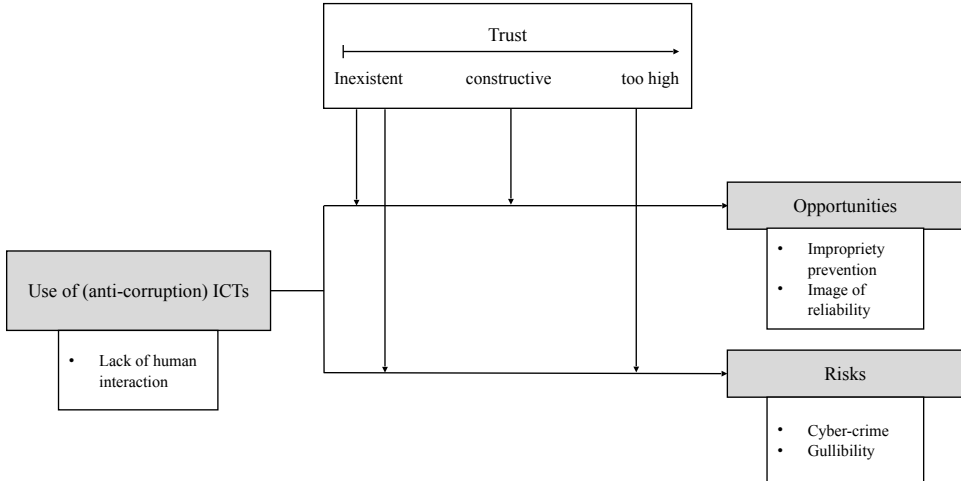


Figure 2 shows the theoretical model emerging from our empirical analysis. The model depicts the interrelationships between the use of ICTs and the perceived opportunities and risks for international SMEs in the fight against corruption. It shows what opportunities and risks may arise when using ICTs to fight or prevent corruption depending on the degree of trust between SMEs and their business partners. In our theoretical model, the use of ICTs and the thereby increased transparency constitute the independent variable, which lead to positive or negative outcomes, being the opportunities and risks. Our findings show that the lack of human interaction can be considered as an attribute of the form of communication of ICTs. The increased lack of human interaction as well as increased transparency by using ICTs can either lead to opportunities or risks. Considering our findings, we argue that trust may be seen as an explanatory factor for the opportunities and risks and thereby contributes as a moderator. Depending on the degree of trust between an international SME and a stakeholder, their use of ICT to fight corruption may lead to opportunities or risks. We argue that a constructive amount of trust leads to opportunities for SMEs when using ICTs to fight corruption, for example if a stakeholder and an SME are already in a trusting relationship and that trust is maintained. The use of ICTs may pose a risk when this trust becomes too high and lead to overreliance. For example, false information can be disclosed knowing that it is trusted blindly and not scrutinised. In situations where there is no trust, the use of ICTs and the lack of human interaction can lead to opportunities

such as impropriety prevention through third party verification and controls (see IC, 1). Other voices suggest that where trust is not existent, ICTs are not effective to fight corruption for international SMEs, as trust needs to be built through personal communication (see IA, 2, and IC, 5).

6. Conclusion

This study contributes to closing the current knowledge gap regarding the influence of technology on the fight against corruption at international SMEs (Bertot et al., 2010; Branco and Delgado, 2012; Davies and Fumega, 2014; Heimann and Mbiyavanga, 2018; Mahmood, 2004). We outlined central opportunities and risks (Tonoyan, 2004). that can arise for international SMEs when incorporating technology in their organisational practices to prevent and fight corruption and to achieve transparency (Aterido et al., 2011; Bennedsen et al., 2009; Hauser and Kronthaler, 2014; Murillo and Lozano, 2006; Wickert, 2016). We added a theoretical model to the existing literature illustrating that the degree of trust between an international SME and a stakeholder can play a role in whether using anti-corruption ICTs lead to opportunities or risks. On the one hand, statements from the interviews and analysed documents confirmed that trust towards a firm can arise from using ICTs. On the other hand, the interviews and documents also revealed that the use of ICTs can be ineffective when the shared information is not perceived as reliable or trustworthy in case of lacking human interaction (Langfred, 2004). Consequently, our findings suggest that the anonymity created through technology needs to be overcome in order to make ICTs an effective tool for international SMEs in the fight against corruption. The popular opinion voiced in the interviews is that the combination of personal interaction and the use of ICTs are important to create an environment of trust and corruption intolerance. The interviews reveal that a constructive basis of trust between stakeholders and a firm should already exist before the use of ICTs can generate trust on a wider, faster and ongoing basis. Nevertheless, disclosed information must be subjected to scrutiny by its receivers. In the case of trust being inexistent between an SME and a stakeholder, the interviews reveal that the use of anti-corruption ICTs can lead to opportunities or to risks for SMEs. The interviews also showed that the use of ICTs can increase the likelihood of cyber-crime being committed, which could create possibilities for corrupt behaviour. The practical implication resulting from our study is that international SMEs should be aware of their basis of trust with the respective business partners and the role of personal interaction before they decide to use ICTs to fight or prevent corruption. For both anti-corruption ICTs and ICTs to create transparency to be effective, they need to be adopted across

industries and in combination with governmental and institutional anti-corruption efforts.

Limitations and future research

Naturally, this study is not without limitations, and hence offers a range of opportunities for future research. Firstly, as is common for qualitative research, our findings are based on a small sample of organisations. In addition, the international SMEs that were referenced in the interviews are part of a heterogeneous mix of industries. Therefore, the findings may not be representative for the whole spectrum of internationally active SMEs but solely speak to the interviewed SMEs. They may also be biased due to our preselection of organisations. Secondly, as the aforementioned sensitivity of the issue of corruption suggests, questioning the interviewees on the issue of anti-corruption was only possible to a certain extent and had to be handled delicately. This proved to be a hindrance to answering the research questions as the interviews did not provide much specific information on anti-corruption per se.

As the literature and the results of the conducted interviews suggest, digitalisation is increasingly used and valued by businesses for their organisational practices and processes and to reduce corruption. In addition, the development of SMEs in international markets is crucial for a progressive economy. The relevance of the subjects of technology, anti-corruption and international SMEs is apparent, and further research on the subjects is therefore necessary and important. An exciting avenue for future research is analysing the relation between the perceived opportunities and risks of anti-corruption ICTs and the specific characteristics of international SMEs, in order to see under which conditions these opportunities and risks prevail. Although the choice of qualitative research on the subject seems appropriate, future research could benefit from a larger number of conducted interviews for the results to be more representative for the research subject.

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Appendix: Interview guide

Structure	Questions
Introductory questions	How long have you worked at firm X? What are the central tasks in your function at firm X?
Thematic block I: International market & stakeholders	What are the central challenges your firm faces in its international business activities? What are the most important two or three stakeholders your firm has to deal with in the international market? (suppliers, customers, government representatives/ licensors, etc.) What expectations do the respective stakeholders have of your firm with regard to business practices, sales commissions, informal payments, etc.?
Thematic block II: Practices & processes	What organisational practices or processes does your firm have to meet these expectations? (Code of conduct, training, monitoring, (anonymous) reporting mechanism for misconduct, etc.) How and why have the practices and processes evolved over time? Does digitalisation have an impact on your compliance and sustainability practices? If so, how and why? If not, why not? (Greater reach for communication with customers, the public, greater awareness of potential risks, lower costs for compliance (accounting software, online training and audits, etc.))
Closing questions	What are the next steps planned in regard to compliance and sustainability? Where do you see future challenges? Is there anything else you would like to add?

OTHER RESEARCH ARTICLES



**PUNCTUAL CRISIS ASSESSMENT IN SMES:
AN APPLICATIVE MODEL**

*La conoscenza tempestiva delle crisi nelle imprese di minori dimensioni:
un modello applicativo*

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Abstract

Due to the changes introduced by the Crisis Code, even small companies without Management Accounting must intervene on their administrative information system to be able to promptly perceive the symptoms of crisis situations. Framed the problem that small companies have to face, in the second part the solution proposed is shown with the example of a business case. In particular, an application model is presented which, at regular intervals, draws up an interim balance sheet and a forecast of income and monetary flows.

The interim financial statement shows whether the company is profitable and whether it is adequately capitalized. The income and monetary forecasts, on the other hand, show whether in the future the company will produce losses and will have to face financial imbalances.

1. Oggetto, finalità, metodo di indagine.

Una delle principali finalità perseguite dal Codice della Crisi d'impresa e dell'insolvenza (di seguito il Codice), è l'emersione tempestiva delle situazioni di crisi. A tal fine il Legislatore ha introdotto gli "strumenti di allerta", nell'ambito dei quali riveste un ruolo centrale l'adeguamento dei sistemi informativi amministrativi, strumentale all'elaborazione degli indicatori da utilizzare per individuare le situazioni di crisi.

Il presente lavoro ha per oggetto i cambiamenti da introdurre nel sistema informativo amministrativo delle piccole imprese per ottemperare agli obblighi introdotti dal Codice di gestione della crisi.

L'approfondimento delle tematiche aziendali in relazione alle dimensioni d'impresa è un tema ormai classico negli studi economico-aziendali italiani, che trova nel trattato in tre volumi di Isa Marchini il più autorevole punto di riferimento dottrinale. La scelta di focalizzare l'attenzione sulle imprese di minori dimensioni è giustificata dai caratteri che le differenziano rispetto a quelle di maggiori dimensioni, con particolare riguardo al grado di strutturazione del sistema informativo amministrativo. Se, infatti, nelle imprese italiane di medie dimensioni non è inusuale che siano presenti sistemi strutturati di programmazione e controllo, adeguatamente supportati da sistemi ERP (Agliati, 1999: 11), in quelle di minori (Bastia, 2018: 1) ciò accade meno di frequente. Per le imprese in parola, l'adeguamento dell'assetto organizzativo richiesto dall'art. 3 del Codice della Crisi di impresa non è né semplice né scontato: da un lato perché l'introduzione di sistemi strutturati di programmazione e controllo potrebbe risultare eccessivamente onerosa; dall'altro perché il personale amministrativo potrebbe non essere dotato delle competenze necessarie per presidiare le elaborazioni necessarie ad alimentare i flussi informativi dei processi di programmazione e controllo. Risulta pertanto di grande importanza, per le imprese in questione, strutturare un complesso organico di misurazioni economiche che consenta loro, a costi contenuti, di monitorare a cadenza periodica, con un grado accettabile di approssimazione, l'andamento economico della gestione ed i suoi effetti sull'economicità aziendale.

Si tratta di un problema non ancora adeguatamente approfondito dalla recente dottrina (Baldissera, 2019; Ranalli, 2019; Quattrocchio, 2019) e dalla prassi, sebbene di stringente attualità: pur essendo decorso l'obbligo per le imprese di minori dimensioni di adeguare l'assetto organizzativo nel marzo 2019, infatti, risulta che gran parte di esse debbano ancora provvedervi¹. Le difficoltà delle imprese di minori dimensioni sono note anche

¹ A riguardo delle risultanze dell'indagine condotta da PWC Tls, riferita al giugno 2019, cfr. il quotidiano *Il sole 24 ore* del 26 agosto 2019, pagina 4.

al Legislatore: l'art. 41 dello Schema di Decreto Legislativo correttivo del Codice della Crisi ha spostato al 15 febbraio 2021 l'obbligo di segnalazione per le imprese non soggette all'obbligo di nomina del sindaco/revisore. Tale slittamento testimonia come il legislatore sia consapevole del fatto che ad oggi le piccole imprese sprovviste di sistemi di programmazione e controllo non dispongono di un modello applicativo per elaborare in modo rigoroso, affidabile e tempestivo le informazioni economiche necessarie per intercettare l'approssimarsi di situazioni di crisi.

Il presente lavoro intende contribuire a risolvere il problema in esame proponendo un modello applicativo, che verrà illustrato con il supporto di un caso aziendale.

Nella prima parte del lavoro si delinea la natura del problema conoscitivo, evidenziando il fabbisogno di informazioni economiche determinato dalle norme del Codice di Gestione della Crisi di impresa e le difficoltà delle piccole imprese a farvi fronte.

Nella seconda parte si espone la soluzione proposta al problema, rappresentata da un complesso di determinazioni economiche volte ad apprezzare periodicamente l'andamento economico della gestione nei complementari profili reddituale, patrimoniale e monetario-finanziario, in modo da far emergere tempestivamente eventuali squilibri economici che, per la loro gravità, unitariamente considerati, possano essere segnaletici di situazioni di crisi, minando la perdurabilità delle imprese di minori dimensioni.

Il framework di riferimento del lavoro è rappresentato dagli studi di economia aziendale e di ragioneria in materia di equilibrio economico (Onida, 1954; Canziani, 2017), di analisi di bilancio (Ferrero, Dezzani, Pisoni, Puddu, 2003; Teodori, 2000), di determinazioni quantitative d'azienda (Masini, 1947; De Dominicis, 1966; De Sarno, 1992), di crisi di impresa (Riparbelli, 1950; Bogarelli, 2015; Cesaroni, Sentuti, 2016; Cucculelli, 2017; Bastia, 2018), di programmazione e controllo (Bubbio, 1995; Modina, 1996) di sistemi informativi amministrativi (Agliati, 1992). Sul piano metodologico si è cercato di mettere a frutto l'insegnamento di Onida, che già nel 1970 proponeva *"la logica e il sistema delle rilevazioni quantitative di azienda"*, sottendendo l'idea, che, in relazione ai concreti problemi di amministrazione delle imprese, occorre individuare (Giannessi) l'ordine combinatorio degli strumenti teorici da utilizzare per darvi efficace soluzione. La finalità conoscitiva - e (auspicabilmente) il profilo di originalità del presente lavoro - è di inquadrare:

- il complesso di determinazioni economiche da strutturare, adattando ciascuna di esse (rispetto ai canoni teorici tradizionali) per renderla elaborabile dalle piccole imprese;
- i collegamenti fra le singole determinazioni economiche;
- le procedure da seguire per elaborare le citate informazioni economiche in modo rigoroso, tempestivo ed affidabile.

Si tratta, sul piano metodologico, di un'indagine teorico-pratica, secondo il percorso tracciato dai maestri dell'economia aziendale. L'indagine è teorica nell'inquadramento della problematica e nell'impostazione della soluzione; nel contempo è pratica in quanto, attraverso la proposta di un modello applicativo testato su un caso aziendale, è orientata ad elaborare conoscenze utili (Onida, 1971: 121) *“sia ai fini dell'interpretazione della realtà, sia per scopi direttamente operativi”*.

2. Le difficoltà delle piccole imprese di adeguare il sistema informativo amministrativo.

Il Codice della Crisi ha distinto le imprese di grandi dimensioni, non soggette alla disciplina degli strumenti di allerta, dalle imprese di medie e piccole dimensioni, che lo sono. Più precisamente (art. 12 c. 4 del Codice), non sono soggette alla disciplina degli strumenti di allerta *“le grandi imprese, i gruppi di imprese di rilevante dimensione e le società con azioni quotate in mercati regolamentati, o diffuse fra il pubblico in misura rilevante”*: si tratta (articolo 2 lett. g) del Codice) di quelle che *“alla data di chiusura del bilancio superano i limiti numerici di almeno due dei tre criteri seguenti: a) totale dello stato patrimoniale: venti milioni di euro; b) ricavi netti delle vendite e delle prestazioni: quaranta milioni di euro; c) numero medio dei dipendenti occupati durante l'esercizio: duecentocinquanta”*. Nell'ambito del dimensionamento delineato dal Codice della Crisi, le imprese di minori dimensioni non dotate di sistemi strutturati di programmazione e controllo devono intervenire sul proprio sistema informativo per assicurare la *“rilevazione tempestiva della crisi dell'impresa e della perdita della continuità aziendale”*. Tale adeguamento rappresenta per le piccole imprese un problema di non poco conto, in quanto:

- per ottemperare agli obblighi di legge, come è stato evidenziato (ODCEC Milano, 2017: 90; Ranalli, 2018: 7), anche le imprese di minori dimensioni dovrebbero implementare sistemi di programmazione e controllo fondati sulla redazione di budget quanto meno annuali, sul controllo di gestione della tesoreria per mezzo di apposita contabilità analitica finanziaria, nonché sull'analisi degli scostamenti, da formalizzare attraverso la redazione di appositi report, appositamente strutturati;
- in non pochi casi le imprese non sono in grado di farlo.

