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**The role of e-commerce in the international
expansion of Italian SMEs: an analysis of the
Calicantus Srl case study**

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INTRODUCTION

Italian SMEs have always been a crucial player of the Italian economic landscape, significantly contributing to national exports. This thesis aims at examining the transformations that SMEs' internationalization have undergone in recent times, particularly in light of the new geopolitical scenario. The first chapter investigates whether Italian SMEs are equipped to adapt to the recent geopolitical turbulence and trade reconfigurations. Also, it explores data on the impact of these disruptions on the export of Italian SMEs. Given the growing debate on the future of industrial districts as a sustainable and successful model, the chapter researches the importance of Italian industrial districts in ensuring a successful SMEs' international expansion.

The second chapter delves into digitalization as a key resource for SMEs' survival. It identifies two major obstacles for the international expansion of Italian SMEs: the value retention issue and the demographic factor. The chapter then discusses why digital transformation is a fundamental asset for companies operating abroad, while acknowledging the main obstacles that make SMEs' digitalization a complex endeavor. Furthermore, it examines whether Italian SMEs' present efforts to adopt digital tools are sufficient to improve the quality of their internationalization. Finally, some data on the impact of technologies 4.0 in the prosperity of Italian SMEs are highlighted.

The third chapter introduces a specific digital instrument: e-commerce. It explores the factors that help or hinder SMEs' access to online commerce. Scholars studying the digitalisation and internationalization of Italian SMEs have confirmed a positive relationship between export propensity and the use of digital tools. Therefore, the opportunities that stem from online commerce for Italian SMEs and for their successful expansion to foreign markets are deepened. Additionally, the third chapter discusses artificial intelligence as a new frontier in the adoption of e-commerce by Italian SMEs.

Finally, the fourth chapter presents an in-depth analysis of the Calicantus Srl' case study, a company specialized in digital commerce solutions. It highlights how Calicantus Srl supports SMEs in enhancing their access to electronic commerce. Moreover, this chapter also provides an overview of six notable Calicantus Srl's Italian SMEs clients (Fratelli Rossetti, Parmigiano Reggiano, Selle Italia, P-INC, Elica and Flos), illustrating how the company tailors its

contributions to meet the unique needs of businesses across different sectors. The chapter concludes by outlining key considerations that emerged from the investigation's insights and the broad implications for SMEs' adoption of digital commerce.

CHAPTER 1 The Internationalization of Italian SMEs: Strength by numbers

1.1 A new geopolitical scenario: implications for global trade

Over the last ten years the global scenario has been characterized by large discontinuities that have strongly impacted the dynamics of globalization and transformed the international macroeconomic context (Intesa San Paolo, 2023a). These transformations have been marked by significant events that spilled over across continents, leaving a permanent mark on economies worldwide. In particular, Europe has been affected by the Greek collapse in 2011 (The Economist, 2015) and by the Brexit referendum in 2016, which resulted in the departure of the United Kingdom from the European Union. This move not only severely harmed longstanding ties among EU countries but also compromised the UK long run GDP (-4%) (OBR, 2021). Moreover, Donald Trump's election as President of the United States introduced a new era of uncertainty with the adoption of protectionist policies and caused additional concerns about the future of globalization (Ghemawat, 2018).

More recently, the challenges posed by the Covid-19 pandemic and the tensions stemming from the Russia-Ukraine war are among the setbacks that have introduced some relevant changes that companies should consider while operating abroad (SACE, 2023a). Also, the ongoing controversies in the Middle East and the trade disputes between two worldwide leaders, namely China and the United States, are contributing to further inflaming the complexity of the global geopolitical landscape (Liu et al., 2024).

The cumulative effect of all these shocks has been a great sense of instability that led to a high pressure on the global supply chain, which has been affected by several disruptions. Accordingly, in coincidence with Covid-19 and the Russia-Ukraine war, the global supply chain pressure index (GSCPI), which is made up of an index on the global transport costs and an index on the supply chains, picked up to levels never reached before. Furthermore, the global economic policy uncertainty index, which measures the amount of uncertainty in the worldwide economy, shows similar results. Namely, the highest uncertainty level since 2011 corresponded to the Covid-19 pandemic. In addition, these recent geopolitical setbacks also

implied the reshape of the global supply systems (ICE, 2023), putting under pressure both companies and households (SACE, 2023a).

These turbulences generated several repercussions for companies' export activities and are likely to shape the future configuration of global exchanges. Firstly, such geopolitical shocks drove a massive backlash against the integration of global trade (Góes & Bekkers, 2022). Indeed, the recent conflicts indicate that global trade is being replaced by a more fragmented worldwide economic system.

This implies less integrated global value chains and a regionalization of production and sourcing (Pegoraro et al., 2020). The regionalization process entails a unification or integration of countries into regions (Ghemawat, 2005). In this regard, the geographical criteria can be used, which groups countries within the same continent together. Nevertheless, apart from geographic proximity, regions can also be defined by other dimensions such as cultural, administrative, and, to some extent, economic distance. Therefore, the CAGE framework designed by Pankaj Ghemawat (2018) represents a structured approach to delineating regions based on these diverse dimensions.

Secondly, in their recent study published in 2024, Liu and colleagues claim that the shifts in a country's geopolitical risks carry implications not only for its domestic economy, but also for the ones of its trading counterparts. They argue that these shifts often result in considerable disruptions in bilateral trade, generating massive shocks that propagate through interconnected markets. In fact, geopolitical events affect both the demand of importing countries, as well as the nations' willingness to export, particularly in light of the significant trade costs involved. Other studies indicate that tariffs imposed by trading partners as a consequence of geopolitical disorders have detrimental effects on the export performance and profit margins of nations (Xu et al., 2020). These findings demonstrate the complicated relationship between global political dynamics and international trade outcomes.

Furthermore, the detrimental repercussions from geopolitical setbacks impact several economies, including the most influential players on the global stage (Liu et al., 2024). In accordance, scholars proved that geopolitical risks have had negative effects even for the export of worldwide leaders like China. Moreover, during Covid-19 pandemic doubts concerning food and health safety triggered restricted measures to international trade. Hence, in 2022, European firms had to deal with price increases of the energy commodities,

especially in Italy, given its higher energy dependence and use of gas (Intesa San Paolo, 2023a).

In addition, another implication of the latest shocks for the Italian firms is, for instance, a new geography of trade (SACE, 2023a). This shift in trade dynamics presents both challenges and opportunities for Italian exporters. On one hand, traditional export destinations like Germany, which historically served as Italy's primary market, are facing a period of stagnation. Conversely, countries such as India, South Korea, Mexico, Brasil, Vietnam and others, offer increasing opportunities for Italian companies. Such an evolving landscape highlights the importance for Italian firms to adapt their strategies to exploit the emerging opportunities in new markets, while facing the challenges posed by stagnating demand of traditional counterparts.

A recent McKinsey's report attempts to delve into the changing geometry of global goods trade proposing four measures: trade intensity, geographic distance, import concentration, and geopolitical distance, which is an approximation of the extent to which geopolitical alignment relates to trade (Seong et al., 2024). Following this analysis, the reconfiguration of the global trade dynamics is likely to emerge as a consequence of the latest geopolitical setbacks. Notably, since 2017, major economies such as China, Germany, the United Kingdom, and the United States have reduced the geopolitical distance of their foreign trade interactions. Simultaneously, the United States has diversified its trade activities while concurrently reducing the geographic distance of its trade relationships.

Furthermore, the report shows how greenfield cross-border investments towards developing economies are rising, particularly in Africa and India. This suggests that the landscape of international investment is likely to be characterized by further reconfigurations in the foreseeable future. Indeed, investments by one country into another can be a precursor of trade expansion between nations, indicating a potential increase in economic interconnectivity. Finally, it is likely that, in the future, companies will have to face some trade-offs as they navigate the evolving scenario of global trade. In fact, "reducing geopolitical distance comes with increasing trade concentration, and vice versa" (Seong et al., 2024, p. 3), forcing firms to carefully weigh their strategic decisions in an increasingly complex global context.

To sum up, the emerging trends are evidence that companies operate in an increasingly complex scenario and need to adapt rapidly (Seong et al., 2024). This represents a great challenge, especially for SMEs, which are subject to time constraints and possess comparatively fewer resources and less experience than their larger counterparts (Priyono et al., 2020; Bettiol et al., 2022b). Hence, a crucial aspect under investigation in the present work is whether Italian SMEs will be able to cope with the recent geopolitical turbulence and new trade reconfigurations. Additionally, it explores whether these enterprises currently possess or will manage to cultivate the necessary capabilities to thrive in this evolving landscape. Therefore, this analysis contributes to the understanding of the resilience and adaptability of Italian SMEs in the face of dynamic global economic forces.

1.2 Data on the long-established relevance of Italian SMEs' export activity

As mentioned above, the complexity of the global scenario has never had such a significant impact for worldwide businesses (Seong et al., 2024). In this paragraph, after providing an overview of the long-lasting relevance of SMEs' exports, an analysis of the repercussions of the Covid-19 pandemic and the Russia-Ukraine war for Italian SMEs' internationalization is outlined, in order to understand how they reacted to these recent shocks. When referring to SMEs the EU definition is considered, according to which micro firms have no more than 10 employees, a maximum of 2 million euros turnover and total balance sheet. The small companies are those with less than 50 workers, not more than 10 million euros and total balance sheet. Finally, medium enterprises have less than 250 employees, have at most 50 million euros turnover and not more than 43 million euros of total balance sheet (European Union, 2003/361).

Italy has always been characterized by a multitude of SMEs that over the last decades have had a significant influence on Italian exports (SACE, 2023b). Historically, the international success of Made in Italy has been mainly related to four traditional sectors: fashion, furniture, food and mechanics (Fondazione Symbola et al., 2015). Accordingly, already in 2006, the value added at factor cost generated by the four core Italian industries was 142 billion euros, representing 65% of the total Italian manufacturing value (Fondazione Symbola & Fondazione Edison, 2009). Furthermore, in 2007, Italy was the second industrial

manufacturing country in the world after Germany. Indeed, the Italian manufacturing sector generated 252 billion euros, surpassing the UK and France. Nevertheless, in the Fortune's classification of the 500 biggest firms of 2008, only 10 Italian companies were mentioned. This proves that the Italian manufacturing power originated from a plethora of SMEs.

Moreover, after the financial crisis in 2008 and the emergence of new international players like China, the Italian economy experienced a reduction in its manufacturing activities, especially in the low end of the market (Confindustria, 2015). Despite the threats posed by the emerging economies, Italy managed to defend its specialization in the four traditional and strategic sectors, keeping its position (eighth) among the top ten manufacturing producers. Indeed, Italy was able to stay competitive in design and fashion, being the second largest industry after China. In addition, Italy was the sixth country at global level in the steel and capital machinery industries. This indicates that Italy, although the diminished manufacturing activities, switched towards higher-quality and higher-value products within traditional market segments.

Apart from the global market share of Italy, it is interesting to examine its historical export performance. In fact, from 2006 to 2013, Italy kept its worldwide supremacy in the main sectors of Made in Italy, which are textiles, apparel and leather. Moreover, Italy was second in other five niche groups such as mechanics and means of transport. In contrast, the information technology (IT) and electronics clusters in the Italian economy were not highly developed. Furthermore, in 2017, Italy was among the top five countries in the world with a manufacturing trade surplus higher than 100 billion dollars, registering a surplus of 107 billion dollars (Fondazione Symbola, 2019).

Also, Made in Italy was driven by cultural, creativity and beauty products, which accounted for 16,6% of the Italian GDP. Additionally, in 2017, the Italian economy proved its resilience in the fashion sector, retaining its leading position by covering 6,5% of the global market share, second only to China (40,4%). Italy outperformed in pharmaceutical exports as well, with a growth rate of +107% over the preceding 10 years, compared to the European average growth rate of +74%. In 2017, Italy was also the first European exporter of bicycles and make-up products. Therefore, over the past two decades, the traditional Italian uniqueness in terms of territory and heritage has fostered the significant contribution of Italian SMEs to national exports. Nevertheless, it is worth highlighting that the data above refer to a period of

peaceful economy and relaxed international relationships, which is far from the recent geopolitical scenario.

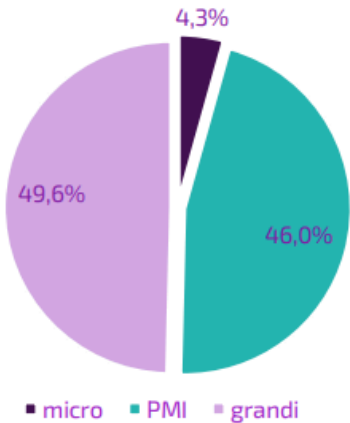
Consequently, the impact of current turbulence in the export of Italian SMEs is explored afterwards. Overall, throughout 2022, the Italian economy showed great resilience, registering a GDP growth rate at constant prices of almost 4% (SACE, 2023a). Moreover, the Italian export of goods and services in proportion to the GDP was 34%, compared to 29% ten years ago (ICE, 2023). Also, the Italian export of goods grew in value by 20%, reaching 625 billion euros (SACE, 2023a). The Italian export of services experienced a boost as well, with a +34,9% growth, reaching 118 billion euros.

According to the SACE's export report (2023a), the Italian foreign sales will continue to grow in the following years, although at a slower pace. In addition, starting from 2024, the average annual volume of international trade of goods (+3,5%) is expected to stagnate against an acceleration of the global trade of services (+12,2%). Therefore, as consumers exhibit an increasing preference for services, the Italian companies should consider shifting towards a servitization of their product offers (Bettiol et al., 2022b).

More specifically, Italian SMEs continue to have a crucial role in the Italian productive system and significantly contribute to Italian exports. Accordingly, in 2021, Italy counted 50.300 SMEs involved in export activities, 40.000 of which were small companies (SACE, 2023b). Nevertheless, since 2017, the number of Italian small exporters have been slightly shrinking (-0,6%), while medium exporters have an average annual growth rate of +1,8%. Altogether, after the Covid-19 pandemic, SMEs were able to quickly recover in almost all sectors. The only exception was the fashion industry, which was the most hit by Covid-19 and, therefore, took more time in restoring the pre-pandemic performance. Small companies were more affected by the Covid-19 pandemic, but were also able to recover more quickly than medium ones, proving their dynamism.

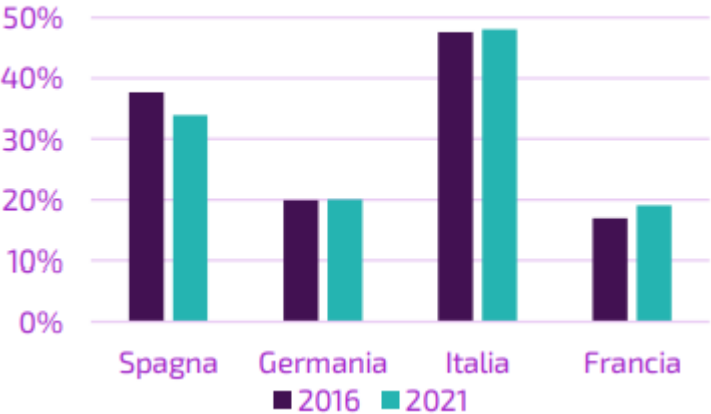
More recently, in the Italian market, 50% of the production value of manufactured products was destined for export, where SMEs prevail (Intesa San Paolo, 2023a). In fact, Figure 1.1 provides evidence that, nowadays, Italian SMEs account for over 50% of Italy's exports of manufactured goods (Intesa San Paolo, 2023b). This is peculiar, if considered that in other European countries such as Germany or France the majority of exports of manufactured goods are related to big enterprises (Figure 1.2).

Figure 1.1 Export value by business size class in Italy, 2021



Source: SACE. (2023b). Piccole, medie e più competitive: le PMI italiane alla prova dell’export tra transizione sostenibile e digitale [Small, medium and more competitive: Italian SMEs facing the export challenge between sustainable and digital transition]. <https://www.astrid-online.it/static/upload/9c46/9c4694e5304b2d7d394bf196ca4310f81.pdf>

Figure 1.2 Share of Export value covered by SME over the total export



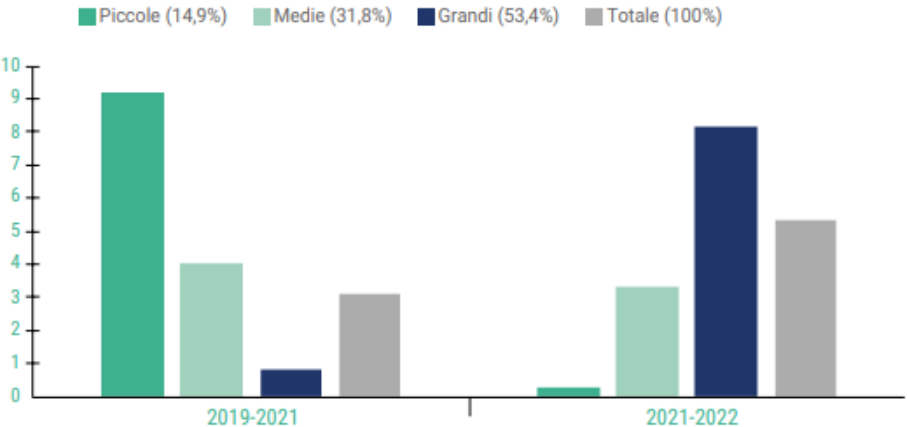
Source: SACE. (2023b). Piccole, medie e più competitive: le PMI italiane alla prova dell’export tra transizione sostenibile e digitale [Small, medium and more competitive: Italian SMEs facing the export challenge between sustainable and digital transition]. <https://www.astrid-online.it/static/upload/9c46/9c4694e5304b2d7d394bf196ca4310f81.pdf>

The foreign sales of Italian SMEs have grown during the period 2017-2021, with an average growth rate of +2,7% (SACE, 2023b). In particular, the growth of medium-sized firms’ exports (+7,3% in 2023) is driving this trend, exhibiting a better performance than the one of the total Italian exports (+6,8% in 2023). Moreover, as evident from Figure 1.3, in the period 2019-2021 the growth rate of exports tended to decrease with the increase of the average firm

size (+9,2% for the small companies, +4% for the medium ones and +0,8% for the big ones), however, the opposite trend was observed in 2021 and 2022 (ICE, 2023). Indeed, more recently, the growth rate of exports of big firms speeded up (+8,1%), while that of small companies remained stable (+0,3%).

Therefore, data highlight the growth of SMEs’ exports during the first post-pandemic recovery phase, with a subsequent stabilization. On the other hand, big companies, which struggled more to recover in the initial post-pandemic phase, are now exhibiting a strong acceleration in terms of exported volumes. In addition, medium-sized firms were able to maintain good levels of export flows in both phases (from +4% to +3,3%). Accordingly, it appears that big companies are the ones which were more impacted by Covid-19 pandemic, relative to their export volumes. At the same time, medium-sized firms emerge as critical players for Italian export, given their resilience during periods of geopolitical instability.