Con riferimento al secondo aspetto, al di là del fatto che il personale amministrativo delle piccole imprese raramente possiede le competenze necessarie per gestire i flussi informativi di meccanismi di programmazione e controllo, sussistono ostacoli oggettivi alla loro introduzione. I sistemi informativi amministrativi delle piccole imprese, infatti, presidiano prevalentemente la tenuta della contabilità generale, la gestione degli scaden-

ziari attivi e passivi, l'assolvimento degli obblighi previsti dalla normativa tributaria e, talora, alcune attività di amministrazione del personale. In non pochi casi l'ufficio amministrativo è formato da un solo addetto, che si interfaccia con la direzione ed i consulenti esterni per quanto necessario: l'impianto di un sistema di programmazione e controllo strutturato comporterebbe, oltre all'investimento in hardware e software, l'assunzione di un ulteriore addetto dotato di adeguata professionalità, con conseguente significativo aumento dei costi di struttura. Per tali ragioni l'impianto di un sistema di contabilità direzionale potrebbe risultare eccessivamente oneroso².

Per avere piena cognizione del problema occorre richiamare le disposizioni del Codice in materia di indicatori di crisi. L'art. 13 comma 1 stabilisce che *“costituiscono indicatori di crisi gli squilibri di carattere reddituale, patrimoniale o finanziario [...], rapportati alle specifiche caratteristiche dell'impresa e dell'attività imprenditoriale svolta dal debitore”*. La norma precisa, anche richiamando il successivo articolo 24, che la valutazione degli indicatori deve essere *“unitaria”* e che si è in presenza di indicatori di crisi qualora:

- l'impresa abbia accumulato debiti scaduti nei confronti dei dipendenti (art. 24, c. 1, lett. a) *“da almeno sessanta giorni per un ammontare pari ad oltre la metà dell'ammontare complessivo mensile delle retribuzioni”*;
- l'impresa abbia accumulato debiti nei confronti dei fornitori (art. 24, c. 1, lett. b) *“scaduti da almeno centoventi giorni per un ammontare superiore a quello dei debiti non scaduti”*;
- l'impresa non sia in grado di onorare i debiti per almeno i sei mesi successivi;
- non sussistano i presupposti per la continuità aziendale per l'esercizio in corso e, nel caso la durata residua dell'esercizio al momento della valutazione sia inferiore a sei mesi, almeno per i sei mesi successivi alla data della valutazione.

Da ultimo, il comma 1 dell'art. 13 precisa che rientrano senza dubbio fra gli indicatori di crisi quelli che misurano:

- la sostenibilità degli oneri dell'indebitamento con i flussi di cassa che l'impresa è in grado di generare;
- l'adeguatezza dei mezzi propri rispetto a quelli di terzi.

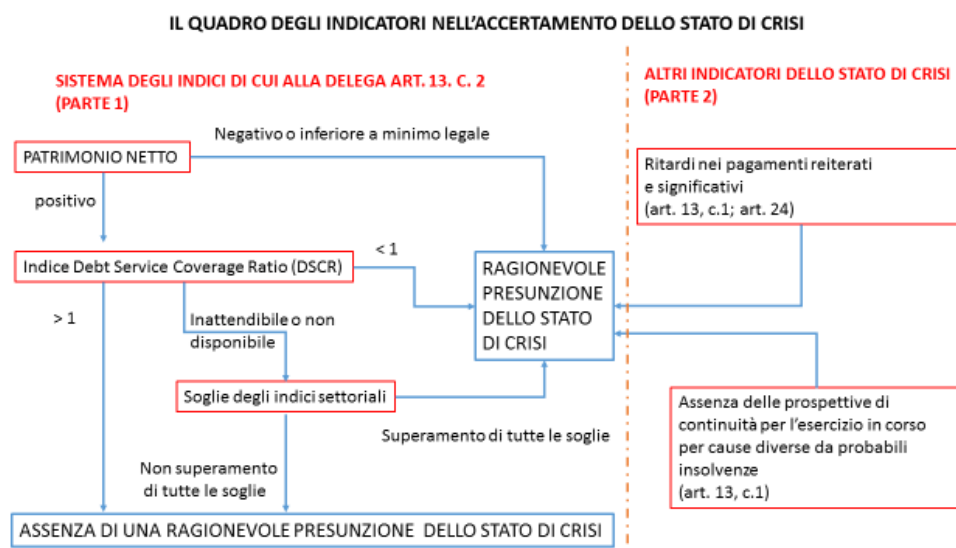
Nel mese di ottobre 2019 il Consiglio Nazionale dei Dottori Commercialisti ed esperti contabili (di seguito CNDCEC), in attuazione della delega attribuita dal citato art. 13 comma 2, ha elaborato gli indici necessari al sistema dell'allerta, secondo una struttura *“ad albero”* esposta in figura 1.

² In senso analogo (Bava e Devalle, 2019) *“nelle società di piccole e medie dimensioni [...] l'adozione di strumenti di monitoraggio finanziario appare un onere non sempre sostenibile. Occorre trovare un punto di equilibrio tra l'obiettivo che la norma si propone di perseguire (l'adozione di modelli in grado di cogliere tempestivamente i segnali di crisi d'impresa) e gli oneri e le possibilità dei soggetti destinatari di tali norme”*.

Pertanto, in prima battuta occorre verificare se il patrimonio netto è positivo e superiore al limite legale del capitale sociale. In caso affermativo si esamina l'indice DSCR (*Debt Service Coverage Ratio*), calcolato rapportando il flusso di cassa disponibile per il rimborso dei debiti finanziari previsto a 6 mesi ai debiti finanziari da rimborsare nel medesimo tempo.

Se il DSCR è superiore o uguale a 1, si ritiene non sussistano condizioni di crisi.

Fig. 1: La logica di funzionamento del sistema di allerta (Fonte: CNDCEC 2019)



Qualora il DSCR sia inattendibile o non sia disponibile³, si calcolano gli indicatori esposti in tabella 1, comparandoli con i valori soglia del proprio settore: la segnalazione scatta solo se tutti gli indicatori dell'impresa risultano peggiori rispetto ai valori soglia.

³ Anche il CNDCEC, pertanto, è ben consapevole del fatto che molte piccole imprese sprovviste di meccanismi di programmazione e controllo non sono ad oggi in grado di elaborare il DSCR in modo affidabile e rigoroso.

Tab. 1: Il quadro degli indicatori di crisi (Fonte: documento CNDCEC, ottobre 2019)

Settore di Attività	Indice di				
	Sostenibilità oneri finanziari	Adeguatezza patrimoniale	Infice di Liquidità	Ritorno liquido dell'attivo	Indebitamento previdenziale e tributario
Agricoltura, silvicoltura e pesca	2,80%	9,40%	92,10%	0,30%	5,60%
Estrazione; Manifattura; Produzione energia/gas	3,00%	7,60%	93,70%	0,50%	4,90%
Fornitura acqua reti fognarie rifiuti; trasmissione energia/gas	2,60%	6,70%	84,20%	1,90%	6,50%
Costruzione di edifici	3,80%	4,90%	108,00%	0,40%	3,80%
Ingegneria civile; costruzioni specializzate	2,80%	5,30%	101,10%	1,40%	5,30%
Commercio autoveicoli; Comm. Ingrosso; Distribuzione energia/gas	2,10%	6,30%	101,40%	0,60%	2,90%
Commercio dettaglio; Bar e ristoranti	1,50%	4,20%	89,80%	1,00%	7,80%
Trasporto e magazzinaggio hotel	1,50%	4,10%	86,00%	1,40%	10,20%
Servizi alle imprese	1,80%	5,20%	95,40%	1,70%	11,90%
Servizi alle persone	2,70%	2,30%	69,80%	0,50%	14,60%

A riguardo del DSCR il CNDCEC ha precisato che:

- Il DSCR può essere stimato, alternativamente, tramite un budget di tesoreria o con un procedimento indiretto che riflette la redazione del rendiconto finanziario (paragrafo 3.2.2);
- *“Le procedure di costruzione ed utilizzo del modello quantitativo di previsione dei flussi dell’impresa devono essere controllabili e adeguate alla complessità ed alle dimensioni dell’impresa”* (paragrafo 3.2.2);
- *“Il DSCR è utilizzabile solo in presenza di dati prognostici non ritenuti inaffidabili dagli organi di controllo secondo il loro giudizio professionale”* (paragrafo 3.1.2);
- Le imprese di minori dimensioni, a condizione che venga rispettato il principio della sostanziale comparabilità del numeratore e del denominatore, possono stimare i flussi al servizio del debito *“in misura semplificata ricorrendo alle sole grandezze economiche”* (paragrafo 5.3)⁴.

Alla luce di quanto precede, anche in assenza dei tradizionali strumenti di programmazione e controllo, il sistema informativo amministrativo delle imprese di minori dimensioni deve essere configurato in modo tale da con-

⁴ Tale apertura non sembra condivisibile sul piano metodologico: i flussi reddituali, infatti, approssimano i flussi monetari solo in condizioni di sostanziale invarianza del capitale circolante. ⁵

sentire agli amministratori e agli organi di controllo di valutare, a cadenza periodica, se: 1) l'impresa produce redditi positivi o negativi; 2) se la sua situazione finanziaria si prospetta equilibrata o squilibrata; 3) se presenta un grado di solidità patrimoniale accettabile o un indebitamento eccessivo.

Operando in tal modo, il sistema informativo amministrativo sarà in grado di elaborare tutti gli indicatori individuati dal CNDCEC.

L'esame della continuità aziendale e della situazione finanziaria, fra loro interconnesse, richiedono indagini di tipo prospettico. Per quanto riguarda la continuità aziendale, il principio di revisione ISA Italia n. 570 chiarisce che un giudizio fondato sulla circostanza che l'impresa possa continuare ad operare come un'entità in funzionamento richiede la predisposizione di piani di azione che includano anche la previsione dei flussi di cassa.

Per quanto riguarda la situazione finanziaria, essa esprime, in relazione ad una determinata azienda, da un lato (Onida, 1954: 197), *“la sua capacità a soddisfare tempestivamente le uscite finanziarie richieste dalla gestione a qualsiasi titolo (dal sostenimento di costi, al rimborso di debiti)”*; dall'altro, *“la sua attitudine a disporre in ogni momento e grazie a qualsiasi fonte (ricavi d'esercizio, smobilizzo d'investimenti, prestiti, impiego di riserve liquide a disposizione ecc.) dei mezzi finanziari liquidi occorrenti per il suo funzionamento”*. Agli Amministratori e agli organi di controllo interessa conoscere la situazione finanziaria dell'impresa in senso prospettico, onde individuare per tempo eventuali criticità che possano inficiare la solvibilità aziendale; peraltro anche l'indagine *ex post* sull'evoluzione della situazione finanziaria è utile per comprendere le criticità insorte e per rivedere, se del caso, le politiche economiche e finanziarie dell'impresa. La situazione finanziaria è essenzialmente dinamica; essa (Capaldo, 1998: 403) *“è il frutto di una complessa elaborazione di dati storici e dati prospettici (incassi e pagamenti previsti) e richiede una vera e propria programmazione della gestione”*.

3. L'analisi periodica dell'economicità nelle imprese di minori dimensioni

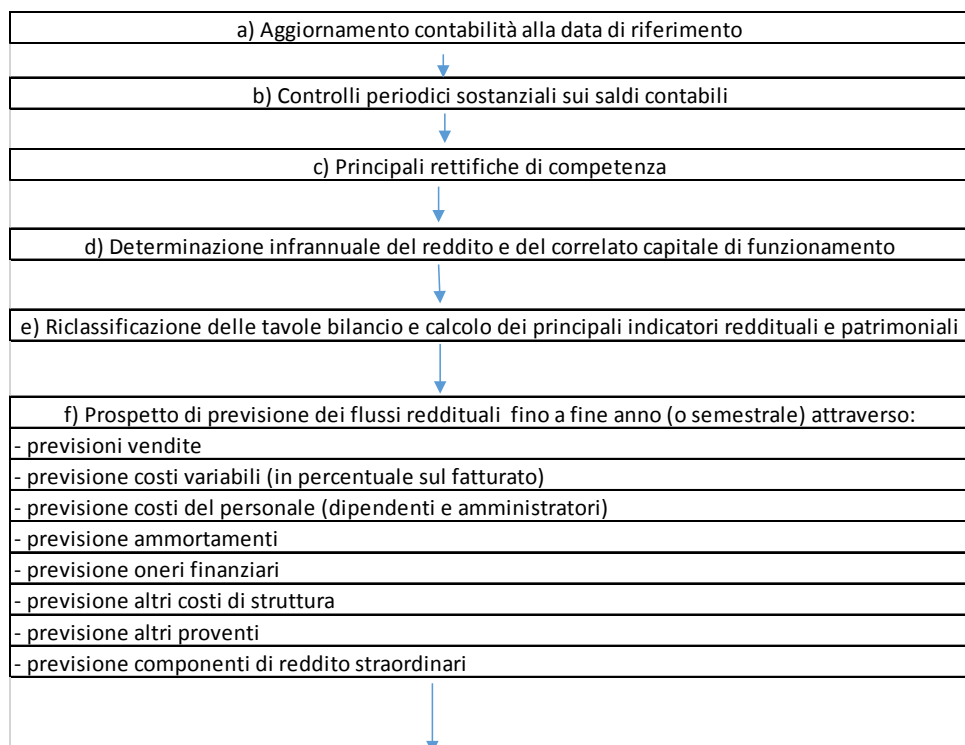
3.1 Il modello applicativo proposto

In via preliminare si ricorda che sono soggette al Codice della Crisi soltanto le piccole-medie imprese, essendo escluse – ai sensi dell'art. 12 comma 4 del codice – quelle di maggiori dimensioni che *“alla data di chiusura del bilancio superano i limiti numerici di almeno due dei tre criteri seguenti: a) totale dello stato patrimoniale: venti milioni di euro; b) ricavi netti delle vendite e delle prestazioni: quaranta milioni di euro; c) numero medio dei dipendenti occupati durante l'esercizio: duecentocinquanta”*. Volendo delineare i caratteri qualitativi e quantitativi delle piccole imprese, fermo restando che ogni classificazione dimensionale delle imprese presenta *“sempre limiti molto incerti”* (Zappa,

1957: tomo I, 353), si aderisce alla dottrina (Meucci,1972: 60) secondo cui “non ha senso una determinazione dimensionale, se tale dimensione non venga riferita [...] alla natura e allo scopo dell’indagine”. In tal senso, alla luce del quadro normativo in materia, in termini quantitativi si considerano piccole imprese quelle per le quali il Legislatore, proprio per la difficoltà oggettiva di implementare i sistemi di allerta, ha differito la decorrenza degli obblighi di segnalazione al 15 febbraio 2021. Sono quelle che negli ultimi due esercizi non hanno superato alcuno dei seguenti limiti: totale attivo stato patrimoniale: 4 milioni di euro; ricavi delle vendite e delle prestazioni: 4 milioni di euro; dipendenti occupati in media durante l’esercizio: 20 unità. Sul piano qualitativo, si tratta della quasi generalità di imprese sprovviste di sistemi formali di programmazione e controllo.

Venendo a considerare il modello applicativo, sulla base dell’esperienza maturata sul campo e dei principi consolidati negli studi italiani di ragioneria e di economia aziendale, si presenta un procedimento di analisi dell’economicità aziendale, articolato in una sequenza di determinazioni quantitative consuntive e preventive (rappresentata in figura 2), codificate attraverso procedure eseguibili dagli addetti, previa adeguata formazione.