Figure 1.3 Rate of change of export in volume of the manufacturing persistent exporters, for company size (2019- 2021, 2021-2022)



Source: ICE (Italian Trade Agency). (2023). L’Italia nell’Economia Internazionale, RAPPORTO ICE 2022-2023 [Italy in the International Economy, ICE REPORT 2022-2023] https://www.ice.it/it/statistiche/Repository/Rapporto/ICE_2023_Rapporto_web.pdf

Also, the figures on mergers and acquisitions (M&A) between Italy and the rest of the world demonstrate that the Covid-19 pandemic did not stop the expansion of SMEs abroad (Maiolica, 2024). Namely, in 2022 and 2023, SMEs’ M&A activities were characterized by a sharp increase in the number of negotiations, overcoming the pre-pandemic levels. The primary target was the UK, accounting for 40% of M&A operations, due to the post Brexit difficulties of Italian SMEs in entering such a market. Other target countries were Spain,

Germany and France, providing evidence that companies were more likely to penetrate geographically and culturally closer economies.

From a structural point of view, the predominance of Italian SMEs characterizes specific industries (SACE, 2023b). Indeed, sectors such as fashion, processing of non-metallic minerals, retail trade, wholesale trade and automotive repair are dominated by micro and small companies. On the contrary, the pharmaceutical industry registers a predominance of medium and big enterprises. In terms of export, the 80% of value generated by SMEs' export activities derives from the manufacturing sector. Also, more than half of the total SMEs' manufacturing export comes from three sectors: instrumental mechanics (with export value of 38.8 billion euros), metal products (with export value of 31.8 billion euros) and food and beverages (with export value of 19.3 billion euros) (SACE, 2023b).

On the contrary, with respect to 2019, the machinery, metallurgy and metal products industries are registering a lower ability to generate value-added through exports (ICE, 2023). Regarding services, tourism is leading the Italian tertiary sector, even if it is still below the pre-pandemic levels (SACE, 2023a). In fact, after the Covid-19 pandemic and the easing of restrictions the demand for services increased, especially those related to travels. Also, the transport's exports increased by 30% with respect to 2021.

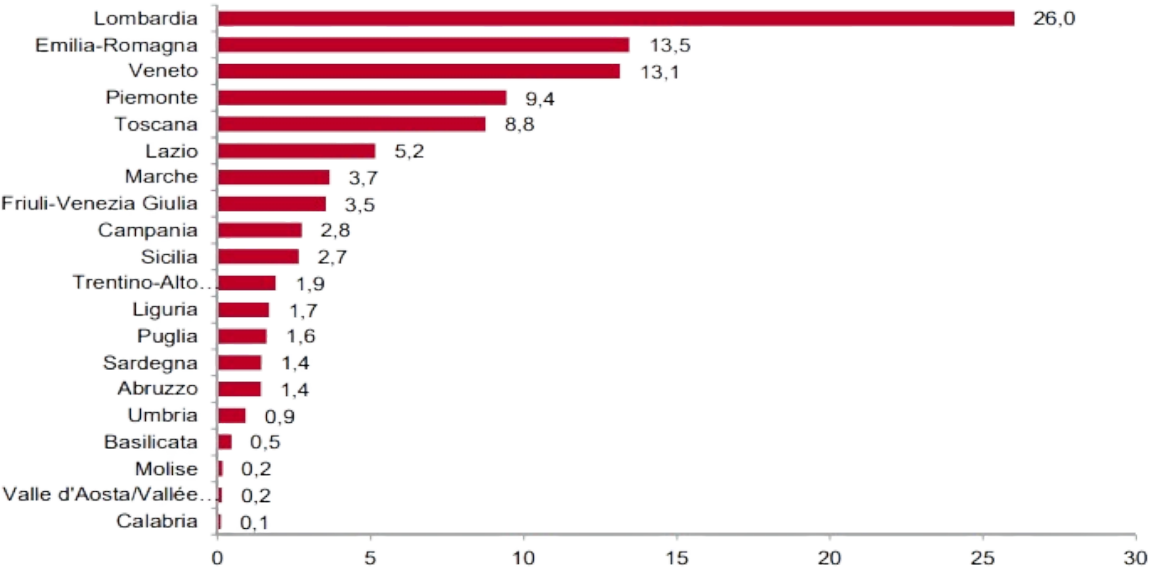
In addition, in 2021, the main geographical destinations of a high number of Italian SMEs were European countries not EU members, followed by North America and East Asia (SACE, 2023b). It is interesting to notice that SMEs are the most diffuse types of firms in all the geographical areas. When the incidence of the Italian SMEs' exports over the total export in all areas is analyzed, the main areas covered by SMEs are the EU and Central Asia.

Considering the territorial origin of the exported goods depicted by Figure 1.4, it emerges that, during 2022, the leading regions were Lombardia (26%), Emilia-Romagna (13,5%) and Veneto (13,1%). In fact, 37,3% of domestic exports derived from North-West regions, 32,1% from North-East regions, 18,5% from central regions and only 6,5% from southern regions (ISTAT, 2023a). Accordingly, in 2022, the majority of Italian SMEs were located in the northwestern regions, especially in Lombardia and Piemonte (Intesa San Paolo, 2023a). Also, SMEs of the North-West of Italy are the ones performing better referring to exports, turnover and profitability trends, and also to the degree of capitalization. Hence, concerning the contribution of Italian regions' SMEs to export generation, a gap between the North and the

South of Italy still exists. Furthermore, it is interesting to analyze the ratio between exports and the number of inhabitants of the top exporting regions, in order to normalize the data. The number of residents of Lombardia, Veneto, Emilia-Romagna and Piemonte are respectively 10 million, 4.4 million, 4.8 million and 4.2 million (ISTAT, 2024). Hence, the normalized results show a different ranking placing on top the Emilia-Romagna region, followed by Veneto, Lombardia and Piemonte regions.

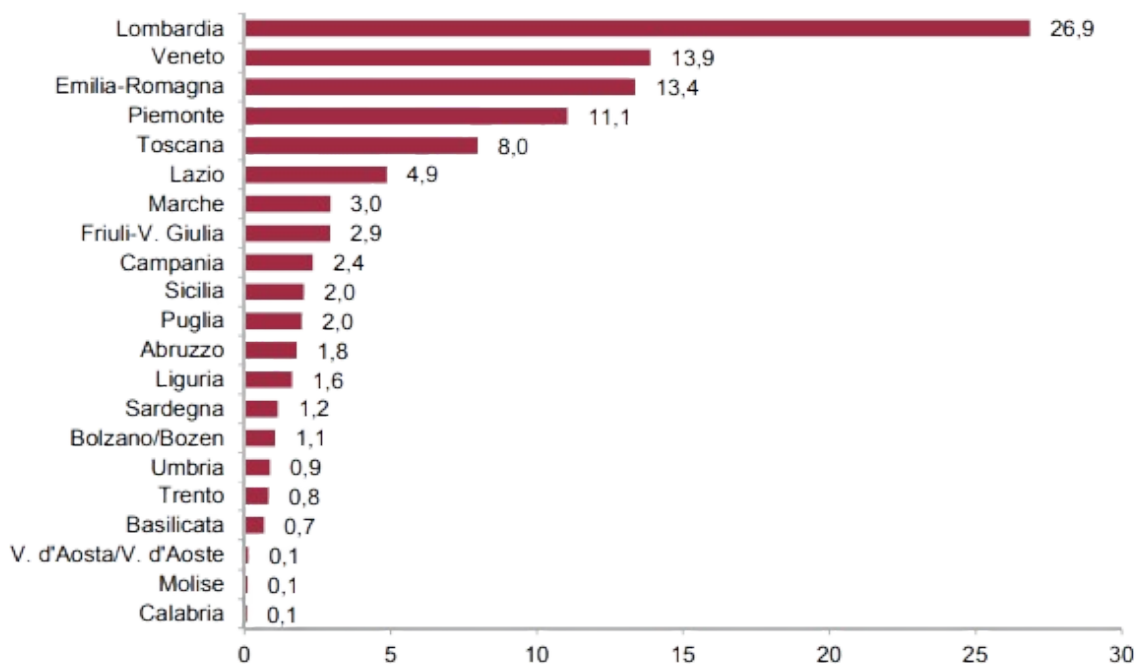
Moreover, by analyzing Figure 1.5, it is possible to observe how the export impact of Italian regions evolved. In fact, in 2015, Veneto was the second largest exporter, followed by Emilia-Romagna in third place (ISTAT, 2016). Additionally, the regions of Sicily and Puglia were higher in the ranking, while Trentino-Alto Adige was far behind, in seventeenth place. This evolution indicates that the economic geography of Italian SMEs is changing, with implications for the competitive advantages of businesses relative to their internationalization.

Figure 1.4 Exports by regions (Year 2022, composition in percentages)



Source: ISTAT. (2023a). Commercio Estero e Internazionalizzazione delle imprese [Foreign Trade and Internationalization of Companies]. <https://www.istat.it/storage/ASI/2023/capitoli/C15.pdf>

Figure 1.5 Exports by regions (Year 2015, composition in percentages)



Source: ISTAT. (2016). Commercio Estero e Internazionalizzazione delle imprese [Foreign Trade and Internationalization of Companies]. <https://www.istat.it/it/files/2016/12/C15.pdf>

In conclusion, the results of several studies indicate that SMEs largely contribute to Italian exports and, therefore, still play a crucial role in the internationalization of the Italian economy. Furthermore, the international growth of Italian SMEs seems to be far from decelerated by the several geopolitical turbulences. However, SMEs are undergoing some crucial transformations, which made medium-sized firms emerge as critical players, both in terms of export propensity and ability to cope with periods of geopolitical instability. Indeed, the positive dynamics of Italian export is attributed predominantly to Italian medium-sized firms (SACE, 2023b).

1.3 Italian industrial districts: the end of a model or the cornerstone for SMEs' future competitiveness?

Industrial districts emerged as a predominant model for the Italian economy as early as the 1970s (Dei Ottati, 2018). In fact, in 1990, some scholars proposed the concept of industrial district as the foundation of Italian economic growth (Pyke et al., 1990). Industrial districts are defined as entities characterized by interactions between a “community of people” and a “population” of predominantly small and medium firms (Becattini, 2017, p. 17). Indeed, industrial districts are strongly embedded in the local territories and leverage the unique and rich Italian culture and expertise. In any case, the origin and development of an industrial district cannot be solely attributed to the local dimension of socio-cultural traits, historical and natural features of a geographical area, and technical aspects of production processes. While these factors are definitely influential, districts are also the outcomes of dynamic interactions within a permanent network, established between the district itself and the external worldwide market.

However, especially in the wake of globalization, industrial districts encountered some difficulties which led to transformations of their socio-economic structure (Dei Ottati, 2018). Indeed, some districts, such as the Prato one, have undergone a severe decline in terms of reduced number of manufacturing workers and enterprises. This contributed to the rising debate on the future of industrial districts as a sustainable and successful model. On the other hand, many districts gained competitive advantages thanks to the specific configuration of cooperation and interactions. Indeed, the exchange of information, thanks to socio-economic interactions, have been crucial for the adaptation of industrial districts in the rapidly changing market, allowing them to face globalization and technological developments. Moreover, studies show that the participation of industrial districts in global value chains favors process and product upgrading dynamics, both in developing and in advanced economies (De Marchi et al., 2020). Therefore, being active in the global market allows industrial districts to move towards more value-added activities.

Also, local investments made by global companies, whether through foreign direct investments (FDI) or local sourcing, have the potential to stimulate the growth of industrial districts during their initial stages of development. Additionally, such firms can leverage the

specialized product and production knowledge present within industrial districts for innovating products and creating value, which can then be replicated on a global scale (Belussi et al., 2018). Meanwhile, industrial districts' firms started to expand their manufacturing systems beyond the local dimension, leveraging international sourcing and FDI (Crestanello & Tattara, 2011). Indeed, FDI enables SMEs to pursue exploitation and exploration abroad, allowing them to enter new markets, enhance efficiencies, and acquire strategic assets (Kang et al., 2021).

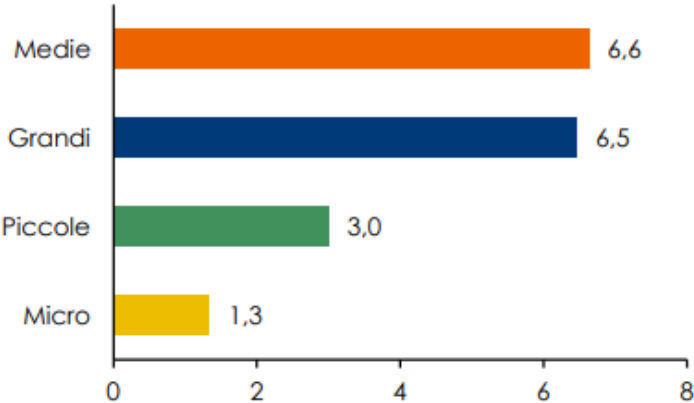
Specifically, outward FDI is associated with SMEs' exploitation strategies, which leverage domestic innovation in foreign markets with minimal changes. Also, inward FDI is recognized as a relevant means of learning, through which SMEs advance their growth by accessing complementary resources to enhance domestic and international expansion. Therefore, FDI represents an advanced approach for SMEs to exploit and explore international opportunities. Furthermore, a study by Lecerf and Ormani (2020) demonstrates how innovation outputs, such as patents, positively influence the process of internationalization of SMEs, both directly and indirectly. Indeed, findings show the indirect impact of patent intensity on export activities, driven by the development and adoption of IT. Therefore, combining innovative capabilities with IT, enables SMEs to exploit additional opportunities in foreign markets.

However, especially after the Covid-19 pandemic, the benefits of organizing economic activities on a global scale have been subject to debate (Strange, 2020). In this regard, the work of Bettiol and colleagues (2022a) proves that Italian industrial districts can enhance their competitiveness by combining outward-oriented strategies with local models. This enables districts to benefit not only from the advantages of cost competition, but also from the increased value generated locally. Anyway, it seems that the transformation of Italian industrial districts is still an ongoing process. At the same time, consistently with major worldwide shifts discussed in the first paragraph, it appears that import and export activities of Italian SMEs are encountering a new wave of regionalization of production, driven by emerging processes of nearshoring or reshoring (Bettiol et al., 2022a).

A recent report from Intesa San Paolo (2023a) demonstrates how industrial districts' Italian SMEs were able to successfully adapt and recover from the Covid-19 pandemic. Already in 2021, districts' firms recorded revenues 5,2% higher than 2019 levels, two percentage points more than non-district areas. The excellent responsiveness of districts is also evident when

observing the evolution of the EBITDA margin, which reached 7,7%, surpassing the 7,4% of 2019. Moreover, as Figure 1.6 exhibits, medium-sized companies in Italian industrial districts stand out as champion firms, with better economic and financial performances and a more advanced profile in terms of internationalization and propensity for innovation.

Figure 1.6 Districts: Persistent champion companies by size class (%) - 2019-2021



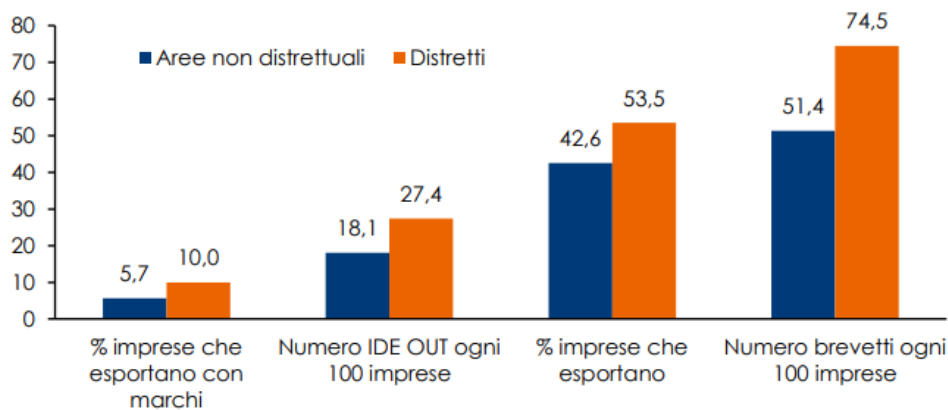
Source: Intesa San Paolo. (2023a). Rapporto Economia e Finanza dei distretti industriali [Annual Report on the Economy and Finance of Industrial Districts], https://group.intesasanpaolo.com/content/dam/portalgroup/repository-documenti/research/it/economia-e-finanza-dei-distretti/2023/Rapporto%20Economia%20e%20finanza%20dei%20distretti%20industriali%20nr%2015_Bis.pdf

Moreover, the data collected confirm the recent active role of Italian industrial districts at the international level. In fact, in 2022, the number of Italian districts’ small and medium enterprises that exported was quite high, 62,9% of the small companies and 91,2% of the medium enterprises. In addition, in 2022, Italian districts grew both in the Italian market and in the international one, reaching 153 billion euros, with a growth rate of +19,9% with respect to 2019. During 2023 and 2024, the Italian districts are expected to continue following this trend, with estimated growth rates of 1,1% and 2,2% respectively.

Districts’ exports have boomed at international level, especially those towards the United States (+3.4 bl; +25,2%), France (+2.7 bl; +18%), Germany (+2.1 bl; +11,9%), and Turkey (+0.6 bl; +30,3%). Additionally, Figure 1.7 shows that industrial districts have been more active in the international market compared to non-district areas. More specifically, districts exported more (53,5% against 42,6%) and had more registered trademarks at international level (10% against 5,7%) than non-districts. Moreover, districts had a higher propensity to

innovate, considering that they submitted more patent applications (74,5% against 51,4%) with respect to non-district areas. Also, statistics suggest that Italian SMEs more active in innovation, certifications, and internationalization have managed to achieve higher levels of turnover, margins, and capitalization. As a result, they are better equipped to face complex competitive environments and exploit new opportunities. For instance, between 2019 and 2021, SMEs that filed patent applications experienced a 10,1% increase in turnover and a 9,9% increase in EBITDA margins, significantly better figures compared to the ones of the other companies (+4,7% in turnover and +8,1% in EBITDA margins).

Figure 1.7 The strengths of industrial districts: FDI (OUT), registered trademarks at international level, export and patent applications presented to the European Patent Office (EPO)



Source: Intesa San Paolo. (2023a). Rapporto Economia e Finanza dei distretti industriali [Annual Report on the Economy and Finance of Industrial Districts], https://group.intesasanpaolo.com/content/dam/portalgroup/repository-documenti/research/it/economia-e-finanza-dei-distretti/2023/Rapporto%20Economia%20e%20finanza%20dei%20distretti%20industriali%20nr%2015_Bis.pdf

Based on the analysis conducted above, notwithstanding the recent debate on industrial districts, they persist as a robust and successful model for Italian SMEs. Notably, these industrial districts have demonstrated a significant capacity to adapt to the current geopolitical instabilities, thereby maintaining their crucial role in contributing to Italian exports. Nevertheless, it is crucial to acknowledge that Italian industrial districts are experiencing a series of critical transformations, such as the emergence of medium-sized companies as champions and as critical players in the export generation.

Also, the trajectory of industrial districts is poised to be significantly influenced by the strategic integration between innovation and technology. These trends are likely to represent new strategic opportunities for the internationalization of Italian industrial districts. In light of the changes that industrial districts are undergoing, the present work asserts that relying solely on the model of industrial districts may not suffice to ensure the future prosperity of Italian SMEs on a global scale. It is imperative for Italian SMEs to embrace innovative approaches to communication and public advertising, in order to remain competitive and prosper in an increasingly geopolitically challenging context.

1.4 Considerations on the present chapter in light of the statistics analyzed

In the present paragraph, some considerations are proposed on the basis of the new geopolitical scenario described and the statistics outlined above. Firstly, it is evident that geopolitical shocks exert a severe impact on cross-border trade and on global economic development. According to recent research, even established economic players like China are being affected by the disruptive effects of such geopolitical disruptions (Liu et al., 2024). In particular, geopolitical risks within trading partner countries acted as a deterrent to China's export activities. In fact, geopolitical events affected China's export levels through their influence on demand in importing nations.

In addition, these risks contributed to increased trade costs, which in turn, diminished the supply side's propensity to export, consequently leading to a reduction in overall Chinese exports. Specifically, in July 2023, China's exports dropped by 14,5% from the level of the previous year, registering the biggest decline since February 2020, in coincidence with the Covid-19 pandemic (Moreno, 2023). Moreover, in the first seven months of 2023, Chinese exports to the United States experienced a significant decline of 18,6% compared to the previous year, while shipments to the European Union exhibited a decrease of 5%.

Conversely, exports to Russia rose by 70%, despite facing Western sanctions due to its invasion of Ukraine. Furthermore, Nguyen & Do (2021) observed that economic sanctions imposed by Western countries and the counter-sanctions from Russia, resulted in decreased Russian export values for 25,25%. Also, the data show that post Ukraine invasion Russia's

exports towards the United Kingdom, Sweden and United States dramatically decreased by respectively 81%, 86% and 20% (Gamio & Swanson, 2022). However, Russia substantially increased export activities to China (+98%), India (+430%) and Turkey (+213%). Therefore, even if the overall exports of Russia were not significantly damaged by the recent geopolitical backlash, it implied relevant transformations in Russian international trade flows.

As for the data on Italian SMEs' export discussed in the previous paragraphs, they confirm that, albeit the long-established contribution of Italian SMEs to national exports, the Covid-19 pandemic and the Russia-Ukraine war have led to some important changes (SACE, 2023b; Intesa San Paolo, 2023a). Specifically, although small companies proved their ability to recover after geopolitical setbacks, medium-sized firms are distinguishing themselves in terms of a higher growth rate and a major export contribution. Moreover, medium-sized enterprises demonstrated their great resilience during periods of geopolitical shocks. Also, a different geography of trade for Italian SMEs has emerged, with countries such as India, South Korea, Mexico, Brazil, Vietnam, and others as new export destinations (SACE, 2023a). Furthermore, transformations are also concerning the regional economic geography of Italian SMEs, with implications for the competitive advantages of businesses in relation to their internationalization.

These outcomes are also validated by statistics on Italian industrial districts (Intesa San Paolo, 2023a). Indeed, industrial districts were able to quickly restore pre-pandemic levels in terms of revenues and margins. They also maintain an active presence in the international market. However, medium-sized companies of industrial districts stand out as champions, reporting better economic and financial performances and a higher propensity for internationalization and innovation. Additionally, innovation and technology appear to represent new strategic opportunities for facilitating the internationalization of SMEs.

Nevertheless, the model of industrial districts alone appears to be insufficient for ensuring the future prosperity of Italian SMEs at global level. Indeed, in light of the evolving market dynamics, Italian SMEs within industrial districts must explore and adopt innovative approaches to communication and public advertising in order to maintain competitiveness and expand their reach in international markets.

In conclusion, despite the positive data on SMEs' export and resilience discussed above, this work highlights the importance for Italian SMEs to recognise the recent geopolitical

complexity and the undergoing worldwide transformations. Therefore, a proactive adaptation to global shifts will ensure the long-lasting success of Italian SMEs at international level.

CHAPTER 2 Digital transformation as a key process for Italian SMEs' future prosperity at international level

2.1 Introduction to the topics covered in the present chapter

After discussing the main data on the export activities of Italian SMEs and the impact of recent geopolitical setbacks on the internationalization of SMEs, this chapter investigates digitalization as a key resource for SMEs to survive. Particularly, two major obstacles for the expansion of Italian SMEs abroad are outlined: the value retention issue and the demographic factor. Subsequently, the reasons why digital transformation is a fundamental asset for companies operating abroad are discussed. Specifically, digitalization is presented as a critical tool for firms to deal with recent geopolitical instability. However, the analysis also covers the main obstacles that SMEs encounter in the digitalization of their processes and identifies areas for further improvement. Finally, some numbers on the impact of technologies 4.0 in the prosperity of Italian SMEs are highlighted. In this regard, digitalization appears to be a fundamental driver of the internationalization of Italian SMEs.

2.2 Recent hurdles to the internationalization of Italian SMEs

As previously examined, Italian SMEs are facing a new geopolitical scenario, which makes their internationalization efforts more complicated than ever before. Particularly, this paragraph aims to investigate two main issues that are likely to jeopardize the Italian SMEs' foreign operations: the value retention problem and the demographic factor. In accordance, one of the main aspects that is especially relevant when judging the Italian SMEs' ability to internationalize is their tendency towards the business-to-business (B2B) foreign trade. In 2022, the intermediate goods which include the chemical, metal, plastic and mining sectors, were the fastest growing (+31,2%) Italian exported goods (SACE, 2023a). According to SACE's export report (2023a), this trend was confirmed in 2023, with a growth rate of +9,9%.

Moreover, in Italy, 45% of the domestic value added coming from exports is generated indirectly (SACE, 2023b). This means that a large part of the value is realized by many national companies, different from those that actually export. Consequently, a large number of Italian SMEs contribute to the foreign sales indirectly. This is especially true for smaller firms, since they operate mainly as suppliers of medium or large enterprises. In addition, if only the manufacturing sector is considered, the percentage of indirect domestic value added rises to 52%.

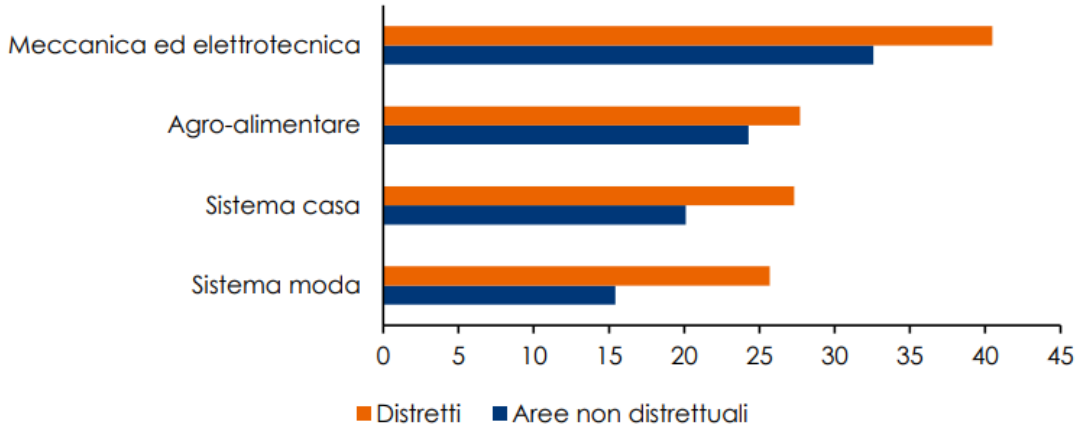
Also, in Italy, the indirect export, namely the tendency of companies to sell products to customers in other countries using intermediaries, is much more relevant than in other European countries like Spain (41%), France (40%) and Germany (37%). Furthermore, in 2021, almost 70% of Italian SMEs exporters were operating in the manufacturing sector, while around 22% were active in trading activities. However, the majority of the Italian SMEs were engaged in wholesale activities and most of them were small in size. The implication is that the Italian SMEs seem to be widely involved in low value-added activities (production) of the global value chain, according to the so-called “Smile curve” (Shih, 1996).

The smile curve concept was proposed in 1992 by Stan Shih, the founder of Acer, who deeply studied the electronics industry. Shih (1996) observed that the different value chain functions do not yield the same potential for generating value. Namely, the potential for value-added generation is concentrated in the knowledge-intensive pre-production stages (like R&D and design) and the post-production activities (like branding and retail). Hence, companies that operate in the production stage, such as the majority of Italian SMEs, are less likely to appropriate and retain the value they create. A feasible strategy SMEs can pursue is to focus on post-production activities, since Italian SMEs have few opportunities to compete with big firms in R&D or technological domains (Narula, 2004).

Consequently, given the focus of Italian SMEs on low value-added functions such as production, the second obstacle that is worth mentioning is the workforce recruitment issue (Intesa San Paolo, 2023a). Indeed, it represents one of the main criticalities for Italian manufacturing SMEs expanding their sales abroad. In fact, in 2022, 30% of Italian districts’ SMEs reported more difficulties related to finding human capital, compared to non-districtual areas (24%). The most hit was the mechanical industry (40%), but the one registering the wider gap between districts and non-districts was fashion (Figure 2.1). In particular, the jewelry and leather sectors are characterized by recruitment issues. The same is true for other

districts, such as wood and furniture ones. The reason might depend on districts being specialized on niche sectors and, hence, needing workers with specific competences and skills. Moreover, districts' production usually takes place outside big city centers. Therefore, industrial districts offer less services to their human resources, making them less likely to attract workers from other territories.

Figure 2.1 Workforce recruitment: difficulties reported by the client companies by sector, 2022



Source: Intesa San Paolo. (2023a). Rapporto Economia e Finanza dei distretti industriali [Annual Report on the Economy and Finance of Industrial Districts], https://group.intesasanpaolo.com/content/dam/portalgroup/repository-documenti/research/it/economia-e-finanza-dei-distretti/2023/Rapporto%20Economia%20e%20finanza%20dei%20distretti%20industriali%20nr%2015_Bis.pdf

Recent studies show an exacerbation of the workforce recruitment issue for Italian SMEs (Confartigianato Imprese, 2023). Namely, the share of unavailable workers went from 40,3% in July 2022 to 47,9% in July 2023. This can be considered a national problem, since in 2023 the lack of the labor force has increased by 9,1 points in the South, by 6,9 points in Central Italy, by 7,4 points in the North-West and by 6,5 points in the North-East. Also, in 2023, the origins of the recruitment issue were linked for 32,4% to the lack of candidates and for 10,8% to the inappropriate training of the applicants. For these reasons, some district leaders tend to collaborate with local schools or found their own internal academies to directly train their employees (Intesa San Paolo, 2023a). Some examples are IllyCaffè, Ferrero, Brunello Cucinelli and many other district leaders.

To sum up, despite the relevance of the Italian SMEs' role in the national export generation, there are several criticalities that still threaten the international diffusion of Made in Italy. In particular, Italian SMEs active in the global value chain struggle to appropriate and retain value due to their concentration in low value-added phases, especially production. Moreover, the lack of specialized workforce is placing Italian SMEs at a disadvantage, making it harder to expand their excellence abroad. This appears to be a national issue, which has worsened in recent years. Considering the crucial issues that Italian SMEs face, this work aims to propose some strategies to mitigate the hurdles described above and build the necessary set of competences to prosper at the international level.

2.3 The digitalization of SMEs in the recent geopolitical context: a complicated migration

After an overview of the main challenges for Italian SMEs operating abroad, the present paragraph aims to investigate the opportunities to cope with the recent disruptive worldwide shifts and successfully expand at the international level. Specifically, a focus is made on the potential provided to SMEs by digitalization. Nevertheless, SMEs encounter several barriers as well, which hinder their ability to recognize such opportunities and their propensity to rely on new technologies. Therefore, the digital migration of SMEs seems to represent a complex endeavor.

Overall, one of the critical factors that determines the worldwide competitiveness of Made in Italy is the fact that, “since the end of the 90s, Italy has always been the first country in the world with the lowest degree of concentration of the exported products” (ICE, 2023, p.106). The low product concentration and uniqueness of the product offer are in fact the reasons for the quick recovery of the Italian economy after the Covid-19 pandemic (ICE, 2023; Banca IFIS, 2020). Another element that contributes to making Italian SMEs more resilient and productive is environmental, economic and social sustainability (SACE, 2023b).

However, the most decisive opportunity to prosper in the recent complex scenario is digitalization which, therefore, should be integrated in the Italian SMEs' strategy (Banca IFIS, 2023). In this work, digitalization is defined “as the transformation of the socioeconomic

environment through processes of digital artifact adoption, application, and utilization” (Gradillas & Thomas, 2023, p. 2). Hence, it is a process which adopts digital artifacts to induce socio-economic transformations by creating new business opportunities, changing industries and leading to new social and environmental realities.

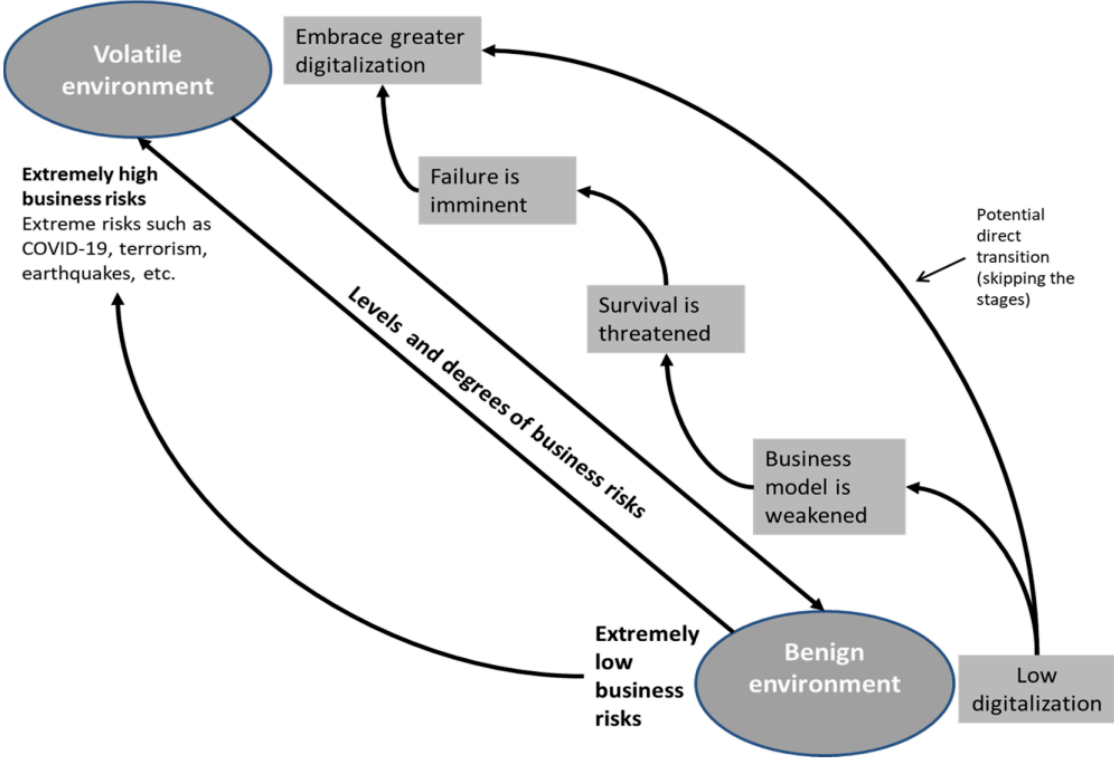
Accordingly, SMEs adopting digital technologies encounter several benefits, among which an “international presence without geographic limitations” (Bonfanti et al., 2018). In fact, the adoption of technology 4.0 allows firms to operate in an international network, with easier connections between products, people, partners, places and means of production and higher performance at global level (Cassetta et al., 2020). Technology 4.0 includes “technologies such as Internet of Things (IoT), Cyber-Physical Systems (CPS), Robotics, Big-Data, Networking, Cloud Computing (CC), Augmented Reality and Virtual Reality (AR/VR), Artificial Intelligence (AI), and Machine Learning (ML) in the industry” (Sader et al., 2022, p. 1166). The implementation of technology 4.0 implies the formation of new kinds of production systems like smart factories, machines and products (Pereira & Romero, 2017; Zhou et al., 2016).

Nowadays, firms have to deal with a new worldwide scenario that is shifting the way in which businesses operate. Specifically, Covid-19 severely impacted the private sector and led to “potentially persistent effects on growth prospects” (Abidi et al., 2023, p. 1). Consumers explored and adopted digital services and are prone to continue to purchase online even after the pandemic (Charm et al., 2020). Consequently, Covid-19 led to the adoption of digital business models and to the shift from commercial activities in offline and brick-and-mortar stores to online platforms (Amankwah-Amoah et al., 2021). At the same time, the Covid-19 pandemic brought to light the enormous digital divide between poor and rich people, but also among advanced and developing economies (Beaunoyer et al., 2020).

Figure 2.2 displays the role of Covid-19 pandemic as a “great accelerator in fast-tracking the existing global trend towards embracing modern technologies” (Amankwah-Amoah et al., 2021, p. 608). Indeed, it has been proven that hostile environments, such as in case of “black swan” events (Higgins, 2013, p. 78), imply higher risk levels for businesses that are more likely to invest in digitalization. This is especially true when the possibility of failure is imminent. In this regard, the term black swans was conceived by Taleb (2009) to refer to random events that occur throughout one’s life. Black swans are casual events difficult to be predicted, which cause extreme effects and are explained only after their occurrence (Higgins,

2013). On the other hand, during more favorable times, companies can benefit from several growth opportunities and experience less pressure towards innovation and digitalization (Amankwah-Amoah et al., 2021).

Figure 2.2 Levels of risk in the environment and digitalization



Source: Amankwah-Amoah, J., Khan, Z., Wood, G., & Knight, G. (2021). COVID-19 and digitalization: The great acceleration. *Journal of Business Research*, 136, p. 602-611. DOI: <https://doi.org/10.1016/j.jbusres.2021.08.011>

The implementation of digital technologies during Covid-19 offered a great amount of opportunities to several enterprises (Amankwah-Amoah et al., 2021; OECD, 2024). For instance, it ensured user-friendly technologies, less data storage costs, more efficient use of time and flexibility thanks to practices like smart-working. The OECD report’s (2024) results indicate that SMEs which adopted digital tools reported improvements in productivity, in terms of enhanced sales, extended customer base, greater inclusion, and more frequent achievement of environmental goals.

Data highlighted that digital tools like artificial intelligence (AI) exhibit the greatest potential in the optimization of creative tasks, customer relationship management and service’s

personalization, rather than being exploited in the decision making process. Therefore, AI represents an opportunity for SMEs to perform communication tasks and operations in a more effective way. Moreover, digital technologies allow organizations to effectively link teams and establish closer working relationships between headquarters and subsidiaries (Autio et al., 2021).