Fig. 2: Il procedimento di analisi dell’economicità delle imprese di minori dimensioni.



g) Prospetto di previsione dei flussi monetari fino a fine anno (o semestrale) attraverso:
- flussi attesi entrate monetarie per incasso crediti verso clienti
- flussi attesi entrate monetarie per anticipi bancari su crediti verso clienti
- flussi attesi uscite monetarie per rimborso anticipi bancari su crediti verso clienti
- flussi attesi uscite monetarie per pagamenti fornitori e costi variabili
- flussi attesi uscite monetarie per pagamenti costi di struttura e oneri finanziari
- flussi attesi uscite monetarie per investimenti
- flussi attesi entrate monetarie per disinvestimenti
- flussi attesi entrate monetarie per accensione finanziamenti
- flussi attesi uscite monetarie per rimborso finanziamenti
- flussi attesi uscite monetarie per pagamenti imposte

La figura 2 evidenzia, da un lato, il set di informazioni minime che il sistema informativo delle imprese di minori dimensioni deve elaborare periodicamente; dall'altro, la sequenza di attività da porre in essere per elaborarle. In particolare, gli output da elaborare periodicamente, variamente connessi, sono fondamentalmente tre.

- Il bilancio intermedio, opportunamente riclassificato e corredato di alcuni indicatori, all'esito delle attività comprese fra le lettere a) ed e).
- Il rendiconto reddituale preventivo (lettera f) figura 2), riferito ad un periodo compreso fra la data di riferimento del bilancio intermedio e la data di chiusura dell'esercizio o, qualora esso sia inferiore a 6 mesi, riferito ai sei mesi a venire.
- Il prospetto di previsione dei flussi monetari (lettera g figura 2) riferito al medesimo periodo del preventivo reddituale.

Il complesso di determinazioni quantitative da porre in essere, oltre che al Codice della Crisi, è conforme ad un principio-cardine dell'Economia aziendale, secondo il quale per valutare l'economicità aziendale (onde captare tempestivamente le situazioni di crisi e verificare la possibilità che l'impresa perduri nel tempo in condizioni di normale funzionamento) occorre indagare unitariamente tutte le complementari condizioni di equilibrio economico: la reddituale, la patrimoniale e la monetaria-finanziaria. L'equilibrio economico, infatti, è un fenomeno complesso, conoscibile indagando distintamente e congiuntamente tre profili complementari.

- Il profilo reddituale. L'equilibrio reddituale sussiste se i componenti positivi di reddito remunerano i correlati costi.
- Il profilo patrimoniale. L'equilibrio patrimoniale sussiste se, in relazione alle caratteristiche dell'impresa, l'indebitamento non risulta eccessivo rispetto ai mezzi propri.
- Il profilo monetario-finanziario. L'equilibrio monetario-finanziario sussiste se l'impresa, in relazione ad un prescelto intervallo temporale, è sempre in grado di onorare gli impegni contrattuali assunti utilizzando le liquidità a qualunque titolo disponibili.

Il profilo maggiormente rilevante è il reddituale, in quanto si ripercuote significativamente sulla dimensione patrimoniale e finanziaria dell'equilibrio economico.

L'equilibrio economico sussiste se tutti i tre complementari profili sono in equilibrio. La gravità e le conseguenze di uno squilibrio a livello reddituale, patrimoniale o finanziario va valutata alla luce del grado di equilibrio degli altri profili complementari.

Con riferimento alle attività esposte nella figura 2, quelle comprese fra le lettere a) ed e) consentono di indagare in via consuntiva, attraverso il bilancio intermedio, i profili reddituale e patrimoniale; quelle indagate alle lettere f) e g) permettono di apprezzare prospetticamente l'equilibrio reddituale (mediante il preventivo reddituale) e il monetario-finanziario (attraverso la previsione dei flussi monetari). Le determinazioni quantitative sono fra loro interconnesse, e concorrono a formare un sistema unitario di misurazione economica.

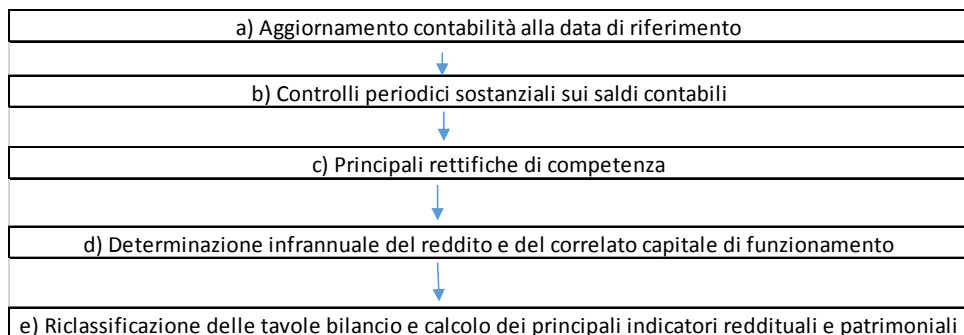
Nel prosieguo si esaminano le attività comprese fra l'aggiornamento della contabilità e la riclassificazione delle tavole di bilancio intermedio, con il calcolo di alcuni indicatori di crisi; nei paragrafi successivi si illustra la previsione del reddito ante imposte e dei flussi monetari, strumentali al calcolo degli altri indicatori.

Trattandosi di un modello applicativo, le annotazioni di metodo vengono completate dallo sviluppo di un caso aziendale, costruito, per esigenze di sintesi, a partire dal bilancio intermedio al 30 giugno.

3.2 L'esame consuntivo dell'equilibrio reddituale e patrimoniale

La sequenza di attività volte ad apprezzare l'equilibrio reddituale e patrimoniale culmina nella redazione di un bilancio intermedio.

Fig. 3: Il procedimento di redazione del bilancio intermedio.



Una volta completata la rilevazione delle fatture di vendita, di quelle di acquisto, del costo del lavoro, dei movimenti di cassa e banca, si rende

necessario effettuare una serie di controlli sostanziali, volti a verificare i seguenti aspetti.

- L'esattezza dei saldi di cassa e banca, previa riconciliazione con le giacenze effettive (per la cassa) e con la documentazione bancaria (per i saldi di conto corrente).
- La corrispondenza fra i saldi dei conti accesi alle immobilizzazioni (e ai fondi ammortamento) e le risultanze del libro cespiti.
- La correttezza del saldo dei conti accesi ai clienti e agli altri crediti, previa ricostruzione delle singole partite che concorrono a formare ciascun saldo contabile.
- L'esattezza del saldo dei conti accesi alle ricevute bancarie sulla base delle risultanze degli estratti conto trasmessi dagli istituti di credito.
- La correttezza del saldo dei conti accesi ai fornitori, previa ricostruzione delle singole partite che concorrono a formare ciascun saldo contabile.
- La correttezza del saldo dei conti accesi al TFR, ai debiti verso i dipendenti, alle ritenute sui redditi di lavoro dipendenti e ai debiti di natura previdenziale, sulla base della documentazione elaborata dall'ufficio che gestisce le paghe.
- L'esattezza del saldo dei conti accesi ai finanziamenti sulla base dei piani di ammortamento dei prestiti.
- La correttezza del saldo dei conti accesi agli altri debiti, previa ricostruzione delle singole partite che concorrono a formare ciascun saldo contabile.

Si tratta di verifiche sostanziali, da porre in essere periodicamente, onde essere certi che la base di partenza per la redazione del bilancio intermedio sia completa e non sia viziata da significativi errori di rilevazione.

Per quanto riguarda le principali rettifiche di competenza, nelle imprese manifatturiere di minori dimensioni si tratta fondamentalmente delle seguenti.

1. La valorizzazione delle rimanenze, utilizzando i medesimi criteri di valutazione adottati in sede di redazione del bilancio di esercizio, previo inventario alla data di riferimento della situazione patrimoniale.
2. La determinazione dei crediti per fatture da emettere, di importo significativo, per cessioni di beni e prestazioni di servizi effettuate nel periodo di riferimento del bilancio intermedio.
3. Il calcolo delle quote di ammortamento, rapportando la quota di ammortamento annuale risultante dal libro cespiti alla data di riferimento del bilancio intermedio.
4. Il calcolo degli oneri differiti relativi al personale dipendente (per ferie e festività non godute, tredicesima e quattordicesima ecc.) e della quota di Trattamento di fine rapporto, sulla base dei tabulati elaborati dall'ufficio che gestisce le paghe.

5. La determinazione dei debiti per fatture da ricevere, di importo significativo, riguardanti i costi di materie prime (ed assimilate), di utenze o di prestazioni di servizi di competenza del periodo cui inerisce il bilancio intermedio.
6. Il conteggio di risconti attivi e/o passivi, se di importo significativo, riguardanti i canoni di leasing, di locazione, o altre prestazioni di servizi, sulla base dei contratti in essere.
7. Gli accantonamenti, se di importo significativo, ai fondi rischi ed oneri, in relazioni a contenziosi o ad accertamenti di natura fiscale o previdenziale.
8. Il conteggio di ratei passivi, se di importo significativo, riguardanti le spese bancarie, gli interessi passivi sugli affidamenti bancari (sulla base delle liquidazioni periodiche trasmesse dagli istituti di credito) o altri costi che variano in funzione del tempo (ad esempio l'Imu).

Tab. 2: Il caso Alfa Srl - Le rettifiche di competenza al 30 giugno 2019.

Natura rettifica di competenza	Importo	Classe di valori CE	Classe di valori Sp
Rimanenze materie prime	405.000,00	Rimanenze materie prime	Rimanenze finali
Rimanenze semilavorati e prodotti finiti	29.000,00	Rimanenze semilavorati e prodotti finiti	Rimanenze finali
Natura rettifica di competenza	Importo	Classe di valori CE	Classe di valori Sp
Ammortamento immob. Immateriali	20.000,00	Ammortamenti	Immobilizzazioni immateriali
Ammortamento immob. Materiali	175.000,00	Ammortamenti	Immobilizzazioni materiali
Natura rettifica di competenza	Importo	Classe di valori CE	Classe di valori Sp
Retribuzioni differite (tredicesima ecc)	75.000,00	Salari e stipendi	Ratei passivi
Contributi su retrib. Differite	18.750,00	Contributi	ratei passivi
quota TFR	31.000,00	Trattamento di fine rapporto	fondo Tfr
Natura rettifica di competenza	Importo	Classe di valori CE	Classe di valori Sp
Fatture da ricevere materie prime	81.000,00	Materie prime	Debiti verso fornitori
Fatture da ricevere utenze	12.000,00	Utenze produttive	Debiti verso fornitori
Fatture utenze prestazioni servizi	9.000,00	Altre prestazioni di servizi	Debiti verso fornitori
Natura rettifica di competenza	Importo	Classe di valori CE	Classe di valori Sp
Risconti leasing	19.000,00	Canoni di leasing	Ratei e risconti attivi
Natura rettifica di competenza	Importo	Classe di valori CE	Classe di valori Sp
Oneri finanziari da liquidare	7.500,00	Interessi passivi bancari	Ratei passivi

Si veda, di seguito, la determinazione del reddito ante imposte e del capitale di funzionamento al 30 giugno 2019. Per esigenze di spazio si omette di riportare la situazione contabile al 30 giugno, al termine dei controlli sostanziali di cui al punto b) della figura 3.

Le tavole del bilancio intermedio al 30 giugno 2019 espongono nella prima colonna i saldi contabili a tale data (che si è omesso di riportare separatamente); nella seconda le rettifiche di competenza; nella terza i totali al 30 giugno 2019.

Tab.3: Il caso Alfa Srl - Il bilancio intermedio al 30 giugno 2019.

Classi di valori		Valori contabili	rettifiche competenza	Valori rettificati
Attivo Immobilizzato	Immobilizzazioni immateriali	65.000,00	-20.000,00	45.000,00
	Immobilizzazioni materiali	1.845.000,00	-175.000,00	1.670.000,00
	Immobilizzazioni finanziarie	15.000,00	0,00	15.000,00
	Totale immobilizzazioni	1.925.000,00	-195.000,00	1.730.000,00
Attivo Corrente	Crediti verso clienti	2.455.000,00	0,00	2.455.000,00
	Crediti diversi	95.000,00	0,00	95.000,00
	Totale crediti	2.550.000,00	0,00	2.550.000,00
	Disponibilità liquide	255.000,00	0,00	255.000,00
	Rimanenze finali	0,00	434.000,00	434.000,00
	Ratei e risconti attivi	0,00	19.000,00	19.000,00
	Totale attivo corrente	2.805.000,00	453.000,00	3.258.000,00
Totale attività		4.730.000,00	258.000,00	4.988.000,00

Classi di valori		Valori contabili	rettifiche competenza	Valori rettificati
Mezzi Propri	Patrimonio netto iniziale	253.500,00		253.500,00
	Risultato economico in corso di formazione	62.500,00	23.750,00	86.250,00
	Totale patrimonio netto	316.000,00	23.750,00	339.750,00
Mezzi di Terzi	Debiti verso fornitori	2.345.000,00	102.000,00	2.447.000,00
	Debiti verso dipendenti - amministratori	55.000,00		55.000,00
	Debiti verso Erario (ritenute)	25.000,00		25.000,00
	Debiti previdenziali	30.000,00		30.000,00
	Debiti verso Erario (IVA)	15.000,00		15.000,00
	Debiti bancari anticipi su Ri.ba. Sbf	95.000,00		95.000,00
	Debiti per Mutui	1.599.000,00		1.599.000,00
	Fondo TFR	250.000,00	31.000,00	281.000,00
	Fondi rischi e oneri	0,00		-
	Ratei e risconti passivi	0,00	101.250,00	101.250,00
	Totale Mezzi di terzi	4.414.000,00	234.250,00	4.648.250,00
Totale passivo e Netto		4.730.000,00	258.000,00	4.988.000,00

Classi di valori		Valori contabili	rettifiche competenza	Valori rettificati
Materie prime		1.473.000,00	81.000,00	1.554.000,00
Costi per servizi	Lavorazioni industriali	95.000,00		95.000,00
	Provvigioni	185.000,00		185.000,00
	Utenze produttive	240.000,00	12.000,00	252.000,00
	Servizi manodopera esterna	155.000,00		155.000,00
	Spese di manutenzione	50.000,00		50.000,00
	Consulenze	35.000,00		35.000,00
	Emolumenti amministratori	75.000,00		75.000,00
	Oneri previdenziali amministratori	12.000,00		12.000,00
	Assicurazioni	11.000,00		11.000,00
	Altre prestazioni di servizi	44.000,00	9.000,00	53.000,00
	Totale prestazioni di servizi	902.000,00	21.000,00	923.000,00

Classi di valori		Valori contabili	rettifiche competenza	Valori rettificati
Costi godimento beni terzi	Canoni di leasing	75.000,00	-19.000,00	56.000,00
	canoni di locazione e noleggio	60.000,00		60.000,00
	Totale costi godimento beni di terzi	135.000,00	-19.000,00	116.000,00
Costi per il personale	Salari e stipendi	430.000,00	75.000,00	505.000,00
	Contributi	129.000,00	18.750,00	147.750,00
	Trattamento di fine rapporto	0,00	31.000,00	31.000,00
	Altri oneri del personale	8.000,00		8.000,00
	Totale costi del personale	567.000,00	124.750,00	691.750,00
Rimanenze iniziali	Rimanenze materie prime	495.000,00		495.000,00
	Rimanenze semilavorati e prodotti finiti	133.000,00		133.000,00
	Totale rimanenze iniziali	628.000,00	0,00	628.000,00
Oneri finanziari	Interessi passivi mutuo	6.000,00		6.000,00
	Interessi passivi bancari su anticip. Bancarie	0,00	7.500,00	7.500,00
	Oneri bancari assimilati ad interessi passivi	3.500,00		3.500,00
	Totale oneri finanziari	9.500,00	7.500,00	17.000,00
Ammortamenti	0,00	195.000,00	195.000,00	
Svalutazioni	0,00		-	
Oneri diversi gestione	Imposte indirette (Imu, tasi)	12.000,00		12.000,00
	Altri costi generali	9.000,00		9.000,00
	Oneri straordinari	4.000,00		4.000,00
	Totale oneri diversi di gestione	25.000,00	0,00	25.000,00
Totale componenti negativi di reddito		3.739.500,00	410.250,00	4.149.750,00

Classi di valori		Valori contabili	rettifiche competenza	Valori rettificati
Ricavi di vendita		3.792.000,00		3.792.000,00
Altri proventi		7.000,00		7.000,00
Proventi finanziari		500,00		500,00
Rimanenze finali	Rimanenze materie prime	0,00	405.000,00	405.000,00
	Rimanenze semilavorati e prodotti finiti	0,00	29.000,00	29.000,00
	Totale rimanenze finali	0,00	434.000,00	434.000,00
Proventi straordinari		2.500,00		2.500,00
Totale componenti positivi di reddito		3.802.000,00	434.000,00	4.236.000,00
Risultato economico ante imposte		62.500,00	23.750,00	86.250,00

A livello di riclassificazione delle tavole del bilancio intermedio, con riferimento al rendiconto reddituale si è adottata quella a <ricavi netti e costo del venduto> (Ferrero, Dezzani, Pisoni, Puddu, 2003: 248), che distingue i costi variabili dai costi di struttura evidenziando, il margine di contribuzione aziendale (in valore assoluto ed in percentuale sul fatturato), destinato a remunerare i costi di struttura. Per quanto riguarda l'allocazione dei costi del personale fra i costi variabili o fra i costi di struttura, al fine di rendere più rapida l'elaborazione, a vantaggio della tempestività dei flussi informativi, si è evitato di distinguere i costi variabili del personale (per manodopera diretta) da quelli fissi, allocando tutti costi del personale nei costi di struttura. Tale semplificazione non fa peraltro venire meno la necessità di accertare, come insegnava Spranzi (1986: § 2.6), che i costi del personale risultino adeguatamente proporzionati ai volumi di attività aziendale. Si è data inoltre separata evidenza ai componenti straordinari di reddito.