In addition, even though Covid-19 has represented a disruptive crisis which limited the interactions among people and businesses, during the pandemic digital platforms like social network services (SNS) have emerged as important tools for SMEs' search for information (Lee, 2022). SNS, like Facebook or Twitter, are Internet-based services that facilitate individuals and organizations' connections with other users and permit "to view connections established by themselves and by others" (Pogrebnyakov, 2017, p. 46). Indeed, SNS allows the creation of networks that foster the establishment of relationships between international players (Arnone & Deprince, 2016). So, even during periods of turbulence, learning through SNS enables SMEs to access diverse knowledge and skills to become more internationally-oriented (Lee, 2022).

Additionally, a recent study provides evidence that companies that invested in digital technologies before the Covid-19 pandemic have been considerably less affected by negative repercussions (Abidi et al., 2023). In particular, firms already implementing digital tools experienced a reduction in sales lower by 4% compared to non-digital corporations. Therefore, digitalization represents a mitigating factor, increasing the resilience of enterprises during periods of crisis.

Also, digitalization benefits SMEs by enabling an effective response to public crises, thanks to the activation of dynamic competences (Vial, 2019). Dynamic capabilities include the ability of recognising a crisis and the relative opportunities, but also skills related to rearranging resources to cope with uncertainty (Ballesteros et al. 2017). Indeed, digital SMEs possess the necessary capabilities to enhance their performance in terms of promptly responding to VUCA environments, defined by high degree of volatility, uncertainty, complexity, and ambiguity (Bennett & Lemoine, 2014; Guo et al., 2020). Furthermore, the integration of digital technologies in European SMEs during Covid-19 pandemic significantly enhanced their value-added growth and employment (Kádárová et al., 2023). Nevertheless, Cassetta and colleagues (2020) noticed that, in order for digital technologies to improve

firms' performance, they should be fully integrated in the companies' processes and embedded in organizational innovations.

Despite the numerous benefits outlined above, some hurdles to the digitalization of SMEs still exist, making the transition more complicated (Amankwah-Amoah et al., 2021). In fact, due to the digital divide, the access to digital tools and skilled human resources represented a critical challenge for many entrepreneurs, exacerbating existing inequalities (Yang, 2020). Additionally, SMEs seem to experience limited access to digital training and scarce implementation of digital security practices (OECD, 2024). Furthermore, Covid-19 forced many reluctant people to change their behaviors and adopt new technologies. Nevertheless, such individuals are likely to restore their status quo as soon as possible (Amankwah-Amoah et al., 2021).

Also, digitalization has brought uneven impacts on employees' well-being. Namely, employers might be induced to rely on intrusive digital surveillance to exercise control and demand more effort from their workforce (Charbonneau & Doberstein, 2020; Hodder, 2020). Data show that 36% of SMEs' employees feel more isolated as a result of the reduced human interactions led by the deployment of digital tools (OECD, 2024). Besides, 34% of workers experience stress as they try to adjust to digital technologies' use or feel overwhelmed by the constant pressure to remain connected. This results in issues related to work-life balance and increased stress among employees, which oppose the adoption of technology 4.0 (Amankwah-Amoah et al., 2021).

To conclude, the recent complex geopolitical scenario has contributed to accelerating the digital transition of companies, in particular those that operate across physical distances. In such an evolving context, digital technologies represent an emerging strategic asset for companies operating abroad. Indeed, digitalization proves effective in making SMEs more resilient and responsive, especially in case of adverse shocks. Nevertheless, in order to exploit the full potential of digitalization, firms should be aware of the main challenges that come with it. Indeed, the potential benefits and disruptions of digitalization should be carefully analyzed and considered while implementing technology 4.0.

2.4 Digitalization as a new asset for Italian SMEs operating at international level

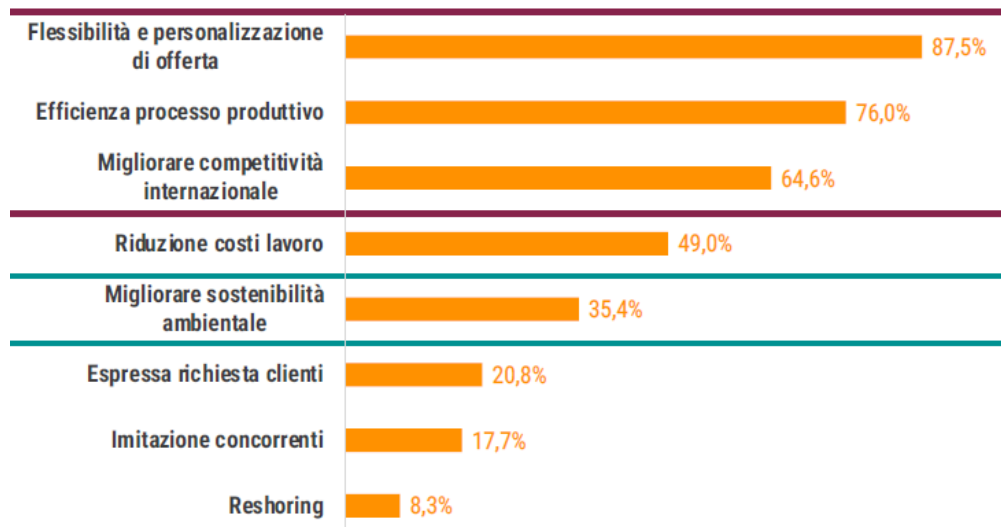
As previously noted, digitalization is recognized as a powerful resource for enhancing companies' resilience, particularly considering the recent geopolitical setbacks. In this paragraph, some effects of the digital transformation of Italian SMEs on their internationalization are presented. As already mentioned, technology 4.0 increases SMEs' performance and responsiveness. Indeed, among the most performing Italian SMEs, namely Top and Stellar SMEs (with a ROE two to three times higher than the average SMEs), are the ones innovating through new digital technologies (Banca IFIS, 2020).

Specifically, while most Italian small and medium firms are present on the Web, Top SMEs invest in more advanced digital technologies. Namely, 59% of Italian Top SMEs have integrated an enterprise resource planning (ERP) technology within their structure. An ERP is a system which enables the main functions of companies to work in an integrated way, it ensures the standardization of processes, real-time data flow, and the removal of physical barriers (SAP, 2019).

Moreover, 54% of Top SMEs invest in customer relationship management (CRM) systems (Banca IFIS, 2020). A CRM is an approach which ensures the integration of every business area that deals with the customer, such as marketing, sales, customer service, and field support (Fulk & Whang, 2000). Nowadays, a CRM is driven by technology which allows the system to be more efficient and gives a personalized experience (Hayley, 2016). Furthermore, 61,1% of Italian Top SMEs rely on supply chain management (SCM) (Banca IFIS, 2020). SCM "is the design and coordination of a network through which organizations and individuals get, use, deliver, and dispose of material goods; acquire and distribute services; and make their offerings available to markets, customers, and clients" (LeMay, 2017, p. 31).

In summary, 60% of Top SMEs have already invested in technology 4.0, with respect to 44% of the average SMEs (Banca IFIS, 2020). Specifically, Figure 2.3 underlines that Italian SMEs' adoption of technology 4.0, especially cloud systems, robotics and cyber-security, translates in an enhanced flexibility and personalization of the offer, as well as a more efficient production process and a better international competitiveness.

Figure 2.3 Reasons for the adoption of technologies 4.0 by Top Italian SMEs



Source: Banca IFIS. (2020). Fattore I: Quale Innovazione per il Futuro delle PMI? [I Factor: Which innovation for the SMEs future?]. <https://www.economia.unipd.it/sites/economia.unipd.it/files/Market-Watch-PMI-Fattore-I-Febbraio-2020.pdf>

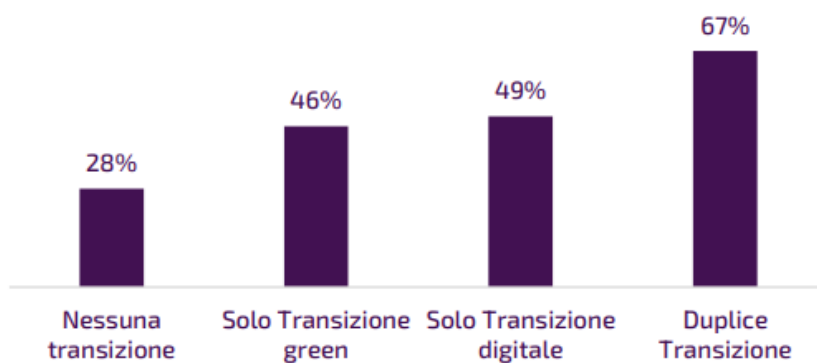
Also, the most performing Italian SMEs are characterized by a high innovation intensity, which means a deep penetration of technologies for digital manufacturing and the use of more advanced digital tools. Besides, Italian Top SMEs distinguish themselves by simultaneously adopting different typologies of technology 4.0 to integrate several business processes.

Apart from ensuring better overall performance, digitalization also benefits Italian SMEs in terms of successful international expansion. In particular, in 2022, 51% of the small Italian companies that invested in technology 4.0 exported abroad, against 39% of small firms that did not invest in technology 4.0 (SACE, 2023a). In addition, digitalization also increases SMEs' involvement in international trade. In the period 2021-2022, 22% of small Italian firms adopting technology 4.0 registered an increase in the foreign sales, compared to only 16% of those that did not invest. The effect of digital technologies is also evident in terms of export performance. In fact, 34% of high technology-intensive firms registered an export increase in 2021 and 2022, whereas only 19% of low technology-intensive companies reported similar increases in export performance.

Another aspect to mention is the dual transition, which encompasses both green and digital transformations, thereby implying a shift in how Italian SMEs currently operate. Particularly, it leverages technology 4.0 to increase the enterprises' degree of sustainability (SACE,

2023b). The dual transition has been shown to increase SMEs' propensity to export abroad, especially for small companies. Indeed, the dual transition contributes to reducing physical and cultural distances, as well as lowering entry costs for foreigners and addressing informational asymmetries. From Figure 2.4, it is possible to observe that 46% of SMEs investing only in the green transition and 49% of those investing only in the digital transition export to foreign markets. But, when SMEs focus on the dual transition, the propensity to export sharply increases to 67%.

Figure 2.4 Percentage of Italian SMEs that will export in 2023-2024 by investments typology in green transition, digital transition and dual transition



Source: SACE. (2023b). Piccole, medie e più competitive: le PMI italiane alla prova dell'export tra transizione sostenibile e digitale [Small, medium and more competitive: Italian SMEs facing the export challenge between sustainable and digital transition]. <https://www.astrod-online.it/static/upload/9c46/9c4694e5304b2d7d394bf196ca4310f81.pdf>

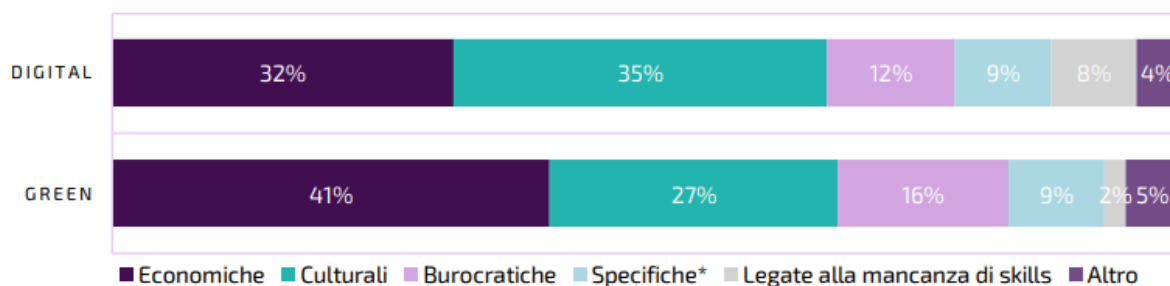
A deeper analysis reveals that the dual transition has a positive impact on the internationalization of medium companies (88%), but without a substantial difference with respect to investing in the green transition (88%) or in the digital transition (83%) alone. The situation differs for small Italian firms, for which investing in the dual transition significantly increases the likelihood of exporting abroad (42%), compared to adopting only one type of transition (29% for the green transition and 33% for the digital transition).

Still, the digitalization of Italian SMEs proves to be a complex transition (ISTAT, 2023b). In fact, 44,8% of Italian SMEs struggle to find suitable professional profiles and 33,3% of them complain about the long adoption times, which depend on the lack of specific digital competences (Banca IFIS, 2020). Accordingly, 55,1% of SMEs recognize as the main obstacle the lack of skills in AI technologies (ISTAT, 2023b). Nevertheless, SMEs fully

acknowledge the potential of digitalization, as 43,7% of them would invest in technology 4.0, regardless of the incentives available (Banca IFIS, 2020).

Moreover, Italian SMEs face several barriers in the implementation of the dual transition, which has led 28% of firms to avoid investing in the green and digital dimensions. As Figure 2.5 illustrates, 35% of firms that do not invest in the digital transition recognize cultural barriers as the most relevant, including the lack of knowledge on the benefits of technology 4.0. On the other hand, the main obstacles preventing enterprises (41%) from implementing the green transition are economic, such as weak access to credit and high interest rates. In addition, 12 out of 100 companies consider bureaucratic barriers as important issues, making them avoid investing in green and digital transformations.

Figure 2.5 Barriers to the digital and green transition of Italian SMEs, 2023



Source: SACE. (2023b). *Piccole, medie e più competitive: le PMI italiane alla prova dell'export tra transizione sostenibile e digitale* [Small, medium and more competitive: Italian SMEs facing the export challenge between sustainable and digital transition]. <https://www.astrid-online.it/static/upload/9c46/9c4694e5304b2d7d394bf196ca4310f81.pdf>

Simply adopting new technologies is not enough. To fully exploit the potential of technology 4.0, SMEs need to innovate their business models (Müller et al., 2018). In fact, enterprises that not only adopt technology 4.0 but also innovate their business models, appear to be more open to the international market (68%), with respect to companies that only implement digital technologies, but maintain their business models unchanged (58%) (SACE, 2023a). Therefore, as Bettiol and colleagues (2022b) claim, the use of technology 4.0 helps SMEs to improve their servitization and overcome recent and future turbulences.

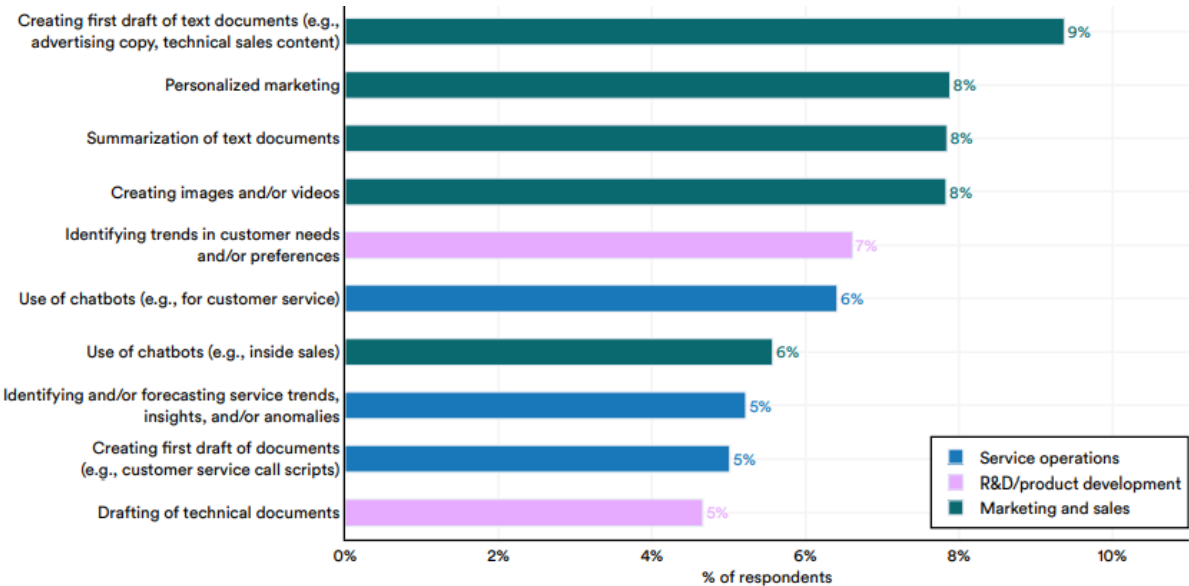
Finally, Italian SMEs can benefit from significant opportunities originating from the adoption of digital tools to further expand their internationalization. Above all, as data suggest, they should exploit digitalization in order to remain competitive and face the increasing global

challenges generated by recent geopolitical setbacks. In this regard, the dual transition emerges as a key strategy to boost the internationalization of Italian SMEs. However, simply adopting digital tools is not enough. SMEs should innovate their business models as well, in order to fully exploit the potential of such complex migration.

2.5 Final remarks: are current efforts of Italian SMEs enough for international success?

In this last paragraph the aim is to understand whether Italian SMEs’ present endeavors to adopt digital tools are sufficient to improve the quality of their internationalization. Particularly, SMEs need to acknowledge the significant changes that are impacting the way in which they currently work. According to the results of the Stanford University’s artificial intelligence index report (2024), the future for SMEs will involve the digitalization of certain functions, specifically marketing and sales, but also product development and service operations (Figure 2.6).

Figure 2.6 Most commonly adopted generative AI use cases by function, 2023



Source: Stanford University. (2024). Artificial Intelligence Index Report. https://aiindex.stanford.edu/wp-content/uploads/2024/04/HAI_2024_AI-Index-Report.pdf

Moreover, it is worth noting that there are some limitations affecting the digitalization of SMEs. Indeed, even though companies can now rely on less costly digital platforms like Fatture in Cloud or Jimdo, I argue that Italian SMEs struggle in the appropriation of a competitive advantage through digitalization. Moreover, the widespread lack of knowledge about digital technologies such as AI leads to a general belief that these instruments are too sophisticated and expensive for a small firm. On the contrary, AI can help Italian SMEs tackle existing challenges by making processes more efficient through the implementation of tools like conversational chatbots or automated quotations.

Furthermore, it appears that the Italian SMEs' entrepreneurial population is aging, with over 56% of Italian SMEs' entrepreneurs being over the age of 50 (I-AER, 2024). From a study performed by the Institute of Applied Economic Research (I-AER), 17% of the analyzed SMEs are led by old entrepreneurs who are reluctant to transfer companies' control to the younger generation, resisting change and modernization. Therefore, Italian entrepreneurs are generally of older age, less inclined to approach and understand new digital technologies.

This framework, along with the risks connected to AI, generates a trust gap and leads to a general reluctance among Italian SMEs to adopt modern AI tools, which may be considered an attempt to substitute humans within firms (Chakravorti, 2024). Nevertheless, AI is emerging as a human-centered field that requires human supervision and keeps humans "in the loop" (Schleith, 2024). In fact, AI is implemented not only to automate processes within companies, but also to enhance employees' competences and abilities to perform tasks autonomously (Google PAIR, 2021).

To conclude, Italian SMEs' current efforts to embrace the digital transition are not sufficient. The evidence discussed above validates the need for SMEs to innovate their business models to fully exploit the potential of technology 4.0 (Müller et al., 2018). Moreover, institutions need to further invest in accelerating the Italian SMEs' digitalization process. This investment should extend beyond financial support to encompass educational initiatives aimed at equipping SMEs with the necessary knowledge and skills to exploit new digital opportunities for internationalization.

In addition, Italian SMEs should strategically prioritize the adoption of technologies that are most likely to deliver the best results in terms of value generated and enhance export quality. E-commerce technology not only provides SMEs access to global markets, but also serves as

a platform to promote the quality and craftsmanship embodied in Made in Italy products and services. In light of these considerations, this work argues that e-commerce platforms represent a key future asset for Italian SMEs seeking to scale their operations internationally and elevate the reputation of Made in Italy. The subsequent chapter will delve into the e-commerce phenomenon, examining the dynamics and strategic implications for Italian SMEs aiming to thrive in an increasingly digital and interconnected global economy.

CHAPTER 3 E-commerce as a digital tool for the empowerment of Italian SMEs operating abroad

3.1 E-commerce: definition, evolution and most common typologies

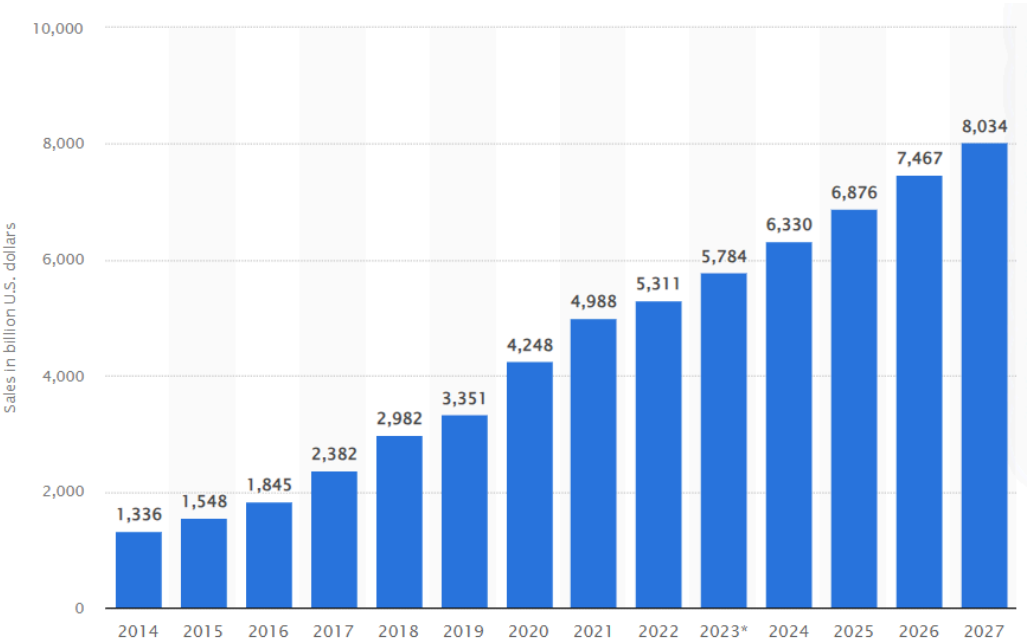
The previous chapter delved into how digitalization can positively contribute to the internationalization endeavors of SMEs. At this point, a step further is presented by introducing a specific digital instrument, namely e-commerce. E-commerce, also called electronic commerce, online commerce or digital commerce, is the online trade of goods and services over an electronic means, alongside the transfer of funds and data via the Web (Jolaoso & Main, 2023). Indeed, it has been defined as “a modern art of buying and selling goods or services using the Internet” (Fonseka et al., 2022, p. 1518). Moreover, electronic commerce depends on technology and digital platforms like web-sites, mobile apps, and social media to facilitate buying and selling processes (Jolaoso & Main, 2023). Accordingly, e-commerce enables customers to place orders through online stores, web-sites, or social media (Zande, 2024). Once an order is placed, its details are transmitted to a central backend system, typically an e-commerce platform, which manages or carries out various activities. Among such tasks are inventory updating, payment processing and notifications to the customers and to the shipping department.

The landscape of online selling has undergone significant changes since its foundation, given that its evolution has been especially rapid (Maday, 2020). The diffusion of e-commerce bursted in the 90s, with the launch of the first web browser, the WorldWideWeb. In fact, around those years, two of nowadays most popular e-commerce platforms have been founded, namely Amazon and eBay. In recent years, online commerce adoption has been characterized by a significant acceleration.

As evident from Figure 3.1, data show a sharp increase in the global electronic commerce revenue from 2014 to 2022, which rose from 1.336 billion dollars to 5.311 billion dollars (Statista, 2024). Furthermore, forecasts suggest a +39% revenue growth rate in the upcoming years, with estimates surpassing 8 trillion dollars by 2027. The share of the total worldwide population using the Internet is increasing as well (66% in 2023 against 64% in 2022), with

5.34 billion users in 2023 (Casaleggio Associati, 2024a). Additionally, the global sectors which are registering the highest number of sales through online commerce are electronic goods, fashion and food. Nowadays, e-commerce is expected to further evolve to meet the increasingly sophisticated needs of customers, including relying on technology 4.0 to provide personalized experiences (Maday, 2020).

Figure 3.1 Retail e-commerce sales worldwide from 2014 to 2027 (in billion U.S. dollars)



Source: Statista. (2024, May 22). Retail e-commerce sales worldwide from 2014 to 2027. <https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/>

Apart from tailored shopping journeys, other benefits that stem from the adoption of e-commerce are lower operational costs than physical stores and more flexibility, both for clients and for companies (Jolaoso & Main, 2023). In fact, the Internet makes business operations more efficient with regard to speed, accuracy and reliability (Oktora et al., 2020). On top of that, e-commerce contributes to increase the customer satisfaction, since it guarantees to the users a faster provision of information and an easy process of communication and price comparison (Ezzaouia & Bulchand-Gidumal, 2020). Also, electronic commerce ensures a wider range of offers, access to detailed customer data and the expansion of companies' markets beyond geographical boundaries (Jolaoso & Main, 2023).

Electronic commerce can manifest in several forms, however, there are four primary e-commerce types which are worth mentioning (Jolaoso & Main, 2023; Zande, 2024). The business to consumer (B2C) category is the most diffused and it includes companies that sell

directly to final consumers via the Internet. Another typology is business to business (B2B) e-commerce which refers to the process where a company sells goods or services to another firm. The third form of e-commerce is the consumer to consumer (C2C) one. In this case, it refers to platforms like digital marketplaces, that allow individuals to sell goods and services to other consumers. The last category is consumer to business (C2B) e-commerce, that refers to the situation in which an individual sells its product or service to an organization. Today, new forms of electronic commerce are emerging like the live streaming e-commerce, which consists in utilizing live-streaming technology on web platforms (Mao et al., 2022). It aims to deliver immersive product displays and informative services, offering real-time guidance and assistance to the users.

Table 3.1 E-commerce typologies and examples

E-commerce typology	Description	Examples
Business to consumer (B2C)	Businesses sell directly to end consumers through online platforms.	Amazon, Walmart
Business to business (B2B)	Transactions occur between businesses, usually for the supply of goods or services.	Alibaba, Amazon business
Consumer to consumer (C2C)	Consumers sell to other consumers through intermediary platforms.	eBay, Airbnb
Consumer to business (C2B)	Consumers offer products or services to businesses.	Fiverr, Upwork

“Personal elaboration”

Furthermore, some trends are standing out as key future drivers of e-commerce growth (Zande, 2024). Firstly, AI and machine learning are likely to provide new opportunities for e-commerce in terms of personalization and rapid adaptation. This specific frontier will be deeper examined in the last paragraph of this chapter. Also, the omnichannel strategy, which integrates offline and online channels, appears to be fundamental for businesses selling through digital commerce (Zande, 2024). Finally, secure payments will be more and more valued by customers, hence the adoption of technologies to make transactions safer and faster is rising.

To conclude, e-commerce is emerging as a relevant means for broadening the customer base of firms and fostering clients' engagement. Moreover, digital commerce appears to be rapidly evolving, adjusting to the recent customers' needs and expectations while encompassing new forms of commerce. Therefore, adaptation and innovation abilities and competences are crucial for the adoption of e-commerce within companies. The next paragraph investigates which factors can help or hinder SMEs' access to e-commerce.

3.2 Drivers and barriers of digital commerce implementation in SMEs

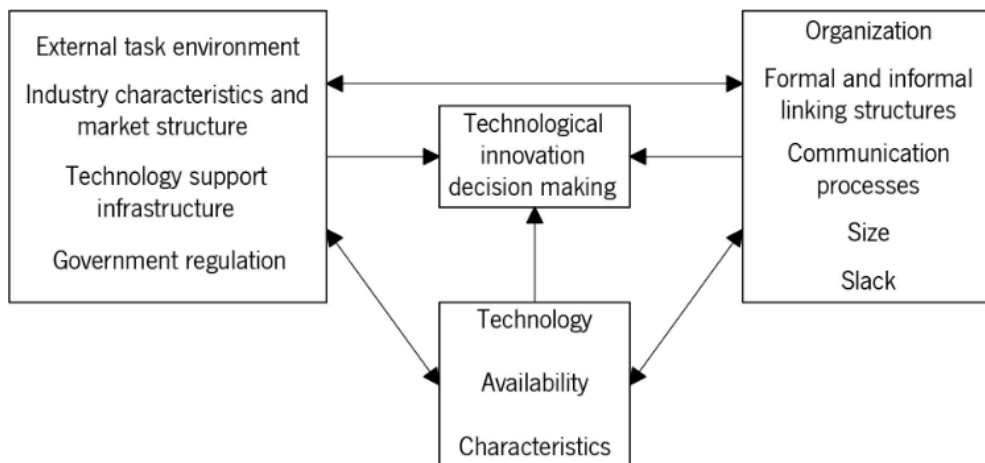
The adoption of e-commerce by SMEs is characterized by specific attitudes. In particular, SMEs seem to rely on e-commerce alongside traditional selling channels, suggesting that they consider digital commerce as a complement strategy to, and not a substitute for, traditional selling methods (Sharma, 2023). In fact, in concomitance with the Covid-19 pandemic, Italian SMEs' use of e-commerce platforms considerably increased (+29,2%), with the primary goal of supporting sales and revenues by integrating traditional channels with online ones (Redazione Osservatori Digital Innovation, 2023).

Furthermore, Italian SMEs embraced the e-commerce trend not by creating proprietary platforms, but mainly by relying on third parties' marketplaces like eBay and Amazon (Redazione Osservatori Digital Innovation, 2023). The tendency of SMEs to avoid investing in proprietary e-commerce platforms implies they are not able to exploit the data collected and therefore do not appropriate the full value generated. In any case, SMEs recognize the potential of digital commerce in terms of enhanced productivity and competitiveness (Sharma, 2023).

There are specific drivers and barriers which foster or, on the contrary, hinder the implementation of e-commerce within SMEs. A study from Zain and colleagues (2020) adopts the Technology-Organization-Environment (TOE) model to determine some relevant drivers of electronic commerce adoption (Tornatzky & Fleischer, 1990). Specifically, the TOE framework examines the internal and external organizational characteristics along with the technological ones, in order to identify the drivers of new technology diffusion (Ahmad, 2015). The analysis performed by Zain and colleagues employs six independent variables of

the TOE model that are likely to foster the integration of e-commerce, namely perceived relative advantage, perceived compatibility, e-commerce knowledge, management attitude, external change agent and pressures from competitors (Tornatzky & Fleischer, 1990; Zain et al., 2020).

Figure 3.2 The TOE framework



Source: Tornatzky, L., & Fletscher, M. (1990). The Deployment of Technology. In *The Processes of Technological Innovation* (pp. 118-147).

Specifically, perceived relative advantage refers to the extent to which managers of SMEs believe specific benefits will be generated by e-commerce (Ahmad et al., 2015). The second variable is perceived compatibility. It refers to the extent to which digital commerce guarantees organizational practices in line with the values, culture and practices of the firm. Indeed, the value of a new technology is more likely to be fully perceived when it is consistent with the work and set of beliefs of an individual (Tornatzky & Fleischer, 1990). Also, e-commerce knowledge encourages the adoption of online commerce, given that individuals with specific digital skills and competences are more likely to leverage new technologies.

Another relevant factor is management attitude, since the top management effort and commitment towards new technologies positively influences e-commerce adoption within SMEs (Saffu et al., 2008). External change agent, on the other hand, refers to the possibility for SMEs to rely on external skilled workers and suppliers (Doolin et al., 2003). Finally, pressure from competitors pushes SMEs to embrace electronic commerce as a way to stay competitive (Sirisuka, 2017).

Moreover, scholars identified other elements that positively influence e-commerce implementation by SMEs, namely the “CEO’s innovativeness, buyer/supplier pressure, technology vendors’ support, information intensity, competition, e-commerce’s perceived relative advantage, and perceived compatibility” (Al-Tit, 2020, p. 147; Ghobakhloo et al., 2011). In addition, consistently with the TOE framework, organizational factors such as the company’s culture and environmental variables like partner readiness emerge as important predictors of e-commerce adoption (Al-Tit, 2020). Furthermore, workers’ knowledge of digital commerce technology, the perceived practicality of online commerce applications and their security increases the willingness of SMEs to approach e-commerce (Van Huy et al., 2012; Arshad et al., 2018).

Also, according to Straits Research’s report (2022), social media will drive the growth of the e-commerce market, especially the B2C one. In fact, they represent a relevant marketing tool to increase brand awareness, build a community and generate trust towards the brand. Another driver of e-commerce diffusion among SMEs is the rising trend of shopping online via smartphones. Nowadays, 46% of consumers worldwide use their smartphones to purchase goods and services. Indeed, smartphones ease the access and fruition of electronic commerce platforms to users all around the world.

However, despite the drivers illustrated above, the adoption of e-commerce technology by SMEs might be prevented or slowed down due to the existence of some barriers. One of the greatest obstacles that SMEs encounter in creating and sustaining e-commerce platforms is the acquisition of technological skills, resources and specific knowledge (Sharma, 2023). Indeed, the lack of qualified workforce hinders the understanding of e-commerce technologies, challenging SMEs in the attempt to stay updated and competitive in the digital marketplace. This is especially true for Italian SMEs, since in Italy less than 50% of workers possess digital competences (Redazione Osservatori Digital Innovation, 2023). Therefore, it is fundamental for SMEs to invest in digital resources and continuous learning to overcome important barriers to e-commerce implementation.

Additionally, SMEs are likely to have doubts about how to handle data security and privacy protection, which are issues likely to be experienced when implementing digital platforms involving transactions and the storage of clients’ personal data (Straits Research, 2022). Other challenges include the lack of appropriate infrastructure and the scarcity in terms of national information and communication technology strategies, especially in developing countries

(Lawrence & Tar, 2010). Indeed, less developed countries' rural areas are characterized by a lower degree of Internet penetration, which means that people do not know how to use or do not have access to digital tools (Straits Research, 2022).

A study by Scupola (2009) underlines some digital commerce barriers reported by SMEs in Denmark and Australia regarding the adoption of online commerce, including the workers' low level of information technology, the scarce propensity towards innovation and the lack of managerial time. The reduced capacity, the high cost of integrating digital technologies and the limited financial resources of SMEs are barriers as well. Other researchers spotted two elements having negative effects on digital commerce implementation by SMEs, namely innovation complexity and e-commerce perceived risk (Van Huy et al., 2012).

Also, among the barriers hindering the adoption of e-commerce are connectivity cost, technical expertise, technology cost, internet security, and legal regulations (Al-Tit, 2020). In addition, the lack of sales and purchase forecasts and low motivation levels of managers or entrepreneurs for personal and professional advancement, negatively influence the integration of electronic commerce (Mammadov et al., 2023). Furthermore, the obstacles associated with a limited cooperation with partners, customers, suppliers and even competitors hinder the ability of SMEs to benefit from e-commerce.

In conclusion, based on the current results, several technological, organizational and environmental factors contribute to a successful SMEs' e-commerce adoption, like the top executive support, employees' knowledge and experience, the perceived value and usability, along with other factors such as partners' readiness and organizational culture. Nevertheless, there are also possible barriers that are likely to undermine such technology implementation, namely Internet security and accessibility, legal regulations, technology cost, the lack of skills and innovation as well as limited cooperation. In the following paragraphs, the extent to which e-commerce facilitates the internationalization of business organizations, particularly Italian SMEs, is deepened.

Table 3.2 Drivers in the adoption of e-commerce within SMEs

	Variables	Source
Drivers	Perceived relative advantage, perceived compatibility, e-commerce knowledge, management attitude, external change agent and pressures from competitors	Tornatzky & Fleischer, 1990; Zain et al., 2020
	CEO's innovativeness, buyer/supplier pressure, technology vendors' support, information intensity, competition, e-commerce's perceived relative advantage and perceived compatibility	Ghobakhloo et al., 2011
	Company's culture and environmental variables like partner readiness	Al-Tit, 2020
	Workers' knowledge of digital commerce technology, the perceived practicality of online commerce applications and their security	Van Huy et al., 2012; Arshad et al., 2018
	Social media and shopping online via smartphones	Straits Research, 2022

“Personal elaboration”

Table 3.3 Barriers in the adoption of e-commerce within SMEs

	Variables	Source
Barriers	The acquisition of the relevant skills, resources and specific knowledge	Sharma, 2023
	Data security and privacy protection	Straits Research, 2022
	Lack of appropriate infrastructure and the scarcity in terms of national information and communication technology strategies	Lawrence & Tar, 2010
	Workers' low level of information technology, the scarce propensity towards innovation, the lack of managerial time, the reduced capacity, the high cost of integrating digital technologies and the limited financial resources of SMEs	Scupola, 2009
	Innovation complexity and e-commerce perceived risk	Van Huy et al., 2012
	Connectivity cost, technical expertise, technology cost, internet security and legal regulations	Al-Tit, 2020
	Limited digital competences, lack of sales and purchase forecasts, low motivation levels of managers or entrepreneurs and limited cooperation	Mammadov et al., 2023

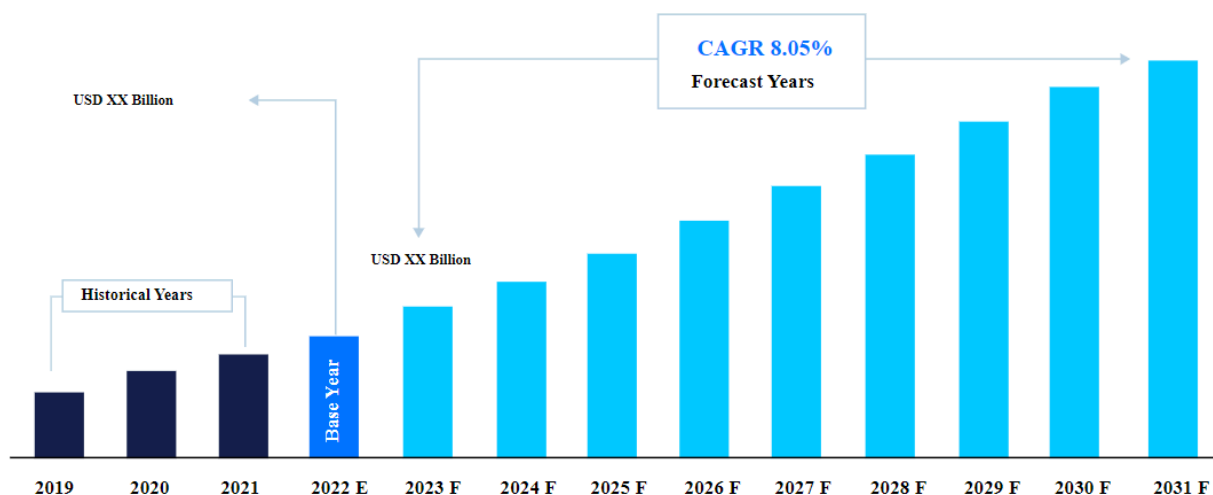
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3.3 Electronic commerce as growth engine shifting the way in which SMEs operate in the international market

As mentioned in the first paragraph, e-commerce technology permits to expand the companies' market "without limiting it to their geographical boundaries" (Fonseka et al., 2022, p. 1518). Indeed, online commerce is emerging as a global trend, fostering international exchanges while requiring a shift in the way companies operate, especially SMEs. A clear evidence of the importance of digital commerce for the internationalization of firms is the increase in the global transactions among countries using the Internet, compared to those performed offline (Straits Research, 2022; Vantage Market Research, 2022). The data provided by the Casaleggio Associati report of 2024, highlights how e-commerce global sales over the total global retail sales are increasing with respect to 2022 (20,8% in 2023 against 19,7% in 2022) and are expected to reach a penetration of 24% by 2026.