Tab. 4: Il caso Alfa - Conto economico al 30/6/2019 riclassificato a "ricavi netti e costo del venduto".

COMPONENTI DI REDDITO	30/06/19	% fatt.
Ricavi netti	3.792.000,00	
Fatturato Netto	3.792.000,00	100,00%
Materie prime c/ acquisti	1.554.000,00	
Rimanenze iniziali	628.000,00	
Rimanenze finali materie	-434.000,00	
Costo materie prime del venduto	1.748.000,00	46,10%
Lavorazioni esterne	95.000,00	
Utenze produttive	252.000,00	
Servizi manodopera esterna	155.000,00	
Costo lavorazioni del venduto	502.000,00	13,24%
Provvigioni su vendite	185.000,00	4,88%
Totale costi variabili	2.435.000,00	64,21%
Margine di contribuzione	1.357.000,00	35,79%
Costi di struttura ordinari		
COMPONENTI DI REDDITO	30/06/19	
Spese di manutenzione	50.000,00	
Consulenze	35.000,00	
Emolumenti amministratori	75.000,00	
Oneri previdenziali amministratori	12.000,00	
Assicurazioni	11.000,00	
Altre prestazioni di servizi	53.000,00	
Canoni di leasing	56.000,00	
canoni di locazione e noleggio	60.000,00	
Salari e stipendi	505.000,00	
Contributi	147.750,00	
Trattamento di fine rapporto	31.000,00	
Altri oneri del personale	8.000,00	
Interessi passivi mutuo	6.000,00	
Interessi passivi bancari su anticip. Bancarie	7.500,00	
Oneri bancari assimilati ad interessi passivi	3.500,00	
Ammortamenti	195.000,00	
Svalutazioni crediti	0,00	
Imposte indirette (Imu, tasi)	12.000,00	
Altri costi generali	9.000,00	
Totale costi ordinari di struttura	1.276.750,00	
Altri componenti positivi ordinari di reddito	30/06/19	
Altri proventi	7.000,00	
Proventi finanziari	500,00	
Totale	7.500,00	
Reddito ante imposte e ante componenti str	87.750,00	2,31%
Componenti straordinari di reddito	30/06/19	
Proventi straordinari	2.500,00	
Oneri straordinari	-4.000,00	
Totale componenti straordinari di reddito	-1.500,00	
Reddito ante imposte	86.250,00	2,27%

Con riferimento, invece, alla sintesi del capitale di funzionamento, si propone la riclassificazione in logica funzionale (Ferrero, Dezzani, Pisoni, Puddu, 2003: 241), dando separata evidenza:

- alle immobilizzazioni nette;
- al capitale circolante netto operativo;
- ai mezzi propri;
- alla posizione finanziaria netta.

Tab. 5: Il caso Alfa – Lo stato patrimoniale al 30/6/2019 riclassificato in logica funzionale.

Sintesi del capitale di funzionamento	30/06/2019	%
IMPIEGHI		
Attivo Fisso Netto	1.730.000,00	97,26%
Capitale Circolante operativo	3.003.000,00	
- Passività Operative	-2.954.250,00	
Capitale Circolante Netto Operativo	48.750,00	2,74%
Impieghi extra operativi	0,00	
Capitale Investito Netto	1.778.750,00	100,00%
FONTI		
Mezzi propri	339.750,00	19,10%
Posizione Finanziaria netta		
Debiti bancari anticipi su Ri.ba. Sbf	95.000,00	
Debiti per Mutui	1.599.000,00	
Disponibilità liquide	-255.000,00	
Totale Posizione Finanziaria Netta	1.439.000,00	80,90%
Capitale di Finanziamento	1.778.750,00	100,00%

Con riferimento agli indicatori di bilancio, si espongono di seguito quelli consuntivi, patrimoniali e reddituali, indicati al paragrafo 2; quello di ritorno liquido dell'attivo e il DSCR, invece, saranno calcolati al paragrafo 3.4, all'esito della previsione dei flussi monetari.

Tab. 6: Il caso Alfa - Gli indicatori reddituali e patrimoniali.

Indice di sostenibilità degli oneri finanziari	0,45%
Oneri finanziari	17.000,00
Ricavi netti	3.792.000,00
Soglia riferimento CNDCEC	3,00%

Indice di adeguatezza patrimoniale	7,31%
Patrimonio netto	339.750,00
Debiti totali	4.648.250,00
Soglia riferimento CNDCEC	7,60%

Indice di liquidità	1,15
attività a breve	3.258.000,00
Passività a breve	2.829.000,00
Soglia riferimento CNDCEC	93,70%

Indice di indebitamento previdenziale e tributario	1,40%
Indebitamento previdenziale e tributario	70.000,00
Attivo	4.988.000,00
Soglia riferimento CNDCEC	4,90%

Dalle tavole riclassificate e dagli indicatori sopra esposti emerge che Alfa srl, impresa manifatturiera, rientra nell'ampio novero di imprese con una marcata sottocapitalizzazione e una redditività ante imposte esigua, sebbene positiva. Ciò nonostante, nel caso di Alfa, solo l'indice di adeguatezza patrimoniale non soddisfa la soglia di riferimento prevista dal CNDCEC.

3.3 La stima prospettica del reddito ante imposte

Il modello applicativo prevede che la redazione del previsionale reddituale si articoli nei seguenti passaggi.

Fig. 4: Il procedimento di calcolo del reddito prospettico.

f) Prospetto di previsione dei flussi reddituali fino a fine anno (o semestrale) attraverso:
- previsioni vendite
- previsione costi variabili (in percentuale sul fatturato)
- previsione costi del personale (dipendenti e amministratori)
- previsione ammortamenti
- previsione oneri finanziari
- previsione altri costi di struttura
- previsione altri proventi
- previsione componenti di reddito straordinari

La stima prospettica del reddito ante imposte si innesta sul rendiconto reddituale del bilancio intermedio (nel caso Alfa, riferito al 30/6/2019), e considera i flussi di componenti positivi e negativi di reddito stimati per il periodo a venire (nel caso Alfa per il periodo luglio-dicembre 2019) secondo un approccio improntato (Ferrero, 1991:29) ad *"equilibrata prudenza amministrativa"*.

Con riferimento alla sequenza di previsioni, valgano le seguenti considerazioni, accompagnate dall'esemplificazione del caso Alfa.

- 1) Per i ricavi di vendita si assumono le previsioni elaborate dalla Direzione tenendo conto degli ordinativi acquisiti, delle trattative in corso e dello storico degli anni passati.

Tab. 7: Il caso Alfa - La previsione mensile dei ricavi di vendita.

	Luglio	Agosto	settembre	Ottobre	novembre	dicembre	Totale
Previsioni Vendite	620.000,00	140.000,00	650.000,00	700.000,00	600.000,00	400.000,00	3.110.000,00
Iva 22%	136.400,00	30.800,00	143.000,00	154.000,00	132.000,00	88.000,00	684.200,00
Totale crediti clienti	756.400,00	170.800,00	793.000,00	854.000,00	732.000,00	488.000,00	3.794.200,00

- 2) Per i costi variabili, si assume la percentuale di incidenza determinata prudentemente sulla base delle distinte base (se disponibili) e/o delle recenti consuntivazioni. Nel caso di Alfa, si è assunto (sulla base della percentuale a consuntivo al 30 giugno) che i costi variabili di ciascun mese siano pari al 65% del fatturato realizzato nel corso del mese.

Tab. 8: Il caso Alfa - La previsione mensile dei costi variabili (in % sui ricavi di vendita).

	Luglio	Agosto	settembre	Ottobre	novembre	dicembre	Totale
Previsioni Vendite	620.000,00	140.000,00	650.000,00	700.000,00	600.000,00	400.000,00	3.110.000,00
% incidenze costi variabili	65%	65%	65%	65%	65%	65%	65%
Stima costi variabili	403.000,00	91.000,00	422.500,00	455.000,00	390.000,00	260.000,00	2.021.500,00
Iva 22%	88.660,00	20.020,00	92.950,00	100.100,00	85.800,00	57.200,00	444.730,00
Totale debiti verso fornitori	491.660,00	111.020,00	515.450,00	555.100,00	475.800,00	317.200,00	2.466.230,00

- 3) Per i costi del personale si assume la stima operata dall'ufficio che elabora le paghe in base all'organico previsto per il periodo di riferimento a venire. Nel caso di Alfa, in presenza di organico stabile nel corso dell'anno, il costo previsto per il secondo semestre è stato assunto in misura pari a quello di competenza del primo semestre.
- 4) Per quanto riguarda i canoni di leasing, si considerano quelli di competenza sulla base dei contratti in corso di esecuzione.
- 5) L'entità degli interessi sui mutui si determina sulla base dei rispettivi piani di ammortamento.
- 6) La stima degli ammortamenti considera, se rilevanti, anche gli investimenti previsti per il periodo a venire. Nel caso di Alfa, in assenza di investimenti di rilievo, la quota di ammortamenti relativa al secondo semestre può essere ragionevolmente assunta in misura pari a quella di competenza al 30 giugno.
- 7) Per quanto riguarda gli altri costi di struttura, in sede di previsione vanno considerate le risultanze del bilancio intermedio, i programmi di spesa dei mesi a venire ed i costi sostenuti nello stesso periodo dell'esercizio precedente.
- 8) Per gli accantonamenti ai fondi rischi ed oneri, si valutano, se rilevanti, eventuali contenziosi o accertamenti di natura fiscale e previdenziale.

Tab. 9: Il caso Alfa - Il rendiconto reddituale previsionale al 31/12/2019.

COMPONENTI DI REDDITO	30/06/19	Previsione 1/7-31/12	31/12/2019
Ricavi netti	3.792.000,00	3.110.000,00	6.902.000,00
Fatturato Netto	3.792.000,00	3.110.000,00	6.902.000,00
Totale costi variabili	2.435.000,00	2.021.500,00	4.456.500,00
Margine di contribuzione	1.357.000,00	1.088.500,00	2.445.500,00
Costi di struttura ordinari			
COMPONENTI DI REDDITO	30/06/19	Previsione 1/7-31/12	31/12/2019
Spese di manutenzione	50.000,00	21.000,00	71.000,00
Consulenze	35.000,00	12.000,00	47.000,00
Emolumenti amministratori	75.000,00	75.000,00	150.000,00
Oneri previdenziali amministratori	12.000,00	12.000,00	24.000,00
Assicurazioni	11.000,00	11.000,00	22.000,00
Altre prestazioni di servizi	53.000,00	18.000,00	71.000,00
Canoni di leasing	56.000,00	56.000,00	112.000,00
canoni di locazione e noleggio	60.000,00	20.000,00	80.000,00
Salari e stipendi	505.000,00	505.000,00	1.010.000,00
Contributi	147.750,00	147.750,00	295.500,00
Trattamento di fine rapporto	31.000,00	31.000,00	62.000,00
Altri oneri del personale	8.000,00	2.000,00	10.000,00
Interessi passivi mutuo	6.000,00	5.625,00	11.625,00
Interessi passivi bancari su anticip. Bancarie	7.500,00	2.500,00	10.000,00
Oneri bancari assimilati ad interessi passivi	3.500,00	3.500,00	7.000,00
Ammortamenti	195.000,00	195.000,00	390.000,00
Svalutazioni crediti	0,00	15.000,00	15.000,00
Imposte indirette (Imu, tasi)	12.000,00	12.000,00	24.000,00
Altri costi generali	9.000,00	24.000,00	33.000,00
Totale costi ordinari di struttura	1.276.750,00	1.168.375,00	2.445.125,00
Altri componenti positivi ordinari di reddito	30/06/19	Previsione 1/7-31/12	31/12/2019
Altri proventi	7.000,00	0,00	7.000,00
Proventi finanziari	500,00	0,00	500,00
Totale	7.500,00	0,00	7.500,00
Reddito ante imposte e ante componenti str	87.750,00	-79.875,00	7.875,00
Componenti straordinari di reddito	30/06/19	Previsione 1/7-31/12	31/12/2019
Proventi straordinari	2.500,00	0	2.500,00
Oneri straordinari	-4.000,00	0	-4.000,00
Totale componenti straordinari di reddito	-1.500,00	0,00	-1.500,00
Reddito ante imposte	86.250,00	-79.875,00	6.375,00

Nella prima colonna del preventivo reddituale sono riportate le risultanze del bilancio intermedio, opportunamente riclassificate; nella seconda i componenti di reddito previsti per il secondo semestre; nella terza i totali attesi al termine del periodo di riferimento.

Non sfuggirà al lettore che, per effetto della limitata operatività nei

mesi di Agosto e di dicembre, a fronte della sostanziale stabilità dei costi di struttura, Alfa è attesa conseguire un reddito ante imposte esiguo, di sostanziale pareggio.

3.4 La stima prospettica dei flussi monetari

Secondo il modello applicativo schematizzato in figura 1 la previsione dei flussi monetari si articola nei seguenti passaggi.

Fig. 5: Il procedimento di stima dei flussi monetari prospettici.

g) Prospetto di previsione dei flussi monetari fino a fine anno (o semestrale) attraverso:
- flussi attesi entrate monetarie per incasso crediti verso clienti
- flussi attesi entrate monetarie per anticipi bancari su crediti verso clienti
- flussi attesi uscite monetarie per rimborso anticipi bancari su crediti verso clienti
- flussi attesi uscite monetarie per pagamenti fornitori e costi variabili
- flussi attesi uscite monetarie per pagamenti costi di struttura e oneri finanziari
- flussi attesi uscite monetarie per investimenti
- flussi attesi entrate monetarie per disinvestimenti
- flussi attesi entrate monetarie per accensione finanziamenti
- flussi attesi uscite monetarie per rimborso finanziamenti
- flussi attesi uscite monetarie per pagamenti imposte

La stima dei flussi monetari si raccorda in parte alla sintesi del capitale di funzionamento del bilancio intermedio, per quanto riguarda gli elementi patrimoniali attivi e passivi ivi iscritti che, nel semestre a venire, daranno luogo ad incassi e pagamenti; in parte alla stima prospettica del reddito, a riguardo dei componenti di reddito che si prevede diano luogo a variazioni monetarie nel semestre a venire. La previsione dei flussi monetari è articolata su base mensile; valgano al riguardo le seguenti considerazioni.

- 1) Per quanto riguarda gli incassi dei crediti verso clienti, occorre distinguere i crediti iscritti nel bilancio intermedio da quelli che sorgono per effetto delle vendite realizzate nel periodo oggetto di previsione. Per i primi rilevano le risultanze degli scadenzari attivi; per i secondi i tempi medi di incasso del fatturato previsionale. Nel caso di Alfa, i tempi di incasso medi dei ricavi di vendita mensili stimati in tabella 6 sono i seguenti:
 - incasso nel mese di fatturazione: 10% totale fatture;
 - incasso nel mese successivo a quello di fatturazione: 30% totale fatture;
 - incasso nel secondo mese successivo a quello di fatturazione: 40% totale fatture;
 - incasso nel terzo mese successivo a quello di fatturazione: 20% totale fatture.