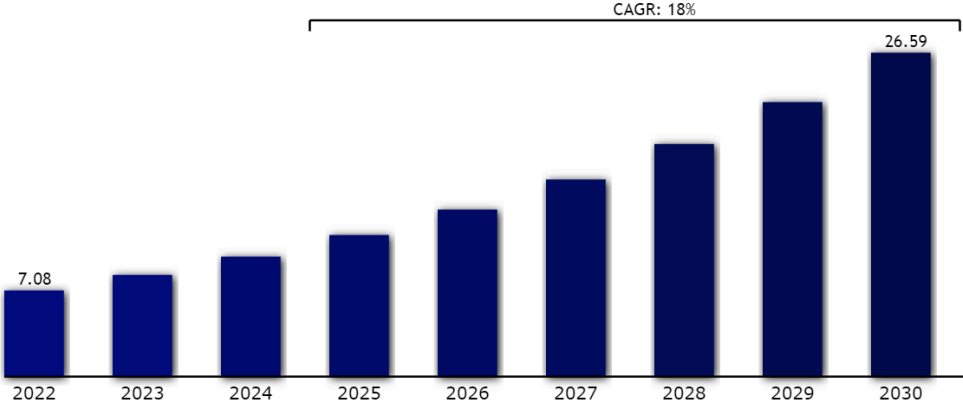
Specifically, B2C and B2B online commerce have emerged among the fastest-growing sectors driving globalization. In fact, as shown in Figure 3.3, the global B2C electronic commerce market size is projected to reach a value of 8.016 billion dollars by 2030, growing at a CAGR of 8,05% throughout the period from 2022 to 2030 (Straits Research, 2022). Meanwhile, Figure 3.4 illustrates how the global B2B e-commerce is exhibiting even better growth forecasts (Vantage Market Research, 2022). Indeed, the global B2B digital commerce is expected to increase to 26.590 billion dollars by 2030, at a CAGR of 18% between 2023 and 2030.

Figure 3.3 Global B2C e-commerce market size from 2019 to 2030



Source: Straits Research. (2022). B2C E-Commerce Market. <https://straitresearch.com/report/b2c-e-commerce-market>

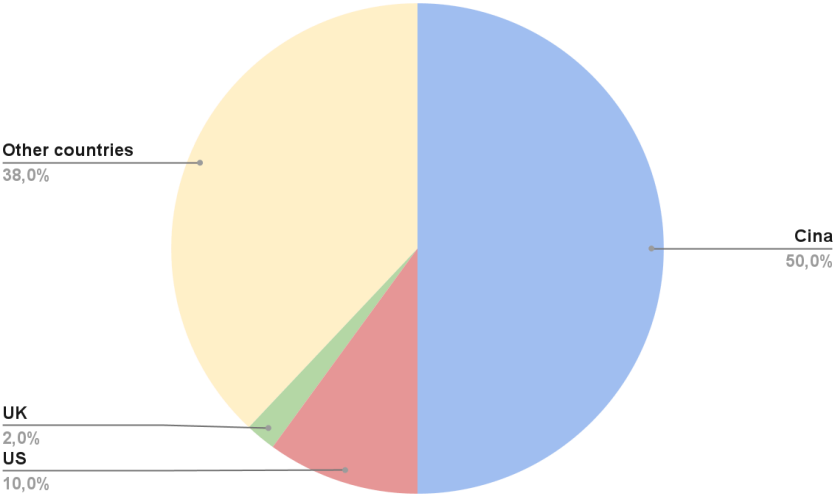
Figure 3.4 Global B2B e-commerce market size from 2022 to 2030



Source: Vantage Market Research. (2022). Business-to-business (B2B) E-Commerce Market. <https://www.vantagemarketresearch.com/industry-report/businessstobusiness-b2b-ecommerce-market-1386>

As Figure 3.5 displays, the countries dominating the electronic commerce market are Cina, which accounts for almost 50% of the worldwide e-commerce transactions, for an estimated value of 3.5 trillion dollars in 2024, followed by the United States with a value of 727 billion dollars and the UK with a value of 143.8 billion dollars (Casaleggio Associati, 2024a). However, growth forecasts indicate that countries such as India and Mexico, together with the United States, are likely to become future leaders in the global digital commerce market.

Figure 3.5 Countries dominating the global electronic commerce market, 2024



“Personal elaboration”

In Europe, the average proportion of cross-border e-commerce is rising, representing 27,3% of all digital commerce in 2023. Cross-border e-commerce is defined as a cross-border trade that occurs between different countries by using e-commerce (Wang et al., 2015). Accordingly, sales are carried out without a physical presence abroad, but rather through web-sites or third-parties platforms. In this way, cross-border online commerce needs fewer distributors than traditional trade and sales are generally smaller in volume but higher in frequency.

Moreover, international digital commerce has been crucial during Covid-19 pandemic, when the revenues generated by the adoption of this tool considerably picked up (UNCTAD, 2021). In fact, during the Covid-19 pandemic, e-commerce arose as a technology that allowed businesses to maintain their market position and survive setbacks. Consistently, with respect to 2019, the Italian SMEs’ adoption of such a technology exhibited a growth of +50%. This means that, in 2020, 70 thousand Italian SMEs held the means and tools for electronic commerce, accounting for about one-third of the entire SMEs sector. Hence, studies and data highlight that, nowadays, e-commerce represents a mandatory asset for the prosperity of SMEs in the new digital age and for their international competitiveness (Sharma, 2023; Cassetta et al., 2020).

The emergence of digital commerce benefits SMEs in multiple domains, shifting the way in which they operate and allowing them to overcome several challenges of exporting abroad, like being competitive with limited budgets and resources (Sharma, 2023). Specifically, a study demonstrated that e-commerce technologies enable SMEs to improve their efficiency and lead to transaction acceleration (Parvin et al., 2021). In fact, by relying on electronic commerce platforms, SMEs can reduce transaction expenses, optimize operations and increase their potential to enter new markets. This implies more efficient transactions, as well as more efficient delivery of products and services to customers. As a consequence, e-commerce adoption permits SMEs to have a competitive advantage and to pursue sustainable economic growth.

Another research by Trung and colleagues (2019) outlines the rising trend of SMEs switching from brick-and-mortar stores to online commerce. Indeed, SMEs are exploiting electronic commerce to expand their customer base and, thereby, increase their revenues while reducing

costs. Furthermore, the convenience and accessibility of e-commerce represent opportunities for SMEs to compete with larger players. Therefore, it is fundamental for SMEs to adopt new digital technologies such as e-commerce to achieve sustainable growth in the rapidly evolving market. In addition, online commerce can benefit small businesses' market orientation, strategic planning, performance assessment and corporate learning (Jahanshahi, 2012). Also, digital commerce has positive implications for the operational, market-based and overall organizational performance of SMEs.

Another reason for the adoption of e-commerce is its positive effect on customer loyalty (Al-Tit, 2020). Indeed, scholars identify some key characteristics that promote e-loyalty, like “customization, interactivity, cultivation, care, community, choice and character” (Al-Tit, 2020, p. 155; Srinivasan et al., 2002). Moreover, other factors such as users' trust and satisfaction, the quality of information and user interface, as well as electronic commerce ethics play a crucial role in helping SMEs to sustain customer loyalty.

E-commerce technology also emerges as a key resource for the development, resilience and innovation of SMEs operating abroad (Pan et al., 2023). Indeed, the participation of SMEs in global value chains is not only a way to expand markets, but can facilitate the acquisition of new skills and competencies (Chiva et al., 2013). Consequently, internationalization through e-commerce benefits SMEs as it can be considered a driver of innovation, easing the learning process and absorption of new knowledge.

Another advantage that electronic commerce brings to SMEs is the extension of the network in which they operate (Gawel et al., 2022). Specifically, digitalization has transformed the network perspective from a small, interdependent group of companies to a vaster platform-based network of firms. According to this perspective, companies aiming to internationalize commit to maintain an excellent reputation, not within the traditional delimited network but among a much broader number of potential still unknown players. As a result, SMEs are subjected to a set of diversified stimuli, which foster their ability to innovate and rapidly adapt.

In addition, there are several modes of entry in foreign markets, yet a rising number of SMEs rely on cross-border e-commerce (Xiaoguang et al., 2020). Cross-border e-commerce benefits SMEs ensuring “low cost, high control and trust building while entering international

markets”, as well as enhanced entrepreneurial and proactivity attitudes (Pan et al., 2023, p. 2346).

Finally, electronic commerce appears to be a fundamental trend leading globalization processes worldwide. It allows SMEs to compete with larger firms, while expanding their boundaries without making huge investments. At the same time, e-commerce represents a valuable tool to enhance SMEs' propensity to innovate and develop new skills and competencies. Nevertheless, in order to successfully exploit e-commerce, SMEs should embrace a new way of working, relying on digital instruments and new paradigms.

3.4 E-commerce as a necessary factor for the internationalization of Italian SMEs

After an overview on the implications, drivers and challenges of e-commerce adoption for SMEs worldwide, this paragraph aims at displaying data on the Italian e-commerce growth. Furthermore, it concentrates on the opportunities that stem from online commerce for Italian SMEs and for their successful expansion to foreign markets. This body of research is particularly relevant, since scholars studying the digitalisation and internationalization of Italian SMEs have confirmed the positive relationship between export propensity and the use of digital instruments like websites, the Internet, and e-commerce (Cassetta et al., 2020).

Moreover, a study performed by Banca IFIS in collaboration with the department of Management of the Ca' Foscari University and the department of Economic Sciences of the University of Padua (2020) highlights how digital technologies are increasingly pushing Italian SMEs to rethink their business models. Specifically, electronic commerce emerges as a new frontier impacting the transport and logistics sectors, as well as a key driver of international exchanges, especially for the Italian SMEs.

Data show promising insights for the future development of Italian e-commerce. Accordingly, at the beginning of this year, the number of Internet users in Italy was 51.56 million, with a penetration of 87,7% (Casaleggio Associati, 2024a). At the same time, in 2023, the number of mobile connections increased with respect to 2022, reaching 81.55 million connections. The north-west region appears to be the most connected with 66,5% of Italian adults navigating online, while the south registered the lower data of 59,6%. Also, 41,7% of the Italian users

purchase online on a weekly basis, which is 442 thousand users more than the ones registered in 2022.

Additionally, the growth of the Italian e-commerce turnover has experienced a dramatic increase between 2004 and 2023. Specifically, the Covid-19 pandemic represented an accelerator of the expansion of digital commerce in Italy and a trigger of new patterns of behavior among clients (Banca IFIS, 2021). In fact, 31% of consumers reported an increase in their online purchases with respect to the past. Consistently, the Italian electronic commerce turnover experienced a growth rate of 78% in the first trimester of 2021, placing Italy as fourth global e-commerce player after Canada, the Netherlands and the UK (Casaleggio Associati, 2022).

Instead, in 2023, the growth rate of e-commerce turnover slightly decreased to 27,14%, with a value of 80.55 billion euros (Casaleggio Associati, 2024a). This trend signals a return to normal market levels after the boost experienced during the lockdown. Furthermore, in 2023, Italy registered 39,2% of cross-border sales, a data which surpasses the European average. The Italian sector which registered the highest growth is the marketplace (+55%), followed by travel and tourism (+42%) and pets (+37%). On the contrary, the electronics and jewelry sectors were impacted by the economic crisis and, therefore, exhibit a decline in the e-commerce turnover.

Today, the Italian electronic commerce market is dominated by big players like Amazon, Subito and eBay, with the majority of sectors characterized by foreign e-commerce leaders. Moreover, data suggest that Italian e-commerce is likely to further diffuse, as the estimated Italian CAGR of online sales between 2024 and 2028 is 8,80%. However, the online brand promotion continues to be difficult for 53% of the Italian companies, which keep experimenting to reach a good balance between costs and results.

Also, Italian e-commerce firms invest in digital marketing, with most of the budget spent in search engine marketing (SEM), search engine optimization (SEO) and email marketing. As for the internationalization of Italian enterprises, 33% (compared to 22% of last year) of firms have a multilingual website and sell abroad through digital commerce. However, only 7% of such companies have a consolidated international presence.

Overall, the e-commerce turnover produced abroad accounts for 20% over the total turnover and the online sales directed to foreign markets have increased for 53% of the Italian

companies surveyed. Particularly, the top foreign countries for Italian e-commerce exports are Germany, France, Spain, Switzerland, the Netherlands, Portugal and the UK. On the other hand, it is worth noting that Italian e-commerce exports towards Russia are decreasing, with only 1% of firms selling to such a market.

The report by Casaleggio Associati of 2024 also investigated which are the main electronic commerce investments that Italian companies are undertaking. Such investments appear to be directed towards two specific objectives: the websites' optimization in terms of performance and user experience (56%), as well as investments in marketing and promotion (44%). Nevertheless, in 2023, 21% of enterprises claim their priority is to reach an international expansion through e-commerce, compared to 16% in 2022.

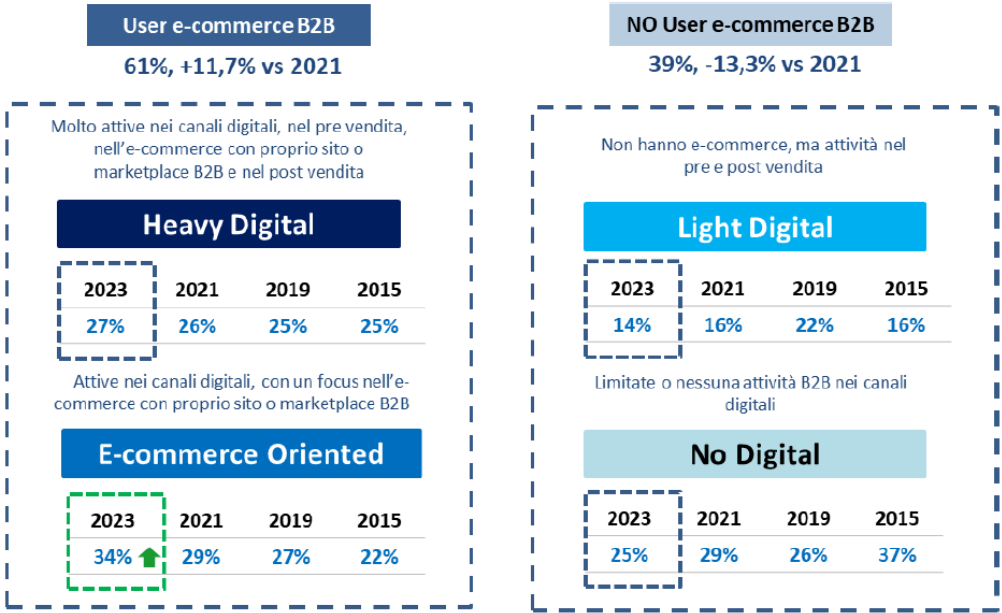
Focusing on Italian SMEs, e-commerce emerges as a new fundamental digital tool for the empowerment of firms operating at international level. Indeed, a study conducted by The European House Ambrosetti in collaboration with Amazon (2023) highlighted how Italian firms selling online through electronic commerce reported an average turnover increase of +8,8%, higher margins for +8,1% and a boost in exports of +8,1%. However, Italian SMEs seem to be benefiting the most from this trend, registering a rise of +9,8% in turnover and, at the same time, enhanced margins (+64%) and exports (+3%).

In recent times, Italian SMEs represent an important share of Amazon's clients, which choose to sell through the e-commerce platform to develop their offer in a multichannel and international perspective. Indeed, about 60% of the items sold on Amazon's platform are produced directly by Italian SMEs. Therefore, third party marketplaces appear to be particularly useful in facilitating the expansion of SMEs abroad. In fact, in 2022, more than half of the 21 thousand Italian SMEs that relied on Amazon's platform sold their products to foreign markets, generating over 950 million euros of exports. The range of products offered by Italian SMEs increased as well, reaching more than 125 million items with a growth of 20% with respect to 2021. Moreover, according to such analysis, Italian SMEs selling online recognize the advantages related to an increased brand awareness, a multi-channel experience and the broadening of the national and international customer base.

Particularly, the Italian B2B sector is growing in terms of digital commerce (Consorzio Netcomm, 2023). This evidence is especially relevant, given that the Italian landscape is composed of a constellation of B2B SMEs that sell to other processing firms. Consistently,

Figure 3.6 depicts the evolution of the B2B e-commerce scenario from 2015 to 2023. It is possible to notice that the proportion of B2B firms engaging in electronic commerce through their own website or third marketplace grew to 61% in 2023, with respect to 55% in 2021. The most interesting changes regarded the reduction of Italian non digital B2B companies to 25% in 2023, compared to 37% in 2015. On the other hand, the e-commerce oriented cluster experienced significant growth, with the rate increasing from 22% in 2015 to 34% in 2023.

Figure 3.6 The evolution of the Italian B2B e-commerce clusters and models from 2015 to 2023



Source: Consorzio Netcomm. (2023, March 20). Netcomm FOCUS B2B Digital Commerce 2023 - Consorzio Netcomm. <https://www.consozionetcomm.it/eventi/netcomm-focus-b2b-digital-commerce-2023/>

The main reason pushing 39% of Italian B2B enterprises to rely on e-commerce is the fostering of customer loyalty, thanks to an improved and innovative service (Figure 3.7). However, what drives Italian B2B SMEs to declare an interest towards online commerce is especially the possibility to reach new clients and exploit digital channels to generate commercial leads. Moreover, the expansion towards new markets continues to represent a valid motive to invest in e-commerce for 30% of B2B firms. Although, in 2021, it prevailed over customer loyalty as the principal reason to engage in e-commerce for 42% of companies. Additionally, 13% of Italian B2B companies which were not currently using e-commerce in

2023 stated they would implement such a technology within the next 12 months, a figure that has doubled since 2021.

Figure 3.7 Reasons for the digitalization of B2B commercial transactions, 2023



Source: Consorzio Netcomm. (2023, March 20). Netcomm FOCUS B2B Digital Commerce 2023 - Consorzio Netcomm. <https://www.consozionetcomm.it/eventi/netcomm-focus-b2b-digital-commerce-2023/>

Despite the positive signals arising from the data discussed above, in 2022, Italy counted only 13% of SMEs selling online, a number lower than the European average of 18% (The Digital Economy and Society Index, 2022). Therefore, it appears fundamental for Italian SMEs to understand which strategies they can follow to develop a proprietary e-commerce platform.

In this regard, Chiara D’Avanzo Zamarian, an e-commerce specialist who has been helping companies to implement this technology for 23 years, in an interview highlights three main opportunities for Italian SMEs to increase their digital commerce’s effectiveness (Percorso formativo Upskill 4.0, 2023-2024). In particular, SMEs should leverage e-commerce not only as a way to attract new customers, but also as a means to communicate what distinguishes them from their competitors. This approach allows SMEs to develop brand awareness and stand out as niche players.

The second opportunity for SMEs is personalization of products and services. Indeed, nowadays, clients demand for offers which are tailored on the basis of their specific needs. Finally, SMEs should address the generational issue by adapting their communication strategies to different age groups. For instance, younger generations like Gen Z and

millennials prioritize transparency and authenticity, which can be leveraged to attract these customers. Additionally, being a cultural brand is crucial, since clients increasingly consider a brands' values and the alignment with their own personal beliefs.

To conclude, e-commerce stands out as a necessary factor for an efficient and effective internationalization of SMEs, making them better equipped to handle global turbulence and survive. Nevertheless, there are still several criticalities that Italian SMEs need to face in order to fully exploit the online commerce's potential. For instance, Italian SMEs struggle in accessing a skilled and qualified workforce in terms of digital competences (Redazione Osservatori Digital Innovation, 2023). Despite some obstacles, it is evident that a new approach is emerging among SMEs, positioning e-commerce as a valuable asset for their expansion abroad.

3.5 A new frontier for the international e-commerce of Italian SMEs: artificial intelligence implementation

Nowadays, a new frontier that is transforming Italian online commerce is technology 4.0, and more precisely generative AI (Casaleggio Associati, 2024a). Indeed, e-commerce is expected to continue evolving to meet the increasingly sophisticated needs of customers, adopting AI tools to deliver personalized experiences (Maday, 2020). Accordingly, 60% of the worldwide brands are already leveraging generative AI to provide product recommendations, while 50% use such an instrument to implement personalized shopping assistants (Casaleggio Associati, 2024a).

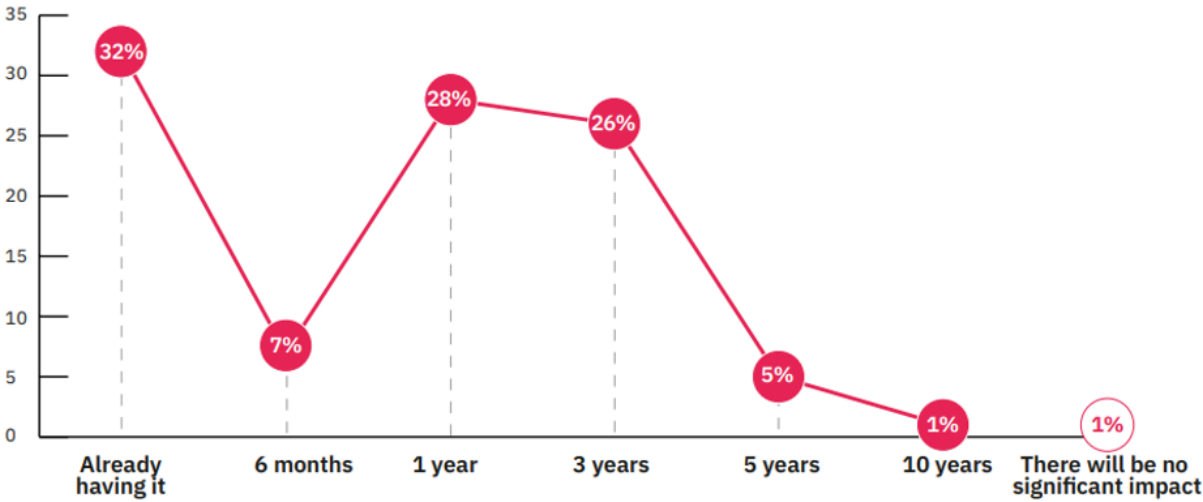
Generative AI and machine learning has several applications, emerging as a differentiator for the players operating in digital commerce (Power, 2023). The major innovation is in the field of customer service (Casaleggio Associati, 2024b). Some scholars identified AI chatbots as instruments which will manage customer services and attract users by responding to calls and emailing with significantly less human intervention (Saravanan & Pooja Shri, 2020). The recent digitalization of the customer journey has led some clients, especially Gen Z, to be willing to pay a premium in order to experience a better interaction during online purchases (Casaleggio Associati, 2024b).

In addition, AI can be useful in increasing the overall security of the e-commerce ecosystem (Econopoly, 2023). Indeed, AI can be adopted to ensure secure payments by reducing online frauds, protecting both clients and sellers (Casaleggio Associati, 2024a). Moreover, AI can be used for monitoring and analyzing suspicious cases, helping to identify fake reviews and counterfeit product sales (Econopoly, 2023). Such technologies can also facilitate dynamic pricing practices, by predicting optimal discounts (Power, 2023). Furthermore, AI innovation is shaping the way in which companies create value, contributing to the emergence of new business models.

The AI trend is impacting the online commerce of big companies, as well as the one of Italian SMEs (Econopoly, 2023). The “AI-Commerce” is allowing Italian firms to acquire larger market shares and higher growth rates (Casaleggio Associati, 2024a, p. 30). A study of Fonseka and colleagues (2022) focuses on how AI positively influences the electronic commerce process and leads to enhanced SMEs overall performance. Accordingly, AI allows SMEs not only the automation of some functions, but also the provision of unique services to their customers.

Moreover, as shown by Figure 3.8, the majority of the Italian e-commerce operators (32%) believe that AI is already generating a significant impact on online commerce business models, while 28% of Italian e-commerce firms think the AI effects will be most visible in one year from now (Casaleggio Associati, 2024a). Italian companies that have integrated AI into their processes use it for content and image creation (24%), data analysis and forecasting (16%), automation of advertising activities (14%), customer care management (13%) and customer journey’s personalization (10%). However, 31% of respondents claim they are not currently implementing AI tools.

Figure 3.8 When AI will exert a relevant impact on e-commerce, 2024



Source: Casaleggio Associati. (2024a). Rapporto E-commerce Italia 2024 [E-commerce Italy Report 2024]. <https://www.ecommerceitalia.info/wp-content/uploads/2023/06/Report-Ecommerce-Italia-2024-Casaleggio-Associati-ITA.pdf>

Finally, a large number of Italian SMEs are not yet exploiting the potential of AI technologies. Nevertheless, data highlights that companies are aware of the magnitude of AI’s impact on electronic commerce. Therefore, it is imperative for Italian SMEs to take action and start investing in such tools in order to stay competitive and prosper in the increasingly complex global scenario.

CHAPTER 4 Facilitating SMEs' access to electronic commerce: an empirical analysis of the Calicantus Srl case study

4.1 Overview and reasons for performing this investigation

In light of the discussion and concepts explored in this work regarding the digitalization and the adoption of e-commerce for the internationalization of Italian SMEs, the current chapter aims at investigating a business active in the field of digital commerce, namely Calicantus Srl. This study allows in-depth research on the opportunities and challenges that Italian SMEs face when exporting through e-commerce. Moreover, it offers the perspective of an expert player in supporting SMEs' online commerce.

The analysis involves a comprehensive review of various materials collected on Calicantus Srl, an examination of the firm's website and a discussion with the company's management to gather useful insights on six relevant case studies they provided. The discussion took place in person during a meeting with Valentino Bergamo, founder and CEO of the company, and Elvis Colla, business developer.

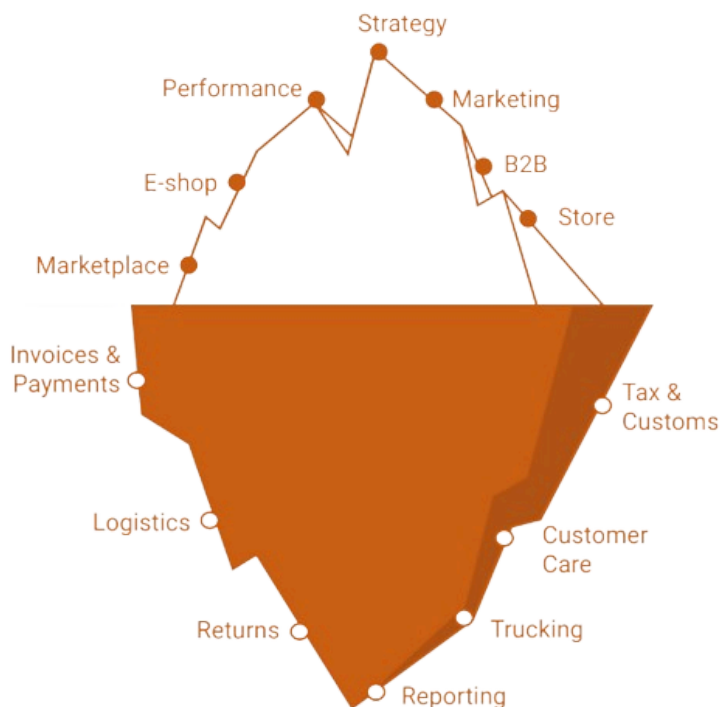
The present chapter is structured as follows: first, an introduction to the Calicantus Srl case study is presented to outline the specific solutions they provide to support SMEs in enhancing their access to electronic commerce. Next, an overview of the insights from six notable Calicantus Srl's Italian SMEs clients is provided, illustrating the role of the company in ensuring flexible operations, improving customer experience and facilitating the access to new customer segments of businesses across different sectors. Finally, the chapter concludes by highlighting key considerations that emerged from the investigation and the broad implications for SMEs' adoption of digital commerce.

4.2 The Calicantus Srl case study

Calicantus Srl is an interesting Italian consultancy firm with 15 years of experience, specialized in e-commerce services. Valentino Bergamo and Matteo Comin founded the firm in 2008, believing that online commerce would prove to be the best way companies can use to compete in international markets. Calicantus Srl recognised a significant issue that others often overlook. Specifically, as illustrated by the iceberg in figure 4.1, SMEs tend to concentrate on the activities above the surface when approaching e-commerce, such as marketing, strategy and marketplace.

On the other hand, they underestimate less visible but equally fundamental tasks below the surface. These are all administrative and accounting procedures namely taxation, invoicing, payments, logistics as well as customer care. Operations as a service means that companies can purchase what they specifically need, making these solutions adaptable across all sectors and applicable to all types of goods and services.

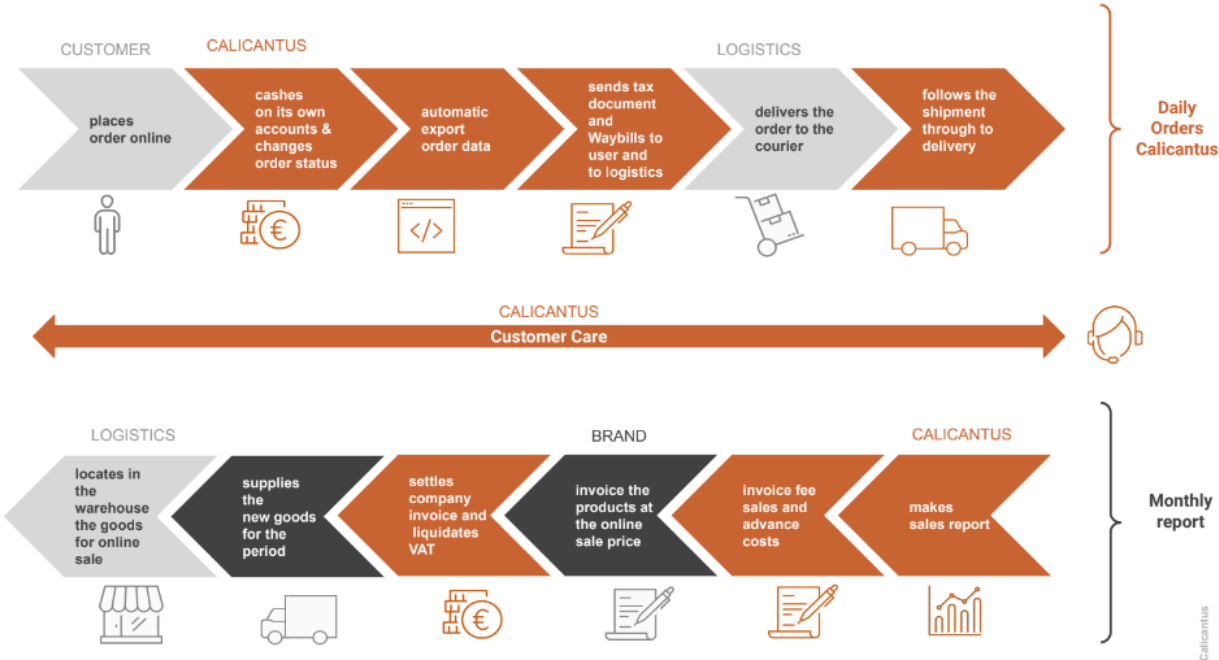
Figure 4.1 Operations as a service



Source: Calicantus Srl

Calicantus Srl’s value proposition is to manage orders from digital channels on behalf of other brands, using an end-to-end and cross border approach. Adopting an end-to-end approach means that Calicantus Srl handles orders throughout the entire process, from acquisition to documentation, shipment and delivery (Figure 4.2). Additionally, they manage cross border activities, for which it is often most convenient for SMEs to rely on intermediaries like Calicantus Srl, due to the complexities involved.

Figure 4.2 End to end order management



Source: Calicantus Srl

The company offers several services, including digital transformation, e-commerce management and performance marketing solutions to Italian and international clients in over 120 countries. In particular, they help brands create digital ecosystems for their products and services with the goal of fostering synergies between different sales channels. Calicantus Srl promotes the adoption of digital tools and the integration of different technologies with a composable logic. This integration involves all technologies, such as the e-commerce platform, marketplace, couriers, payment methods, management software, order management system (OMS), CRM, and product information management (PIM).

Figure 4.3 PIM system



Source: Valantic <https://www.valantic.com/en/cx/services/pim-mdm-dam/pim/>

Calicantus Srl also manages online stores and tracks their growth, offering a full outsourcing service called Merchant of Records (MOR). This means they become the actual seller of the products on the e-commerce platform and follow day-to-day activities. Therefore, when the order is received, as MOR they conduct an instantaneous buying and selling transaction. This means that pricing, discounts and promotion decisions are made by the producers. Hence, Calicantus Srl can be considered a digital dealer who acts as an intermediary between the brand and its customers. In addition, they handle all the fiscal and administrative aspects related to international e-commerce management. Today, the company is among the leaders in MOR services in Europe.

Figure 4.4 Calicantus Srl as Merchant of records - E-commerce management



Source: Calicantus Srl

Furthermore, they develop and implement digital strategies aimed at enhancing brand recognition and increasing sales, by leveraging various online promotion channels. Another service they offer is the availability of the Calicantus Srl logistics, including their own warehouses and a dedicated customer service. This is an aspect they are developing to maintain full control of the overall process.

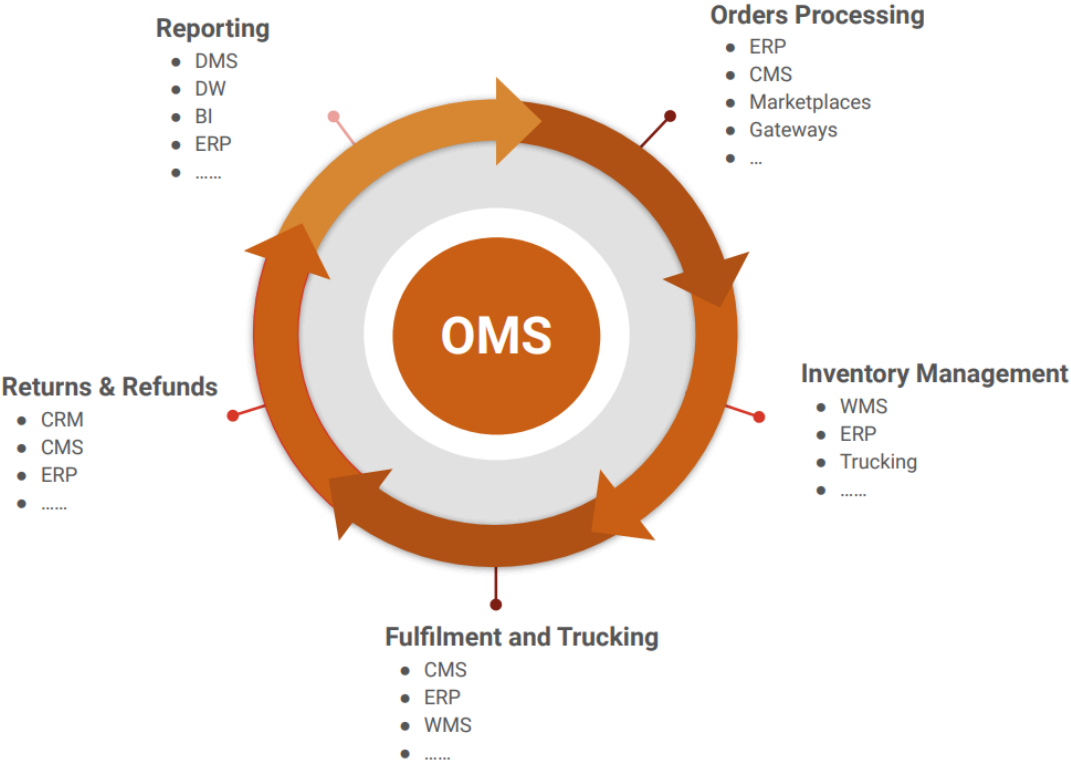
As previously mentioned, figure 4.1 depicts how the company operates like an iceberg, where the upper part represents strategy, marketing, marketplace and other activities. The provision of such services, especially marketing and technologies development, is made possible thanks to a network of partners with whom Calicantus Srl closely collaborates. These partners include leading e-commerce platforms such as BigCommerce, Magento Commerce and Criteo, as well as international shipping companies like UPS and GLS, and e-commerce automation solutions like Lengow.