Le previsioni di incasso del fatturato aziendale e dei crediti iscritti nel bilancio intermedio di Alfa sono pertanto le seguenti.

Tab. 10: Il caso Alfa - La previsione mensile di incasso dei crediti verso clienti.

Classi di valori	Luglio	Agosto	settembre	Ottobre	novembre	dicembre	gennaio	febbraio	marzo	Totale
Incasso crediti 30/6	720.000,00	810.000,00	650.000,00	275.000,00						2.455.000,00
Incasso fatturato luglio	75.640,00	226.920,00	302.560,00	151.280,00						756.400,00
Incasso fatturato agosto		17.080,00	51.240,00	68.320,00	34.160,00					170.800,00
Incasso fatturato settembre			79.300,00	237.900,00	317.200,00	158.600,00				793.000,00
Incasso fatturato Ottobre				85.400,00	256.200,00	341.600,00	170.800,00			854.000,00
Incasso fatturato Novembre					73.200,00	219.600,00	292.800,00	146.400,00		732.000,00
Incasso fatturato Dicembre						48.800,00	146.400,00	195.200,00	97.600,00	488.000,00
Totale incasso clienti	795.640,00	1.054.000,00	1.083.100,00	817.900,00	680.760,00	768.600,00	610.000,00	341.600,00	97.600,00	

- 2) Per quanto riguarda le entrate monetarie per anticipi bancari sui crediti verso clienti, la previsione considera il fabbisogno monetario del periodo ed è condizionata dagli affidamenti bancari in essere. Nel caso di Alfa, come si avrà modo di vedere nella successiva tabella 13, in presenza di affidamenti bancari capienti, si prevede di fare ricorso all'anticipo su ricevute bancarie per euro 100.000 nei mesi di luglio, ottobre e dicembre; si tratta di smobilizzi anticipati dei crediti che garantiscono l'equilibrio monetario di periodo. Di conseguenza, nelle previsioni dei flussi monetari, si deve considerare anche il rimborso delle anticipazioni bancarie in corrispondenza dell'incasso dei crediti verso i clienti oggetto di anticipazione. Nel caso di Alfa, si è assunto che il rimborso delle anticipazioni iscritte nel bilancio intermedio avvenga nel mese di luglio e che quello delle anticipazioni previste nei mesi di luglio, ottobre e dicembre abbia luogo rispettivamente in settembre, dicembre e nel febbraio dell'anno successivo.
- 3) Anche a riguardo dei pagamenti dei debiti verso fornitori occorre distinguere quelli iscritti nel bilancio intermedio da quelli che sorgono per effetto del sostenimento di costi variabili nel periodo oggetto di previsione. Per i primi rilevano le risultanze degli scadenziari passivi; per i secondi i tempi medi di pagamento delle forniture connesse ai costi variabili. Nel caso di Alfa i tempi di pagamento medi delle fatture di acquisto per costi variabili esposti in tabella 7 sono stimati nei termini che seguono:
- pagamento nel mese di fatturazione: 15% totale fatture;
 - pagamento nel mese successivo a quello di fatturazione: 20% totale fatture;
 - pagamento nel secondo mese successivo a quello di fatturazione: 30% totale fatture;
 - pagamento nel terzo mese successivo a quello di fatturazione: 35% totale fatture.

Le previsioni di pagamento dei costi variabili previsionali e dei debiti di fornitura iscritti nel bilancio intermedio sono pertanto le seguenti.

Tab 11: Il caso Alfa - La previsione mensile di pagamento dei debiti verso fornitori e dei costi variabili.

Classi di valori	Luglio	Agosto	settembre	Ottobre	novembre	dicembre	gennaio	febbraio	marzo	Totale
Pagamento fornitori 30/6	715.000,00	812.000,00	550.000,00	370.000,00						2.447.000,00
pagamento costi variabili luglio	73.749,00	98.332,00	147.498,00	172.081,00						491.660,00
pagamento costi variabili agosto		16.653,00	22.204,00	33.306,00	38.857,00					111.020,00
pagamento costi variabili settembre			77.317,50	103.090,00	154.635,00	180.407,50				515.450,00
pagamento costi variabili ottobre				83.265,00	111.020,00	166.530,00	194.285,00			555.100,00
pagamento costi variabili novembre					71.370,00	95.160,00	142.740,00	166.530,00		475.800,00
pagamento costi variabili dicembre						47.580,00	63.440,00	95.160,00	111.020,00	317.200,00
Totale pagamenti fornitori	788.749,00	926.985,00	797.019,50	761.742,00	375.882,00	489.677,50	400.465,00	261.690,00	111.020,00	

- 4) Per quanto concerne i costi di struttura, si muove dalle previsioni dei pagamenti da sostenere nel periodo di tempo interessato, considerando anche la dinamica registrata negli stessi mesi dell'anno precedente. Per i costi soggetti ad IVA nella previsione dei pagamenti si tiene conto anche dell'Iva addebitata a titolo di rivalsa dai fornitori. A riguardo del costo del lavoro (riferito al personale dipendente e agli amministratori) ai fini della previsione dei flussi monetari, conviene assumere, prudentemente arrotondato, l'importo che si prevede di pagare ai lavoratori (documentato dalle buste paga), all'erario (a mezzo F24 per le ritenute d'acconto di lavoro dipendente) e all'Inps (a mezzo F24 per gli oneri previdenziali). Nel caso di Alfa, essendo il personale relativamente stabile, si è assunto che nel secondo semestre si effettueranno pagamenti mensili ai dipendenti, all'erario e all'Inps, di importo pari ai debiti iscritti nel bilancio al 30 giugno. A riguardo degli oneri finanziari, quelli connessi a mutui sono stimati sulla base dei piani di ammortamento; per quelli connessi ad affidamenti bancari si applica il saggio contrattuale all'importo presumibilmente affidato dalla banca nel periodo di riferimento, tenendo a mente che la liquidazione degli interessi viene usualmente comunicata dalla banca a cadenza trimestrale, ma le somme dovute vengono addebitate nei primi giorni di marzo dell'anno successivo.
- 5) Per le uscite monetarie per investimenti e le entrate monetarie per disinvestimenti, si considerano le decisioni prese dalla Direzione e i contratti sottoscritti, sempre tenendo conto dell'IVA addebitata a titolo di rivalsa.
- 6) Per la previsione dei flussi connessi all'accensione e al rimborso dei finanziamenti si utilizzano i piani di ammortamento dei mutui sottoscritti o in corso di sottoscrizione.
- 7) Per le imposte si distinguono quelle sul reddito (a titolo di saldo e di acconto) dall'IVA. Per quest'ultima, l'importo che si prevede di versare è determinabile sottraendo dall'Iva a debito calcolata sul fatturato previsto, l'iva a credito correlata sia ai costi variabili, sia ai costi di struttura che vi sono soggetti ai sensi di legge.

Tab. 12: Il caso Alfa - Le liquidazioni Iva previste per il semestre di riferimento.

	Luglio	Agosto	settembre	Ottobre	novembre	dicembre
Iva a debito	136.400,00	30.800,00	143.000,00	154.000,00	132.000,00	88.000,00
Iva credito costi variabili	-88.660,00	-20.020,00	-92.950,00	-100.100,00	-85.800,00	-57.200,00
Iva credito costi struttura e investim	Luglio	Agosto	settembre	Ottobre	novembre	dicembre
Spese di manutenzione	3.500,00	3.500,00	3.500,00	3.500,00	3.500,00	3.500,00
Consulenze	0,00	0,00	6.000,00	0,00	0,00	6.000,00
Altre prestazioni di servizi	3.000,00	3.000,00	3.000,00	3.000,00	3.000,00	3.000,00
Canoni di leasing	7.000,00	7.000,00	7.000,00	7.000,00	7.000,00	7.000,00
Altri oneri del personale	0,00	0,00	0,00	0,00	2.000,00	0,00
canoni di locazione e noleggio	0,00	0,00	0,00	10.000,00	10.000,00	0,00
Altri costi generali	4.000,00	4.000,00	4.000,00	4.000,00	4.000,00	4.000,00
Investimenti	15.000,00	0,00	0,00	0,00	0,00	0,00
Totale	32.500,00	17.500,00	23.500,00	27.500,00	29.500,00	23.500,00
Iva 22%	- 7.150,00	- 3.850,00	- 5.170,00	- 6.050,00	- 6.490,00	- 5.170,00
Totale Iva a credito	-95.810,00	-23.870,00	-98.120,00	-106.150,00	-92.290,00	-62.370,00
Iva da versare	40.590,00	6.930,00	44.880,00	47.850,00	39.710,00	25.630,00

Nella previsione dei pagamenti IVA si deve considerare che l'Iva liquidata in ciascun mese va versata nel mese successivo e che nel mese di dicembre, oltre all'IVA del mese di novembre, va versato l'acconto dell'88%. A tale fine, si è assunto di versare l'acconto dell'88% commisurato all'IVA che si prevede di dover versare nel mese di dicembre. Si veda, con riferimento al caso Alfa, le tabelle di dettaglio dei versamenti IVA previsti per il secondo semestre.

Tab. 13: Il caso Alfa - I pagamenti dell'IVA previsti nel secondo semestre del 2019.

IVA da versare	Luglio	Agosto	settembre	Ottobre	novembre	dicembre
Iva a debito	15.000,00	40.590,00	6.930,00	44.880,00	47.850,00	39.710,00
Acconto 88% IVA mese dicembre						22.554,40
Totale Iva da versare	15.000,00	40.590,00	6.930,00	44.880,00	47.850,00	62.264,40

Per garantire la coerenza fra le previsioni dei flussi reddituali e monetari occorre verificare che eventuali differenze fra i valori iscritti nelle classi di valore del preventivo reddituale e in quello dei flussi monetari siano riconducibili all'applicazione dell'IVA o allo sfasamento fra la rilevazione del componente di reddito, positivo o negativo che sia, ed il suo incasso/pagamento. Effettuate le stime dei pagamenti dei costi di struttura e di quelli connessi ai processi di investimento, di finanziamento, e di natura tributaria, si redige la tabella di previsione dei flussi monetari per il periodo di riferimento.

Tabella 14: Il caso Alfa - la previsione dei flussi monetari per il semestre luglio – dicembre 2019

	Luglio	Agosto	Settembre	Ottobre	Novembre	Dicembre
Disponibilità monetarie iniziali	255.000,00	80.291,00	24.371,00	52.061,50	8.704,50	53.612,50
Somme disponibili da gestione crediti clienti	800.640,00	1.054.000,00	983.100,00	917.900,00	680.760,00	768.600,00
Incasso crediti clienti	795.640,00	1.054.000,00	1.083.100,00	817.900,00	680.760,00	768.600,00
Uscite per rimborso anticipazioni crediti clienti	-95.000,00	0,00	-100.000,00	0,00	0,00	-100.000,00
Entrate per anticipazioni bancarie crediti clienti	100.000,00	0,00	0,00	100.000,00	0,00	100.000,00
Incasso altri proventi	0	0	0	0	0	0
Pagamento fornitori - costi variabili	-788.749,00	-926.985,00	-797.019,50	-761.742,00	-375.882,00	-489.677,50
Pagamento Dipendenti - Amministratori	-110.000,00	-110.000,00	-110.000,00	-110.000,00	-110.000,00	-150.000,00
Dipendenti - amministratori	55.000,00	55.000,00	55.000,00	55.000,00	55.000,00	95.000,00
Ritenute fiscali dipendenti e amministratori	25.000,00	25.000,00	25.000,00	25.000,00	25.000,00	25.000,00
Contributi previdenziali dipendenti e amm.ri	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00	30.000,00
Costi monetari di struttura	-33.300,00	-22.295,00	-31.360,00	-34.485,00	-36.920,00	-31.345,00
Spese di manutenzione	4.270,00	4.270,00	4.270,00	4.270,00	4.270,00	4.270,00
Consulenze	0,00	0,00	7.320,00	0,00	0,00	7.320,00
Assicurazioni	11.000,00	0,00	0,00	0,00	0,00	0,00
Altre prestazioni di servizi	3.660,00	3.660,00	3.660,00	3.660,00	3.660,00	3.660,00
Canoni di leasing	8.540,00	8.540,00	8.540,00	8.540,00	8.540,00	8.540,00
canoni di locazione e noleggio	0,00	0,00	0,00	12.200,00	12.200,00	0,00
Altri oneri del personale	0,00	0,00	0,00	0,00	2.440,00	0,00
Interessi passivi mutuo	950,00	945,00	940,00	935,00	930,00	925,00
Interessi passivi bancari	0,00	0,00	0,00	0,00	0,00	0,00
Oneri bancari assimilati ad interessi passivi	0,00	0,00	1.750,00	0,00	0,00	1.750,00
Altri costi generali	4.880,00	4.880,00	4.880,00	4.880,00	4.880,00	4.880,00
Pagamenti tributari	-15.000,00	-40.590,00	-6.930,00	-44.880,00	-102.850,00	-74.264,40
IVA (versamenti mensili + acconto dicembre)	15.000,00	40.590,00	6.930,00	44.880,00	47.850,00	62.264,40
Imposte sul reddito (saldi e acconti)	0,00	0,00	0,00	0,00	55.000,00	0,00
Imu - Tasi	0,00	0,00	0,00	0,00	0,00	12.000,00
Flussi monetari investimenti	-18.300,00	0,00	0,00	0,00	0,00	0,00
Investimenti	18.300,00	0,00	0,00	0,00	0,00	0,00
Disinvestimenti	0,00	0,00	0,00	0,00	0,00	0,00
Flussi monetari finanziamenti	-10.000,00	-10.050,00	-10.100,00	-10.150,00	-10.200,00	-10.250,00
Rimborso mutui	10.000,00	10.050,00	10.100,00	10.150,00	10.200,00	10.250,00
Accensione mutui	0,00	0,00	0,00	0,00	0,00	0,00
Disponibilità monetarie finali	80.291,00	24.371,00	52.061,50	8.704,50	53.612,50	66.675,60

Con riferimento ai crediti verso clienti il prospetto evidenzia le somme rese disponibili dalla gestione dei crediti, tenendo conto della possibilità di smobilizzarli attraverso anticipi bancari e della conseguente necessità di rimborsarli all'incasso dei crediti anticipati. Nel caso di Alfa, infatti, l'equilibrio finanziario dipende, in alcuni mesi, dalla possibilità di ottenere anticipazioni sulle ricevute bancarie presentate all'incasso.

Nella logica del modello applicativo, qualora, pur utilizzando tutti gli affidamenti concessi, il prospetto dovesse esporre (durante il periodo oggetto di previsione) disponibilità monetarie negative, ciò sarebbe espressivo di una situazione finanziaria non equilibrata, tanto più grave al

crescere del deficit di tesoreria. Dal prospetto di previsione dei flussi monetari emerge una diminuzione delle liquidità di euro 188.324,40, pari alla differenza fra le liquidità iniziali (euro 255.000) e finali (euro 66.675,60). In assenza delle disponibilità liquide iniziali, Alfa avrebbe potuto incontrare difficoltà sul piano monetario-finanziario, avendo la gestione assorbito disponibilità liquide per 188.324,40 euro. Tale potenziale criticità non emerge dall'indicatore DSCR, in quanto, nella formula di calcolo adottata dal CN-DCEC, al numeratore si considerano anche le disponibilità liquide all'inizio del periodo di riferimento.

Tab. 14: Il caso Alfa – L'indicatore finanziario Debt Service Coverage Ratio.

Debt Service Coverage Ratio	1,19
Flusso monetario al servizio del debito	422.425,60
Uscite monetarie per pagamento debiti finanziari	355.750,00
Soglia riferimento CNDCEC	1,00

Il flusso monetario al servizio del debito (il numeratore dell'indice), sul piano astrattamente teorico si calcola sottraendo alle entrate monetarie tutte le uscite monetarie, ad eccezione dei rimborsi dei debiti finanziari. In concreto, grazie all'articolazione del prospetto previsionale dei flussi monetari, esso viene calcolato agevolmente in via indiretta, sommando alle disponibilità monetarie al termine del periodo di riferimento il totale dei debiti finanziari (comprensivi dei rimborsi delle anticipazioni su crediti verso clienti) di cui si prevede il rimborso nel semestre, come meglio risulta dal seguente conteggio.

Tab. 16: Il caso Alfa - Il calcolo indiretto del flusso monetario al servizio del debito.

Disponibilità monetarie finali	66.675,60
Uscite per rimborsi finanziari	355.750,00
Flusso monetario al servizio del debito	422.425,60

Si presenta, infine, l'indice di ritorno liquido dell'attivo, con la precisazione che, sulla base delle indicazioni fornite dal CNDCEC, il cash flow viene calcolato sommando e sottraendo all'utile di periodo rispettivamente i componenti negativi e positivi di reddito non monetari, come meglio dettagliato nella seguente tabella.

Tab. 17: Il caso Alfa – L'indice di ritorno liquido dell'attivo

Indice di ritorno liquido dell'attivo	9,49%
Cash Flow	473.375,00
Attivo	4.988.000,00
Soglia riferimento CNDCEC	0,50%

Utile di periodo	6.375,00
Ammortamenti	390.000,00
Acc.to tfr	62.000,00
Accantonamento al fondo svalutazione Crediti	15.000,00
Cash Flow	473.375,00

3.5 Sulla periodicità, sulla profondità e sui margini di approssimazione dell'analisi dell'economicità aziendale.

Alcune considerazioni di sintesi sui tempi di elaborazione, sulla periodicità, sulla profondità e sui margini di approssimazione del modello applicativo di analisi dell'economicità. Per quanto riguarda i tempi di elaborazione, che condizionano la tempestività dell'informativa tanto importante sul piano giuridico⁵, il bilancio intermedio e le previsioni reddituali e dei flussi monetari possono essere predisposti, in condizioni ordinarie, seguendo il procedimento proposto, entro la fine del mese successivo a quello di riferimento. La codificazione di procedure secondo le modalità precisate nei precedenti paragrafi è molto importante, in quanto consente di ridurre i tempi di elaborazione dei flussi informativi e ne migliora la qualità. Infatti, standardizzando la sequenza di compiti da espletare per ottenere un determinato risultato (Mintzberg, 1983), le procedure limitano la variabilità dei comportamenti e consentono il coordinamento *ex ante* del lavoro, riducendo la necessità di impartire appositi ordini o di adattare il proprio lavoro a quello di altri. Se una procedura è valida, lavoratori diversi che la rispettino si comporteranno allo stesso modo ed otterranno i medesimi risultati. La periodicità con cui valutare l'andamento economico risulterà inversamente proporzionale al grado di economicità della gestio-

Il mancato adempimento della prescrizione (art. 3 c. 2 del Codice) di adottare un assetto organizzativo che consenta la rilevazione tempestiva delle situazioni di crisi determina (ex art. 378 del Codice) un sostanziale aggravamento dei profili di responsabilità in capo agli amministratori e, talora, anche ai sindaci; per contro, la segnalazione tempestiva delle situazioni di crisi da parte dei sindaci e dei revisori agli amministratori garantisce (art. 14 del Codice) l'esonero "dalla responsabilità solidale per le conseguenze pregiudizievoli delle omissioni o azioni successivamente poste in essere" dagli Amministratori "che non siano conseguenza diretta di decisioni assunte prima della segnalazione, a condizione che, nei casi previsti dal secondo periodo del comma 2, sia stata effettuata tempestiva segnalazione all'OCRI".

ne: al peggiorare dell'economicità della gestione, si dovranno intensificare, sul piano temporale, le valutazioni periodiche. Anche il grado di profondità delle analisi da condurre sarà inversamente proporzionale al grado di economicità della gestione, potendosi limitare a pochi indicatori nel caso di imprese molto redditizie, finanziariamente solide e adeguatamente patrimonializzate. In linea di massima, una periodicità semestrale potrebbe essere adeguata per imprese che presentano un elevato equilibrio economico a livello di tutte e tre le componenti. Negli altri casi, sarebbe opportuna una periodicità trimestrale, per quanto riguarda la redazione dei bilanci intermedi. Per quanto riguarda le previsioni reddituali e dei flussi di cassa, in assenza di significative criticità, potrà essere effettuata a cadenza semestrale; in caso contrario sarà operata anch'essa a cadenza trimestrale.

Apposite analisi dell'economicità dovranno, in ogni caso, essere condotte al verificarsi di eventi impreveduti di eccezionale importanza: si pensi, ad esempio, al fallimento di un cliente verso cui l'impresa vanta crediti elevati e abbia ancora importanti ordinativi da evadere.

Per quanto concerne, infine, le semplificazioni e le approssimazioni accolte per garantire un'informativa tempestiva agli organi di governo, di controllo e di revisione, vengono di seguito delineate, distinguendo i bilanci intermedi dalle analisi previsionali.

Per quanto riguarda il bilancio intermedio, rispetto alle prescrizioni di completezza del principio contabile OIC 30, il modello applicativo prevede che si effettuino le principali rettifiche di competenza, trascurando quelle di importo non significativo. In tal senso, ad esempio, non si calcolano i ratei ed i risconti connessi alle utenze telefoniche e di altra natura. Aggiuntivamente, il bilancio intermedio evidenzia il reddito ante imposte, omettendo il calcolo delle imposte sul reddito correnti, anticipate e differite. Detto computo, peraltro, va effettuato in situazioni particolarmente critiche, in cui diviene necessaria una determinazione più precisa: ad esempio in presenza di perdite prossime alle soglie degli articoli 2446-2447 del Codice Civile.

Per quanto riguarda le previsioni, il modello applicativo si differenzia significativamente rispetto ai budget canonici in quanto omette la previsione del capitale di funzionamento al termine del periodo di riferimento. Inoltre, in sede di stima del reddito e dei flussi monetari si è assunto che rimangano invariate le rimanenze di beni (rispetto ai valori iscritti nel bilancio intermedio).

3.6 Le fondazioni teoriche del modello applicativo proposto

Date le finalità del lavoro, volte a delineare un modello applicativo rivolto alle piccole imprese, i richiami dottrinali sono stati limitati allo stretto necessario; di conseguenza, occorre esplicitare la matrice teorica della proposta. Annotava Masini già nel 1947 (pag. 216) che *“vaste classi di rilevazioni, che pur sono evidentemente utili per una corretta condotta della gestione, con*

frequenza non sono attuate dalle aziende [omissis] non ultima circostanza dell'omissione accennata è tuttavia il fatto della quasi ignoranza di nozioni coordinate di carattere economico aziendale e di tecnologia". Riletta in termini propositivi, l'affermazione del Maestro ha rappresentato uno sprone ad utilizzare al meglio, combinandole opportunamente, le potenzialità delle tecnologie informatiche, degli strumenti di contabilità generale (in special modo i bilanci intermedi) e delle determinazioni quantitative preventive aventi ad oggetto i flussi reddituali e finanziari-monetari, adattandole per renderle accessibili alle piccole imprese.

Per quanto concerne l'approccio unitario all'analisi dell'economicità aziendale, finalizzata alla percezione tempestiva delle situazioni di crisi, la letteratura è sconfinata, essendo un caposaldo dell'economia aziendale. Ci si limita a ricordare che:

- Onida, sin dal 1954 (capitolo secondo §§ 29-32) tratteggiava il significato della situazione economica (reddituale), patrimoniale e finanziaria, evidenziando le *"mutue relazioni"* intercorrenti fra le tre dimensioni dell'equilibrio economico;
- anche negli studi recenti (Canziani, 2017: 378) si ribadisce che *"l'equilibrio economico è unitario"* e *"si declina nelle tre dimensioni che lo compongono"*.

La necessità di valutare l'equilibrio economico dapprima a livello parziale, di singola dimensione, dipoi a livello complessivo, considerando le *"mutue relazioni"*, è consolidata anche negli studi sulle analisi di bilancio, ove (Teodori, 2000:183) si ritiene indispensabile *"non soltanto esaminare il grado di equilibrio parziale all'interno di una dimensione strutturale ma anche le interconnessioni tra indici di differenti dimensioni: ciò equivale a valutare le relazioni tra i poli, cioè l'equilibrio globale"*.

Con riferimento alle connessioni fra le determinazioni consuntive (dell'equilibrio reddituale e patrimoniale) e quelle preventive (volte a stimare il reddito ed i flussi monetari), Riparbelli già nel 1950 (pagg. 98-99) riteneva *"indispensabile ricorrere all'interpretazione susseguente retrospettiva, salvo poi servirsi di queste conoscenze per farne deduzioni sull'influenza di tali risultati e di tali fattori casuali, sui fatti e sui risultati futuri."*

Venendo, invece, ad esaminare gli output informativi del modello applicativo, valgono i seguenti richiami di dottrina.

A riguardo della valenza segnaletica dei bilanci intermedi è risultato utile il lavoro di De Sarno del 1992, tenendo a mente che per De Dominicis (1966: XVII) *"attraverso la dimostrazione dei risultati economici conseguiti e delle strutture patrimoniali via via raggiunte, i dirigenti aziendali sono fortemente illuminati sulla giustezza delle vie di gestione percorse nel passato e sulla convenienza o meno a perseguire sulle stesse nel futuro. Inoltre, solo mediante la contabilità generale essi possono confrontare i risultati raggiunti con quelli che erano stati previsti, al fine di stabilirne gli scostamenti e le relative cause"*.

Per quanto riguarda la previsione del reddito, il procedimento proposto riflette, debitamente adattate, nei termini sopra precisati, le fasi che scandiscono l'elaborazione del budget reddituale (Bubbio, 1995, § 4). Anche nella redazione della previsione dei flussi monetari ci si è sostanzialmente conformati al procedimento di redazione del budget di cassa, con le semplificazioni sopra precisate, per il quale sono risultati di notevole utilità i lavori di Modena del 1996 (§ 2.1 del II capitolo) e di Brusa del 2012 (§ 3.8.4).

4. Considerazioni conclusive

La miglior forma di prevenzione delle crisi, nelle imprese di minori dimensioni, passa per la conoscenza tempestiva degli andamenti economici, nei complementari profili reddituale, patrimoniale e monetario-finanziario.

Nei paragrafi precedenti è stata proposta un modello applicativo per le imprese di minori dimensioni prive di un sistema strutturato di programmazione e controllo.

Il modello applicativo si articola in un sistema di determinazioni consuntive e preventive che, a cadenza periodica, sfoci in un bilancio intermedio e nella previsione dei flussi reddituali e monetari. Tali output informativi, seppur con i margini di approssimazione precisati nel testo, consentono di apprezzare in modo rigoroso, affidabile e verificabile, in via retrospettiva il grado di equilibrio reddituale e patrimoniale della gestione (attraverso il bilancio intermedio); in via prospettica quello reddituale e monetario (attraverso il prospetto di previsione del reddito e dei flussi monetari). Per ciascun output informativo sono state delineate le procedure da seguire per elaborarlo correttamente e tempestivamente.

Il modello applicativo proposto, pur essendo suscettibile di ulteriori affinamenti, consente alle imprese di minori dimensioni di ottemperare alle prescrizioni del Codice di gestione delle crisi analizzando l'andamento dell'economicità aziendale, in modo da individuare tempestivamente, in modo rigoroso e affidabile, il profilarsi di situazioni di crisi. Esso, peraltro, per come è configurato, si presta ad essere adattato, nell'articolazione delle sue componenti, alle particolari esigenze delle imprese operanti in settori diversi.

Il modello applicativo, pertanto, può rappresentare il punto di partenza di indagini future che coinvolgano piccole imprese operanti in comparti economici differenti.

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CREATING VIRTUOUS CIRCLES: WORKER-MANAGED FIRMS
AND LOCAL COMMUNITIES

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Abstract

The purpose of this paper is to investigate recovered factories and the relevance of the relationships they build with their local community and external stakeholders. Compared with traditional firms, recovered factories' survival depends on a series of variables such as the impossibility of resuming production and the risk of being in conflict with the owners of the firm. We will present a case study resulting from fieldwork, and we will observe how recovered factories live and act in their environments. Our finding is twofold: on the one hand, workers choose to open the factory to the local community in order to cooperate in defining their activities; on the other hand, the community itself provides vital support in ensuring the factory's survival.

1. Introduction

The occupation and self-management of factories by workers is not uncommon in history, with examples during the years following the Russian revolution in countries such as Hungary, Germany and Italy, later during the Spanish civil war, and again after 1968 in France, Cuba, Chile and other countries. Workers' self-management has been the object of numerous studies, which focus on specific types of cooperatives and labour-managed firms (Jossa, 2002, 2010; Vanek, 1971; Ward, 1958). While these works are important in the field of cooperatives, we will find that they do not apply to all worker-managed firms. This paper investigates recovered factories, a specific type of worker-managed firms that emerged in the early 2000s across several countries; these factories are recovered by workers (through an occupation process) after being closed down or abandoned by their owners. Recovered factories have only been studied from a sociological perspective, and they are often confused or associated with workers' buy-outs (Tognonato, 2016; Orlando, 2017): they are, however, a different kind of organisation, with specific managerial features.

A key issue for worker-managed firms regards external relationships, especially for what concerns the local (surrounding) community. Indeed, external stakeholders strongly influence the chances of survival of worker-managed firms (Monni et al., 2017; Vieta and Depedri, 2015), whose strategies and activities tend to be shaped by social needs. We know that this is also true for South-American recovered factories, also because of their specific social and political context. With this work, we want to investigate the situation of recovered factories in Europe, where the context is very different from South America in terms of social conditions and political traditions. We will carry out an exploratory study to answer the following research question: "How do European recovered factories shape their relationships with local communities and external stakeholders?"

The paper will be structured as follows. Section 2 will provide a brief theoretical framework regarding worker-managed firms and their peculiarities, while Section 3 will present the specific phenomenon of recovered factories. Section 4 will be dedicated to an exploratory case study analysis regarding a European recovered factory, and Section 5 will discuss findings. Finally, Section 6 concludes the paper and discusses research limitations, policy implications and possible paths for future work.

2. Worker-managed firms: a theoretical framework

Theoretical studies on workers' cooperatives, i.e. firms managed by workers, appeared at the end of the Nineteenth Century, but they did not

have much success, and led some to state that cooperatives did not have any distinctive features with respect to traditional firms, thus studying them was not fruitful (Jossa, 2010). Cooperatives regained fame in the late 1950s, when Ward (1958) declared that there is, indeed, a fundamental difference between them and capitalist firms, and it is found in their purpose: while the latter aim to maximise profits, the former's objective is to maximise the average income received by each worker. Cooperatives, as stressed by Zevi et al. (2011), put people at the centre of their business model, and are based on the idea of mutuality between workers (Monni et al., 2017; Mazzotta and Sicoli, 2013). Jossa (2010) then pointed out that the actual objective of cooperatives is closer to the maximisation of job security for each worker, taking non-monetary aspects into account; according to Dow (2003), maximising each worker's income is an excessively ambitious goal.

An important aspect of cooperatives, identified by Jossa in his extensive work (2002; 2010) and also by Foote Whyte and Blasi (1982) and Fakhfakh et al. (2012), is that workers manage the firm, but they are not in charge of taking the daily decisions. To do so, they hire managers that are responsible for actually managing the firm: the authors claim that this happens because workers would not be capable to face all choices that come with management tasks. Moreover, according to Jossa, cooperatives are hierarchical firms, since all firms are "hierarchical by nature".

Several authors have presented reasons for which worker-managed firms are preferable to capitalist firms (Dow, 2003): among them, we find that they provide greater equality in terms of income and wealth distribution (Miller, 1989; Plant, 1989); they suit the need to organise the firm democratically given its similarity to the state (Pateman, 1970; Dahl, 1985; Walzer, 1983); they have social impacts "in terms of income inequality, public health and employment protection" (Sabatini et al., 2014; Ben-Ner et al., 2011; Erdal, 2012; Pérotin, 2012).

Theorists agree that workers make decisions and govern the firm collectively through assemblies, and each of them has the same amount of power, i.e. one vote. Collective decision-making, along with its possible inefficiencies (Arrow, 1951; Hayek, 1960; Hansmann, 1996; Przeworski, 1998; Blair and Roe, 2010), therefore appears to be a key factor in the governance of cooperatives. According to Kerr and Caimano (2004), democratic practices can be successfully implemented in firms only if they provide a significant contribution to competitive advantage and performance outcomes.

For what concerns income distribution, each worker receives part of the profit, and the exact amount has to be determined before the firm initiates its activities; in some cases, pay is equal for all workers (Foote Whyte and Blasi, 1982).

Cooperatives have positive consequences in terms of interpersonal relationships, because all workers act towards a shared interest and such rela-

tionships prevail over individualism (Jossa, 2010). Sabatini et al. (2014) find that cooperatives positively influence the creation of social trust among workers which, according to the authors, has relevant societal consequences since “the creation and diffusion of trust is connected to the ability of the economy to function properly and to reproduce itself over time”.

3. Going deeper into workers’ management: recovered factories

As mentioned in the Introduction, theories on worker-managed firms mainly focus on traditional cooperatives, leaving out less definite and more recent phenomena, such as recovered factories, which are the object of this paper, and their relationships with the external environment. Consequently, we will briefly define them, retrace their origins and outline their main features.

Recovered factories emerged in Argentina as a consequence of the 2001 default and economic crisis, which marked a turning point in terms of factories involved in the process. The aforementioned label “recovered factories” did not exist before 2001, and it was adopted by workers to stress their need to regain their job, i.e. their source of livelihood (Ruggeri, 2014). A recovered factory is usually defined as a socio-economic process that requires the existence of a previous factory operated under capitalist methods (Ruggeri, 2014), whose failure leads workers to resist in order to resume production. The “process” feature implies a transformative action, which concerns both workers and their environment (Vieta, 2013). Transformations depend on the one hand on relationships between recovered factories and their surrounding community, and on the other hand on external micro and macroeconomic changes and developments (Vieta, 2012). The transformation also concerns the economic approach to the act of working, which tries to answer individuals needs more than market fluctuations (Bentham et al., 2013).

The primary objective of recovering a factory is for workers to keep their jobs. Tognonato (2015) lists three criteria that identify recovered factories: first of all, democratisation of working time, which means that salary is proportional to worked hours; secondly, the factory is managed in a “political” way, with assemblies; finally, economic changes that are generated by the activities of the factory. Usually, the recovery process comprises three stages: factory occupation by workers, resistance against previous owners and legal repression, and finally production. They require hierarchies to be dissolved and decisions to be made collectively by an assembly of workers where all have equal power. Throughout the process, support from the local community is extremely important: for example, locals can support workers in resistance activities (either morally or by providing them with

food or supplies), and they can become customers of the factory, economically supporting its production.

It is also relevant to mention that recovered factories are not the same as workers' buy-outs (WBOs), i.e. when employees choose to invest in buying their company's stock (Sattin and Pancamo, 2005; Cataudella, 2006). WBOs can be defined as "a business restructuring or reconversion where employees buy the majority share of the whole firm, a division or a subsidiary" (Monni et al., 2017).

WBOs usually concern specific branches of the company and imply an agreement between workers and owners; they can be carried out either by forming a cooperative or by allowing employees to participate in stock ownership.

The central difference between the two phenomena is the presence (or absence) of conflict between workers and owners. In the case of a WBO, the operation is planned in agreement by workers and owners of the branch (we speak of negotiated WBOs, which also have a clear legal framework as reference – Monni et al., 2017), while in the case of a recovered factory there is strong conflict between the two sides. Moreover, as stressed by Monni et al. (2017), recovered factories are different from WBOs because workers replace the owners of the firm by occupying company space.

However, it is also possible to highlight similarities between recovered factories and WBOs. First, both of them are influenced by a series of factors, such as the local economic situation, the presence of a strong cooperative movement and the possibility to receive financial and legal support by the public administration (Monni et al., 2017; Borzaga, 2015). Secondly, both benefit from the support by social movements and local communities, backing workers to ensure their success (Monni et al., 2017). In fact, as we mentioned above, external solidarity and support are key factors that have positive influence on both WBOs and recovered factories. Strong ties with the local community, as well as social relations (Vieta and Depedri, 2015), are paramount, and indicate that "workers' cooperatives [...] save not only jobs, [...], but they safeguard workers' productive capacity strengthening the economy of different territories and creating social capital" (Monni et al., 2017).

4. Case study: methodology and data

The exploratory case study concerns a recovered factory located in Italy, which will be referred to as "Cooperative X" (from now on, CX) for anonymity.

For what concerns the history of the factory, data was collected in late 2017 and early 2018 from online and offline documents released by the fac-

tory (around 40 announcements on website, social networks and leaflets) and then confirmed in two face-to-face interviews with workers (members of the coordinating board), each semi-structured (with a set of questions that opened the path for further discussion) and lasting around two hours, and in informal conversations with other workers; interviews were recorded and translated in English. Direct quoting will be used when necessary. Data was then analysed on the basis of the literature regarding cooperatives, for what concerns governance mechanisms and relationships with the local community. Sections 4.1 and 4.2 explain the history of CX and how it is currently organised: we believe that these aspects are necessary to understand the findings presented in Section 4.3 regarding the relationship with the external environment, since they define the organisational culture of CX and influence how it interacts with the outside world.

CX was chosen as the object of the case study for several reasons. First, most existing literature focuses on recovered factories in Argentina, but the phenomenon is growing in Europe as well, thus there is a gap in the literature regarding European recovered factories. Secondly, CX is one of the most relevant recovered factories in Europe, and can thus be seen as a best practice in its field. Moreover, its location in Italy made it easier to access data, visit the plant and conduct interviews with workers.

4.1. The recovery process: a brief history

The original firm was founded in the '70s and was a supplier of automotive products; ownership changed several times and in the early 2000s the firm had become multinational, operating in 23 countries and employing 320 workers. Despite its growth process, it was found unable to pay its obligations in 2009 due to debt deriving from unsound financial and managerial operations. As a consequence, the firm entered the insolvency procedure known as *Amministrazione straordinaria* which caused it to lose most of its clients' trust and orders. In 2010, the factory was bought by an entrepreneur who only hired 80 out of the 320 employed workers. The remaining 240 continued to receive redundancy pay (*cassa integrazione*) and to fight to regain orders from clients, so that the company would be able to hire them again. At the same time, they started looking into the possibility of constituting a cooperative that would be working in the field of recycling, and obtained support from employment centres and from the Regional Administration. Despite their efforts, however, the new owner was not able to resurrect the company, and closed the plant at the end of 2012.

Following the abandonment by the owner, workers decided to occupy the factory in January 2013. The grounds are owned by a branch of an Italian bank, entailing a legal dispute regarding ownership and responsibility for the area between the bank and the lessee of the physical space where

the factory is. However, public opinion was (and still is) strongly in favour of the workers' cooperative, and many citizens joined demonstrations to support them in carrying on with their activities.

During the factory occupation, 15 workers created an association with the objective of

“creating job opportunities for its members. Given the political climate at the time and the progressive removal of workers' rights from the legislation, we decided it would be better to experiment with self-management than to hop from one precarious job to the other”.

They felt that owners were not really committed to protecting their jobs, thus they decided to self-organise.

Workers received unemployment benefits from the government and financial support from the association, depending on its revenues (usually, around 200€ per worker). The association mainly operated in moving and transportation services, using trucks and warehouses belonging to the factory. A few months later, in March 2013, workers were finally able to found a cooperative (CX) to carry out recycling and repurposing activities; this cooperative is the object of our case study. They declare that this step did not require them to make any personal financial investments (such as their severance pay or personal resources), as their only commitment has been in terms of time and labour dedicated to the cause. This aspect indicates that CX is very different from a workers' buy-out, which requires workers to invest resources (usually severance pay) to buy the firm from its owners. Moreover, as pointed out by the coordinator¹, the path of CX toward self-management was traced in opposition against the factory owner: *“if we want to speak about buying the factory from the owners, we can say that the currency we used was conflict”*. Another member of the coordinating board defines it *“conflictual self-management”*, which is the opposite of a negotiated and regulated (by law) transaction such as a workers' buy-out which, as previously mentioned (Monni et al., 2017; Cataudella, 2016; Sattin and Pancamo, 2015), requires an agreement between owners and workers for the transaction to happen.

Not all members of CX had previous experiences with political activism, and they had varying political stances.

Indeed, *“workers represent a heterogeneous portion of society, and replicate social dynamics regarding gender issues, racism and hierarchy: the difference is that we put these issues into context and perspective, without denying them, in order to overcome them”*.

¹The coordinator is the president of the board of directors of CX, which is legally organised as a cooperative and thus needs to have a BoD. However, all members of the BoD, including the coordinator, do not have more decision-making power than other workers and do not describe themselves as “directors”.

Today, both the association and CX exist. CX hires worker-members with a 4-hour part-time contract; their monthly income is then supplemented by the association to help them overcome the poverty line (800€/month). The association has around 350 members, while CX now has 17 worker-members.

4.2 *The factory today: activities and organisation*

The objective of CX is the “*democratisation of factory management, as well as the creation of new work opportunities*” (in line with findings on recovered factories by Tognonato, 2015). Self-management is both a process toward democracy in decisional processes (Vieta, 2013), and the action of answering immediate needs, such as receiving a salary (i.e. mutuality, Mazzotta and Sicoli, 2013): when answering these needs, workers also try to change the system by building an effective alternative, which is built from the bottom up, not imposed by managers or owners.

The last owner of the company removed all machines from the plant, so workers were left with four empty warehouses, various offices, but nothing that could help them resume production as they knew it. Thus, they decided to use the space for other activities, that were designed together with the local community².

The most relevant are cultural events, the creation of a space where local artisans can work paying reduced rent fees, storage of goods and vehicles for migrants and local citizens. The partnership with artisans is especially important in CX’s relationship with the external environment, as many hosted artisans were previously unemployed or struggling financially, and CX allowed them to resume their business without charging them for rent and utilities, only doing so once they can afford it (usually one year after they enter the project). The objective is not to make a profit off their activity, but to create a community of workers without exploitation (again, mutuality – Mazzotta and Sicoli, 2013). This mindset allowed CX to attract many different people, and it now engages in a much broader range of activities than the original firm did.

According to the coordinator,

“membership in the cooperative is open, in fact we would like to increase its size. However, to become a member it is important to have a clear project of what to do within the cooperative. It is also important that, when a new worker wants to become a member, the cooperative has enough income to hire him. Our community is open, but even if you are only a member of the association, you can speak in the assembly as much as the cooperative members”.

²Some months after concluding the fieldwork, we learnt that workers were able to move to another location in the same area, hoping to curb legal disputes and to avoid eviction. This, however, does not influence the activities carried out by CX nor our findings.

This passage is key to understand the new approach and perspective that define CX's existence. Although there is a clear demarcation between who is in and who is not (members of the cooperative vs. non-members), the boundary is not fixed and current members are willing to welcome newcomers, with the idea that the factory belongs to all those who want to be part of it, and more in general to the local community.

For what concerns governance and organisational aspects, the legal form of CX is the cooperative, thus it is required by law to have a board of directors, although its members prefer to call it "coordinating board" to highlight that its main task is to coordinate the factory's activities and its members do not have a special status with respect to others. The organisation is not hierarchical: this indicates a key difference from theory on cooperatives (Jossa, 2010) and a closer similarity with workers' councils (Gramsci, 1921).

"Every working group tends to self-manage its activities: our task is to ensure that they all are consistent with the cooperative's objectives and principles; we also pay attention to efficiency and productivity, since we have to earn an income at the end of the month: this is a highly debated topic in assemblies".

The coordinating board has three members, who are elected and can be removed by the assembly; one of them is the general coordinator. The factory's governance is in the hands of the assembly, where all decisions are made (in line with the theoretical framework on cooperatives).

"Not having a managerial figure in the cooperative means that assemblies are very intense, and we discuss numerous topics ranging from managing our activities to reminding someone that they need to pick up their tab at lunch".

During the first stages of the occupation process, assemblies were held once a week; today, assemblies are monthly and the working groups meet to tackle specific issues. All members of the association (not only of the cooperative) can take part in the assembly: in fact, *"participation is very important for the collective as everyone's input is needed"*. Participation of the cooperative's worker-members is always very high. Monthly assemblies are in charge of discussing short to medium term contingencies, and the *"management of the daily activities and occurrences"*; long-term strategic planning is carried out in an assembly at the beginning of each year, *"where we present the balance sheet of the previous year and provide guidelines for the incoming year"*.

CX has not hired professional managers to run the factory (unlike what emerges from theory, according to which cooperatives are run by managers elected by workers – Jossa, 2010; Foote Whyte and Blasi (1982); Fakhfakh et al. (2012)). In fact, the coordinator says that a manager would have been necessary, especially in the early stages, to help organise activities (in line with literature regarding the complexity of collective decision-making - Arrow, 1951; Hayek, 1960; Przeworski, 1998); however, CX does not have enough funds to hire one.

“As far as I’m concerned, we needed a manager at the start of the experience: everyone would come to the assembly and bring their issues, and sometimes hard confrontation ensued. I suggested hiring someone that could optimise our activities and help us grow. However, no manager would ever come to work here, and we do not have funds to pay one. We all earn the same salary, and a professional manager would have asked for a higher pay, but this is against our principle that we are all equal”.

Members of the coordinating board have a role that can be associated to a manager’s, and they oversee all activities; they do not, however, impose decisions on other workers, in fact members of each working group tend to manage their activities and projects autonomously.

Workers are trying to find a discipline in self-management, regarding rules to be followed, how to enforce them and sanction misbehaviours, for example in case of theft of materials from the factory.

“These behaviours sometimes happen because it is very difficult to find work outside, so some people come to work here rather than be unemployed, but they may not really be motivated to take part in self-management”.

4.3. Relationships with the external environment

For what concerns the relationship with the local community, it is extremely important for CX, and according to workers *“the community enters inside the factory”*, providing it with moral and economic support. *“Local residents come here to buy food and furniture and to store their vehicles”.*

The vehicle storage activity was especially interesting, as it does not seem aligned with the ecological and recycling concerns of CX: it was suggested by the local community, and CX accepted. This represents a way to increase revenues and to strengthen ties with those living in the area; it also highlights workers’ description of the factory as commons, pertaining to the community as a whole. CX, on its end, offers several services to the territory, such as the maintenance of children’s playgrounds in schools and public parks: *“we recovered around 40 computers, installed Linux on them and donated them to an elementary school in the area”.*

Moreover, the external environment is seen as a source of new contacts and resources for the cooperative:

“Social relationships allowed us to carry on with our project: at first we were a handful of workers and we did not know how to do certain things. The local community helped us with that. For example, Libera³ sided with us in a battle on the legality of our activity, claiming that legality also includes social justice”.

³ Libera is an Italian association fighting against all mafias.

When directly asked how they value their relationship with the environment, workers answered: *“our approach is to cooperate with the local community, not to “create value for the territory” as a social enterprise would do”*.

“Recovering a factory is about work and participation, and relating to the community around it”. It is not the factory that gives something to the community in a paternalistic and unidirectional way: the community has to enter the factory and help shape its activities in a collaborative perspective, creating value together.

“We want to overturn the traditional relationship where the firm destines only a residual portion of its resources to environmental and social concerns. Instead of producing profits, we want to establish a democratic debate with all stakeholders at the stage of planning the activities to carry out”.

“It is important to find a balance between those who carry out a production activity and those who live in the area and thus sustain the social and environmental impact of that activity”.

CX workers' ideas are very clear, in fact this aspect is among those they stressed the most during the interviews: for them, the factory is not a closed space from which the community is excluded. On the contrary, it is an inclusive area where locals are encouraged to participate and make contributions, with the objective of cooperating with workers in creating social value.

5. Discussion and analysis

The interviews indicate a striking difference with capitalist firms in the definition of relationships with the external world. Traditionally, there has been an evolving pattern where the firm has learnt how and why to include social and environmental concerns in its strategies, but the decision regarding what to do, and how to do it, is always reserved to its management or shareholders. The communities that will be impacted by the firm's green or social strategies do not have any voice in determining them; it tends to always be the firm “doing something for” the environment or the local community. The workers at CX, on the other hand, are convinced that this relationship needs to be overturned and that the local community has to actively come into the space of the factory to contribute to determine its activities (in line with the idea of a transformative process found in Vieta, 2013).

CX is seen as an asset belonging not only to worker-members, but to the community as a whole. With the occupation, recovery and self-management processes, workers have reclaimed the factory and now manage it collectively; they are willing to introduce new activities that are required by the community, such as vehicle storage. With the recovery process, the factory is returned to the workers and to the community, and it is rebuilt by all of them together.

The consideration of the factory as a shared asset and space is very strong among both workers and locals, and it appears to result from two main variables. The first is the conflictual history that defined its last decade, with workers opposing owners with the goal of protecting their jobs and consequently occupying the plant: this, in turn, required them to organise to legitimate their position. Although this was the starting point, it would not have been sufficient alone: we believe that the political stance of several workers allowed to drive the occupation and resistance process in a direction that enhanced collective well-being and solidarity. At the same time, workers' openness toward the local community has contributed to the normalisation of the idea that CX is a space belonging to everyone, and that its existence benefits not only workers but also the local community (in line with trust and social capital creation, Sabatini et al., 2014). Workers, for example, make sure that no environmental hazard originates from the factory (as this happened often with abandoned plants in the area), they support and assist locals as much as they can, and open the factory to anyone who wants to cooperate with them, and they also organise cultural events.

We can say that this type of relationship with the local community creates an additional layer of informal governance besides the formal one (i.e. workers' assemblies), where the local community contributes to shaping the factory's activities. The fact that CX is an asset "belonging" to more people than just its members means that these people have the chance to make suggestions and requests, "coming into the factory" and informally influencing factory management and the activities that are carried out. The idea driving workers is that CX exists to create social value together with the local community, in a bidirectional way (as in Monni et al., 2017). The relationship between workers and their environment tends toward equality: all actors are important in the definition of what the factory will become and what it will do, and value is created collectively. CX is the space, both physical and ideal, where all these different instances meet. Moreover, the external environment is important in supporting CX when it is attacked by the owners of the ground where it is located: recently, the owner tried to evict CX, but locals showed up along with workers and numerous associations, and they succeeded in avoiding eviction. This finding resonates with the literature on cooperatives and workers' buy-out (Sabatini et al., 2014; Vieta, 2013; Monni et al., 2017; Vieta and Depedri, 2015): external support, however, is even more important for recovered firms, since they are born out of conflictual dynamics and thus need to be understood and accepted by the territory. The collaborative attitude of CX led it to gain legitimacy in citizens' eyes, and to create a bond with them.

6. Conclusions

This paper aimed at understanding the nature of the relationship between the cooperative and the local community. The CX collective treat the factory as a shared asset belonging to the whole community and not just to the workers. Indeed, cooperation between CX and local citizens is vital for the factory, because its survival depends on the legitimation and support, also in financial terms, that it receives from the local community. A virtuous circle is created between the factory, the local community and the territory, with each player being able to positively influence others. In fact, this explorative finding regarding virtuous circles may be the object of further research regarding recovered factories and social capital, as specified below.

Workers encourage the local community to “step inside” the factory and collaborating with them in deciding what to do and in creating social, collective value. Governance processes and the relationships with the external environment are strongly linked; the survival of the factory requires a shared and collective effort by all stakeholders.

In this case, the adoption of a collaborative perspective and the synergic management of the factory by the cooperative and the community has positive effects for both actors involved. Moreover, although local administrations have not always been favourable to CX, both local and national players in the public education system (local schools and universities across the country) have expressed interest and solidarity toward CX: the relationship with universities could prove especially beneficial in terms of knowledge transfer.

Findings on recovered factories have interesting potential in terms of policy implications: it may be possible to measure the social and economic impact of recovering a factory and of its subsequent relationship with the local community. Then, faced with the emergence of positive impacts, the public administration might take a mediation role between failing companies (and their owners) and their employees in order to encourage the transition to self-management, when possible.

For what concerns research limitations, it is difficult to generalise individual experiences such as the one at CX, especially in the case of recovered factories, as each has its own path and evolution, which also strongly depends on the relationships it is able to create with its surroundings. What can be generalised, to a certain extent, is the approach of self-management and the consideration of the factory (i.e. a traditionally private entity) as a shared asset pertaining not only to its owners but also to society as a whole. In terms of research findings, we do not believe that respondents were subject to a strong bias regarding social desirability, also because the information they provided (e.g. regarding occupying the factory) is not considered

universally “positive”, as some people would disagree with their methods and ideas. Moreover, the interview structure was open enough that respondents were able to answer freely without being led in a specific direction by us as interviewers. On the other hand, next steps in our research should take into account the perspective of the local community and institutions, so that all relevant stakeholders are active parties in the case study.

Finally, future research could investigate two main aspects. First, it could build on findings by Sabatini et al. (2014) regarding the role of cooperatives in building social trust and accumulating social capital: while the authors’ findings concern relationships among workers. It may be interesting to investigate how recovered factories contribute to creating social capital within local communities. Secondly, future research could explore how recovered factories exist in market economies. The issue was actually raised by workers in their interviews, although it is beyond the scope of this paper: their approach to efficiency and productivity is not to refute these concepts as profit-oriented, but to apply them to improving their quality of life and well-being. Thus, further analyses could focus on how productivity and economic efficiency are tackled when dealing with this type of factories, and on the sustainability of this approach. Another interesting aspect that could be studied next is the co-evolution of legal and illegal practices, and the influence that public opinion has on them. So far, workers at CX have managed to carry on with their activities, despite eviction threats and legal pressures, thanks to the support of their local community and national associations. Could this influence end up creating a *de-facto* legitimacy for them?

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BOOK REVIEW



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Abstract

The book provides food for thought and illustrates operational tools to face the generational shift, a particularly critical phase that involves and puts family businesses at risk. The first part of the work focuses attention on the peculiarities of family businesses and on the factors that can influence business continuity in the long term. Additionally, the critical issues of the succession process are analyzed, the phases of this process, and the protagonists, as well as the role of consultants, as privileged subjects in close contact with entrepreneurs who could effectively support the generational change. The second part is dedicated to success stories, that is, to stories of small and medium-sized enterprises or professional firms that have been able to deal with the generational shift, even taking the opportunity of succession to start an evolutionary path.

Il volume si propone di fornire elementi per riflettere ed illustrare modalità e strumenti operativi per affrontare il passaggio generazionale, fase particolarmente critica che coinvolge e mette a rischio le imprese familiari.

La prima parte del lavoro focalizza l'attenzione sulle peculiarità delle imprese familiari e sui fattori che possono influenzare la continuità aziendale nel lungo periodo; si analizzano le criticità del processo di successione, le fasi di tale processo e i protagonisti, nonché il ruolo dei consulenti, come soggetti privilegiati a stretto contatto con gli imprenditori che potrebbero supportare efficacemente il passaggio generazionale. La seconda parte è dedicata ai casi di successo, ossia a storie di piccole e medie imprese o studi professionali che hanno saputo affrontare il passaggio generazionale, addirittura cogliendo l'opportunità della successione per avviare un percorso evolutivo.

Le imprese familiari svolgono un ruolo determinante nel sistema economico mondiale. Rappresentano circa tra il 70-90% delle imprese esistenti nei vari Paesi e contribuiscono significativamente all'occupazione e alla creazione di ricchezza. Non esiste una definizione unica e condivisa di impresa familiare. Di certo, l'impresa familiare si contraddistingue per lo stretto legame tra famiglia e impresa che crea una sovrapposizione tra i due sistemi.

Il passaggio generazionale, indagato speciale di questo volume, può essere definito come il processo volto a garantire la continuità dell'impresa addivenendo ad un nuovo assetto proprietario e di governance in capo ai successori o a taluni di essi. La complessità del passaggio generazionale è riconducibile al suo carattere multidimensionale poiché include elementi oggettivi, relativi agli aspetti economico-finanziari, patrimoniali, societari, giuridici e fiscali, ed anche elementi soggettivi che afferiscono alla sfera dell'imprenditore uscente e di tutti coloro che a vario titolo sono coinvolti nel processo.

Data la rilevanza numerica e la significatività delle imprese familiari, e considerato che un'impresa su cinque dovrà affrontare il passaggio generazionale nei prossimi cinque anni, credo che i suggerimenti contenuti nel volume siano non solo utili ma estremamente necessari per rendere il percorso virtuoso nelle nostre imprese familiari.

La continuità dell'impresa familiare in Italia è prevalentemente garantita dalla successione interamente familiare, nella quale la proprietà e il controllo dell'azienda sono trasferiti ai membri della stessa famiglia. La scelta di questa opzione mette chiaramente in evidenza l'esistenza di un legame stretto, forse troppo, tra famiglia e impresa, che vuole essere spesso mantenuto a tutti i costi, anche a rischio di compromettere la sopravvivenza dell'impresa e dissipare il patrimonio familiare.

Le Autrici sottolineano la necessità di scegliere un successore o più successori competenti e motivati, indipendentemente dall'appartenenza o

meno alla famiglia. La cultura del merito deve avere la meglio sull'appartenenza alla famiglia. Purtroppo, in Italia, il rischio che ciò non accada è ancora particolarmente elevato. A livello internazionale la situazione sta cambiando e la successione interamente familiare sta perdendo di rilevanza, a causa di cambiamenti sociali e culturali che hanno anche modificato il sistema "famiglia".

Le opzioni possibili tra le quali scegliere sono molteplici e gli imprenditori dovrebbero prenderle in considerazione tutte, per poi selezionare l'opzione migliore, in quanto ritenuta la più adatta allo specifico caso aziendale: successione interamente familiare, successione interamente non familiare, successione con trasferimento all'esterno della sola proprietà o della leadership.

La successione interamente familiare si articola in un processo che richiede 5-10 anni e che coinvolge molteplici attori. La *one best way*, secondo le Autrici, non esiste poiché ogni impresa familiare è una realtà a sé stante, diversa da tutte le altre. Tuttavia, il processo può essere utilmente suddiviso in fasi da tenere in considerazione e sulle quali riflettere: la maturazione della consapevolezza da parte dell'imprenditore senior di intraprendere il percorso di successione; la formazione dei potenziali successori; l'inserimento in azienda e lo sviluppo professionale dei giovani; la convivenza generazionale attraverso la quale garantire il trasferimento del ruolo imprenditoriale; infine, l'avvicendamento alla guida dell'impresa.

Le insidie del processo sono numerose poiché i sistemi a rischio sono due: l'impresa e la famiglia. Pertanto, le criticità da gestire con lucidità sono riconducibili alla scelta del successore o dei successori, alla distinzione tra trasferimento della proprietà e transizione del ruolo imprenditoriale, e al mantenimento degli equilibri familiari. Da non sottovalutare sono i risvolti psicologici ed emotivi. Di conseguenza, la successione non può essere lasciata al caso, ma deve essere un processo preparato, governato da regole precise, prediligendo il merito, adottando un approccio olistico, definendo un adeguato sistema di governance e coinvolgendo consulenti esterni a supporto di tale processo.

La complessità del passaggio generazionale nasce dalla presenza di molteplici attori protagonisti: l'impresa, la famiglia, l'imprenditore senior, il successore o altri soggetti quando il successore non c'è.

Ciascuna impresa si contraddistingue per una specifica configurazione della proprietà, del governo e della gestione aziendale che può coinvolgere molteplici membri di una o più famiglie, in ruoli diversi. Inoltre, ogni impresa si differenzia dalle altre per la cultura organizzativa, il ciclo di vita, il settore in cui opera, la gestione dei processi strategici; tutti questi elementi possono influenzare il passaggio generazionale e devono essere tenuti in considerazione.

La famiglia è, come sottolineato dalle Autrici, una fonte di risorse per

l'impresa. La famiglia garantisce all'impresa le risorse finanziarie, le competenze imprenditoriali, manageriali, tecniche ed esecutive. Fondamentale per il successo del passaggio generazionale è la distinzione tra impresa e famiglia. Quindi, occorre tenere distinte le logiche dell'impresa dalle logiche della famiglia, attraverso la definizione di regole condivise. Sinora le donne hanno partecipato ai processi di successione come attrici invisibili ma essenziali per il mantenimento dell'equilibrio dei due sistemi.

L'imprenditore senior è il soggetto responsabile dell'avvio consapevole del processo di successione, della sua programmazione e gestione. Deve risolvere i conflitti generati dall'assunzione contemporanea di tre ruoli, quello di imprenditore, titolare e padre, e deve saper fronteggiare le criticità che nascono dalla resistenza alla delega e al cambiamento, superando le barriere psicologiche.

Il successore o i successori, visto che ci si sta orientando sempre più verso una leadership collegiale, devono voler essere successori. La volontà del successore è essenziale insieme al buon rapporto tra successore e predecessore. Un rapporto difficile è da considerarsi uno dei maggiori ostacoli alla formazione del successore e al trasferimento del ruolo imprenditoriale. Ovviamente al successore servono anche competenze ed altre capacità, ad esempio la capacità di analisi, la capacità politica e di relazione, la capacità innovativa e di visione, e quella capacità di mediazione.

Non è detto che ci siano successori familiari (per mancanza di figli, per disinteresse o incapacità dei figli); in tal caso, si potrebbe fare ricorso a successori non familiari, ossia soggetti esterni con competenze professionali adeguate. Se si profila la necessità di trasferire non solo il governo ma anche la proprietà dell'impresa, i soggetti da coinvolgere possono essere molteplici.

La successione a terzi può assumere numerose forme: la vendita ad un socio esistente non familiare, la vendita ad un'altra azienda magari concorrente, la vendita a dirigenti, dipendenti o a manager esterni, la vendita ad un fondo di private equity o la quotazione in Borsa. Comunque, il trasferimento può riguardare la sola proprietà, la sola leadership o entrambe. La possibilità di scegliere tra le opzioni sopra elencate dipende dalla dimensione d'impresa, dalla profittabilità e dall'interesse dei potenziali successori.

Il trasferimento della proprietà assoggettato a vincoli utilizzando due diversi istituti giuridici quali la fondazione e il trust è un'opzione di rilievo. Attraverso la fondazione che incorpora l'azienda, l'imprenditore è certo che l'impresa sarà gestita nel rispetto delle regole definite e perseguendo gli obiettivi prefissati. Con il trust, l'imprenditore conferisce il potere di controllo che deriva dal titolo di proprietà ad un soggetto esterno, il trustee, che gestisce l'azienda rispettando il programma di gestione patrimoniale e le finalità del trust.

Sono inoltre approfonditi i vari strumenti di tutela e di trasferimento del patrimonio aziendale: le holding di famiglia, il patto di famiglia, il trust, le clausole statutarie, i patti parasociali e la donazione. In particolare, sono descritti gli aspetti giuridici, quelli fiscali, le problematiche applicative e gli utilizzi pratici dei singoli strumenti.

Il supporto dei consulenti esterni può essere indispensabile nella gestione efficace di un processo complesso come il passaggio generazionale. I consulenti potrebbero aiutare l'imprenditore senior a gestire in modo consapevole la successione, a favorire il subentro del successore, preparare l'azienda, districandosi sapientemente tra le questioni aziendali e familiari. Anche altri soggetti possono contribuire al passaggio generazionale delle imprese familiari: le università, le associazioni imprenditoriali, le camere di commercio, le banche, le istituzioni ed enti pubblici e privati. Quindi, la successione non è e non deve essere solo un affare di famiglia, è molto di più.

I casi empirici descrivono passaggi generazionali di successo che hanno coinvolto piccole-medie imprese e studi professionali. Dai casi descritti, emergono significativi spunti di riflessione. Ne riporto solo alcuni: occorre programmare attentamente e dettagliatamente il passaggio generazionale; la fiducia, il rispetto e il dialogo tra successore e predecessore possono fare la differenza; la successione con amministratore delegato non familiare ma insider all'azienda può creare il giusto equilibrio tra famiglia e competenza; la lungimiranza del fondatore può rendere il processo successorio un'opportunità di sviluppo, al pari della spinta innovativa del successore.

Il volume è interessante perché è frutto della collaborazione tra il mondo accademico e quello professionale, e rappresenta un contributo importante sia teorico che empirico al dibattito sul tema in questione. La lettura del libro è adatta ad imprenditori senior, potenziali successori, consulenti, studiosi e studenti che intendono approfondire le problematiche e le possibili soluzioni per affrontare efficacemente il passaggio generazionale.

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