The company relies on two pillars: process efficiency and the optimization of the customer experience. This combination is particularly difficult to achieve, especially for SMEs, but it translates into significant advantages for a brand. It generates an economic benefit by allowing companies to access economies of scale and, therefore, optimize costs. In addition, it enables a high level of customer satisfaction, leading to increased sales at lower costs.

The distinctive element of Calicantus Srl is their transparency in operations. This means that, while it is formally specified that an intermediary runs the operations on behalf of the brand, the less users perceive this, the more efficient the service is. They are transparent not only with respect to the brand, but also in the relationships with all the institutions and intermediary suppliers, such as couriers. Indeed, they have multi-million-dollar contracts with couriers, which allow firms to access the best tariffs as well as the best IT services.

Another relevant aspect is Calicantus Srl’s ability to fully integrate with other brands. They fit smoothly into companies’ logistics, administrative, marketing and commercial processes. So, they allow the personalization of processes on the basis of the specific needs of their clients. This is made possible by a cloud-based, headless and composable proprietary technology they have developed, specifically an easy to implement OMS (figure 4.5). It enables the company to interface with brands’ systems and personalize workflows through orchestrations, making order processing, tracking, stock control and customer service more efficient.

Figure 4.5 Order Management System (OMS)



Source: Calicantus Srl

In 2022, the company’s turnover was 17 million euros and increased to 23 million euros in 2023, while this year they expect to exceed 30 million euros. According to these data,

Calicantus Srl has experienced an average annual turnover increase of 40%. However, adopting a more conscious approach, some figures showcasing in Calicantus Srl's balance sheet should be reconsidered, as the numbers displayed above includes the transacted. This means that revenue growth could be driven by increases in the product prices rather than a higher volume of services.

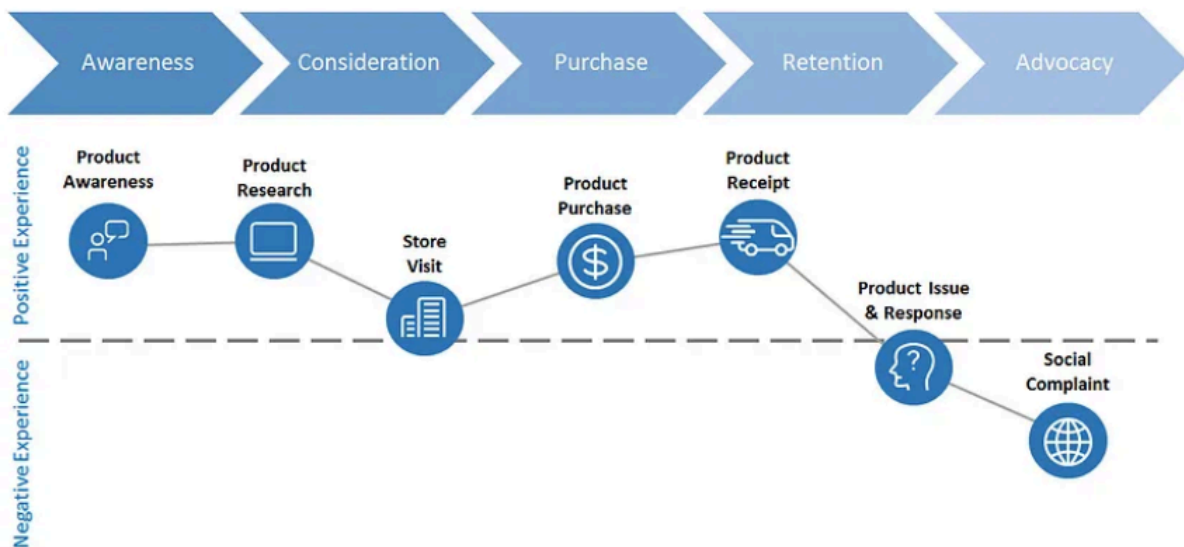
For such a reason, it is interesting to analyze the revenues generated solely from the sale of Calicantus Srl's services. In 2023, the turnover from pure service amounted to 4 to 5 million euros, which is considered a best-in-class figure. The company earns margins based on the difference between the selling price of a product or service and the fee they charge, adopting a revenue sharing model. Revenue sharing is the distribution of a portion of corporate wealth to certain stakeholders, such as business partners (Ross, 2024).

In the next paragraph, a comprehensive overview of six significant Calicantus Srl's SMEs clients is presented. The aim is to delve into examples of Italian SMEs that, thanks to Calicantus Srl' services, have successfully implemented online commerce solutions to expand their reach into foreign markets.

4.3 An overview of the insights from six significant Calicantus Srl's Italian SMEs clients

By examining successful SMEs clients, namely Fratelli Rossetti, Parmigiano Reggiano, Selle Italia, P-INC, Elica and Flos, it is possible to gain deeper insight into the contribution of Calicantus Srl in facilitating Italian SMEs access to electronic commerce. This analysis investigates the role of Calicantus Srl in ensuring efficient e-commerce operations and, consequently, an enhanced and personalized customer experience (CX). As shown by figure 4.6, CX refers to the overall interaction that customers have throughout their relationship with a company (Iwuozor, 2024). A personalized CX is achieved when every touchpoint in the customer journey, such as the website, emails and social media ads, is customized to meet users' specific needs, interests and preferences (Hyken, 2024).

Figure 4.6 Customer journey map and customer experience



Source: Visser, M. (2017, July 7). Learn Customer Journey Mapping... in 7 Bookmarks. <https://medium.com/@azviss4/customer-journey-mapping-in-7-bookmarks-d116da67a0c2>

Fratelli Rossetti, an Italian producer of high-end shoes founded in 1953 in Parabiago, relies on Calicantus Srl to enhance CX for its high-spending customers, improve the efficiency between different departments and strengthen its positioning as market leader through digital channels. Acting as the brand's MOR, Calicantus Srl manages the customer service at global level and supervises the multi-store order orchestration. Given that Fratelli Rossetti's e-commerce strategy includes the main warehouse as well as individual stores, which serve as logistic points, various omnichannel solutions like "buy online and pick up in store" or "click and collect" are implemented to optimize CX. The CEO Diego Rossetti stated, "thanks to the experience of online sales, we can design smaller spaces with limited warehouses, where customers can carefully choose their model and then receive it wherever they want within timelines that were unimaginable just a few years ago" (Crivelli, 2023).

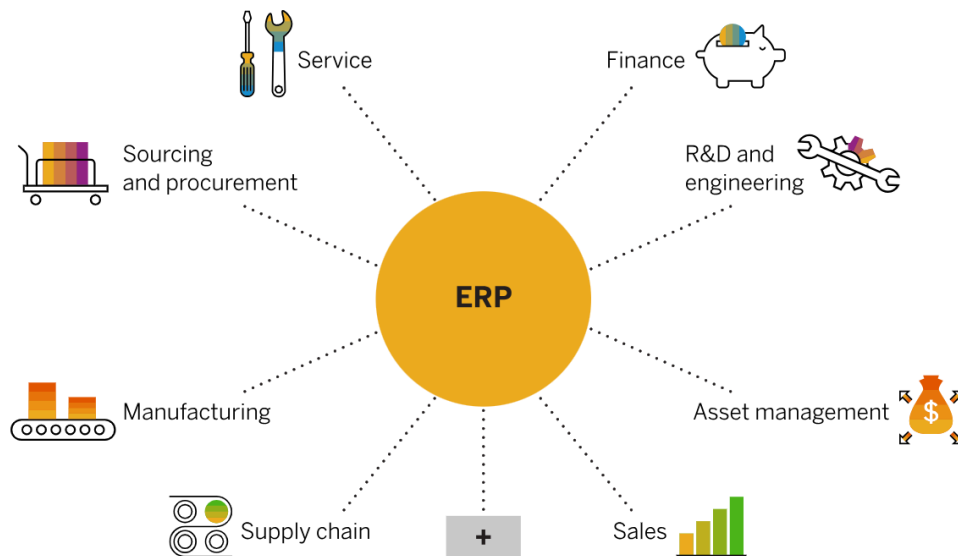
Parmigiano Reggiano consortium aims to promote the trademark and products of 300 dairy farms. Its goal is to give dairy farms a collective advantage and optimize internal resources by increasing sales, while enabling them to access e-commerce solutions. Parmigiano Reggiano consortium worked with Calicantus Srl to create a renowned touchpoint with a unique selling proposition. Accordingly, Parmigiano Reggiano's e-commerce platform is one of the few places where users can personalize their purchases, by selecting the biodiversity, cheese ripening, and even the specific producer they want to purchase from. Calicantus Srl handles

order processing, shipment, delivery, customer care and other administrative tasks like the distribution of revenues to the producers, ensuring an efficient e-commerce process.

Another example is Selle Italia, a saddle producer established in 1897 in Corsico. It collaborated with Calicantus Srl to create an e-commerce platform dedicated to the US market. Indeed, Selle Italia had previously relied on multi-brand distributors, so it needed to regain control over their operations. For this reason, the e-commerce platform was integrated with all the distributors, allowing the company to gain more visibility without the need to renegotiate the already existing commercial agreements. Selle Italia also benefits from a fiscal advantage, since European companies exporting goods to the US with a value less than 800 dollars to private individuals are exempt from duties. By leveraging Calicantus Srl's logistic warehouse, the goods are delivered to the US within a couple of days, at a cost only slightly higher than a shipment to Europe. Optimization also extends to returns management, which represents one of the highest hidden costs for companies selling online.

The P-INC project, a spin-off of Pelliconi SPA specializing in the personalization of crown corks and labels for small artisanal producers, is another interesting case. Calicantus Srl allowed P-INC to establish an efficient structure to manage the small B2B sector, which increasingly prefers digital channels over traditional ones. Calicantus Srl manages both national and international online sales, enabling advanced integration between the e-commerce platform, ERP (figure 4.7), WMS (warehouse management system), and logistics. This enables P-INC to leverage one of the most significant macrotrends in electronic commerce: the personalization of goods and services to meet clients' specific requirements. Accordingly, through a dedicated configurator that guides the creative process (figure 4.8), small producers can fully customize their orders.

Figure 4.7 Components of a ERP system



Source: SAP <https://www.sap.com/italy/products/erp/what-is-erp.html>

Figure 4.8 P-INC configurator

INSPIRATION

CREATE, EXCITE, COLLECT

The possibilities are truly endless, also for entertaining the drinker! Make them smile, make them feel special with their names on the caps. Invite them to create messages with your caps and get them to share their shots on social media! Give them a thrill by putting emoticons or various messages on the caps. Cracking open a bottle will be pure fun!

START CONFIGURING

Source: P-INC.shop. <https://p-ink.shop/en/be-inspired/>

Elica, founded in 1970 in Fabriano, is an Italian company at the forefront of design and production of cooking appliances. With its 50 years of experience, Elica is a global leader in kitchen ventilation systems. Due to their scarce internal experience with the B2C market, Elica partnered with Calicantus Srl in order to access e-commerce more efficiently. Calicantus

Srl manages various aspects of Elica's e-commerce operations, including customer care, logistics, the warehouse, returns procedures and the post-sales services.

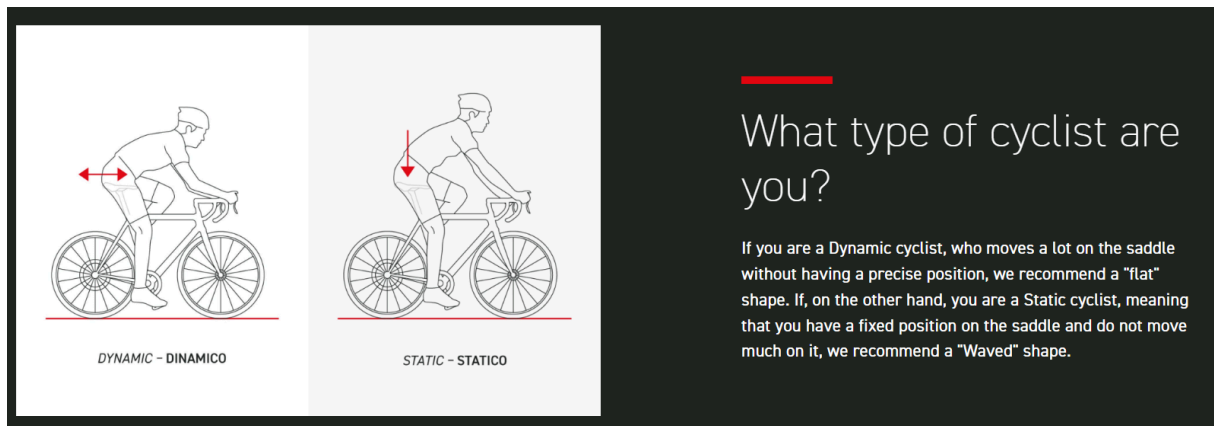
Finally, Flos was founded in 1962 as a small laboratory in the field of high quality lighting furniture in Merano. Today, the company is a global leader, thanks to the implementation of innovative solutions and the collaboration with top designers. It leverages Calicantus Srl solutions to dedicate internal resources to its core business activities. Calicantus Srl operates as MOR for the brand, managing daily online sales, collecting payments for the orders and conducting anti-fraud checks. Moreover, the company handles all the administrative and legal tasks, including sales conditions and privacy policies.

The insights gathered from investigating the Calicantus Srl's six SMEs clients also evidence that its services are particularly advantageous for specialist niches, enabling them to access a wider and more diverse international market, at lower costs and complexity compared to other traditional selling channels. According to an interview with Fratelli Rossetti's CEO, Diego Rossetti, digital commerce allows the company to reach a wider audience at any time (Crivelli, 2023).

Similarly, the Parmigiano Reggiano consortium relies on Calicantus Srl as its e-commerce service provider, both for the Italian market and for exports to France, Germany, Austria, the Netherlands, Belgium and Luxembourg. E-commerce not only facilitates market expansion for small local producers, but also permits access to new customer segments. In fact, through the e-commerce platform, dairy farms sell products to restaurants across Europe. Italian dairies would struggle to establish a digital presence on their own, as they are not particularly inclined to develop an online culture.

Selle Italia is also leveraging e-commerce to make its products more accessible, offering both highly professional expensive saddles and premium options. At the same time, the company is committed to exploit its digital presence to educate a broader audience about the value of professional saddles. This is achieved through detailed size and shape guides, as illustrated in figure 4.9, as well as a dedicated blog.

Figure 4.9 Selle Italia's shape guide



Source: Selle Italia.com. <https://www.selleitalia.com/size-guide>

Additionally, by selling its products directly to installers, Elica is using e-commerce to reach a new customer segment beyond traditional B2C and B2B markets. Furthermore, online commerce has enabled the company to offer products that clients were not able to find in the market before. An example is related to filters for ventilation hoods, which were not sold or made available to clients by distributors.

Finally, Flos' objective was to access digital commerce to reach B2C consumers across Europe. As Flos' CEO Roberta Silva stated, "the e-commerce is among the main channels of expansion of our business in all countries, in large European markets, such as Germany and the United Kingdom, where the purchasing attitude of the final consumer is strongly directed to the online, but also in Asian markets, especially China, Japan and South Korea" (Flos, 2021). Thanks to Calicantus Srl's services, the company was also able to target a new market segment, namely interior designers. Indeed, Flos' e-commerce platform includes a section dedicated to interior designers, who appreciate the opportunity to establish a direct relationship with brands online.

To conclude, Calicantus Srl's tailored e-commerce solutions benefit SMEs operating in diverse sectors, from artisanal shoe production to personalized packaging, highlighting the flexibility and adaptability of its services. By examining these six successful Italian SMEs, it is evident that Calicantus Srl has a major impact in ensuring the efficiency of SMEs' e-commerce processes, while contributing to enhancing customer experience. Additionally, the analysis outlines the crucial role of electronic commerce in helping small businesses expand internationally and access new customer segments.

4.4 Key implications for Italian SMEs adopting online commerce to expand at international level

This final paragraph aims to draw some key considerations from the Calicantus Srl case study and the six analyzed SMEs that successfully implemented e-commerce through the company's solutions. Specifically, it outlines the main obstacles faced by SMEs and how Calicantus Srl helps overcome them, while also highlighting the specific advantages of Calicantus Srl's services. Additionally, it underlines broader implications for the virtuous adoption of online commerce by Italian SMEs to expand beyond national borders and promote Made in Italy abroad.

As mentioned before, Calicantus Srl provides solutions that facilitate the access of Italian SMEs to international digital commerce. Indeed, they run operations with a range of skills and knowledge which would be particularly difficult for SMEs to acquire on their own. Calicantus Srl offers a platform and infrastructure typically only accessible to big companies, due to the required technologies, expertise and resources. According to Valentino Bergamo and Elvis Colla, to sustain such an infrastructure, a firm would need to generate at least 30 million euros in turnover from online channels. This is not the case of most Italian SMEs, especially those just beginning to approach e-commerce.

Specifically, Calicantus Srl helps SMEs overcome several obstacles they encounter when adopting e-commerce. Firstly, the lack of necessary competences often prevents SMEs from efficiently governing electronic commerce processes. SMEs frequently lack not only internal professional figures, but also expensive specialized technologies that extend beyond a simple ERP system. Another barrier to SMEs' access to e-commerce is the difficulty in exploiting time-to-market advantages. Accordingly, it takes companies years to acquire the know-how needed to master efficient processes. Moreover, the team dedicated to e-commerce management should be different from the one handling ordinary activities, as the processes are different and more automated.

An additional barrier for SMEs in leveraging e-commerce solutions to operate beyond national borders is the need for fiscal and bureaucratic compliance. Europe is, indeed, issuing several directives and policies regulating various aspects of electronic commerce, such as data

processing, waste management, consumer rights, extended producer responsibility (EPR), general data protection (GDPR), information security and privacy.

This implies that companies wishing to export to other countries need to establish an articulated and extremely expensive administrative structure to handle the complexity. For instance, a company must maintain several fiscal and EPR positions in each of the countries where it exports, in order to fulfill the requested contributions. As a result of the numerous directives, there is a high risk, especially for SMEs, of violating regulations and incurring sanctions. For example, selling perfumes online requires some specific certifications, as they are considered flammable goods, and non-compliance can lead to penal sanctions.

Calicantus Srl's services also imply the opportunity for Italian SMEs to leverage unique advantages. First of all, SMEs can control costs and avoid uncertainty, as they know in advance the fee charged by Calicantus Srl, which is the only cost they will incur. Another specific advantage is that SMEs benefit from outsourcing e-commerce processes, while retaining ownership of the data generated. This is an important distinction from relying on marketplaces like Amazon.

SMEs can also provide high-quality customer service and efficient customer care to their online users. In fact, Calicantus Srl is able to address users' questions, complaints and requests in different languages across both B2C and B2B markets. Moreover, SMEs benefit from personalized dashboards, FAQ guides and AI-powered chatbots which improve conversion rates and enhance customer loyalty.

Furthermore, Calicantus Srl offers personalized logistics solutions specific for e-commerce, allowing their clients to efficiently handle small orders, while providing necessary certifications. Indeed, through Calicantus Srl's services, P-INC is able to handle a large volume of small orders that could not be efficiently managed by Pelliconi SPA's infrastructure. SMEs can take advantage of product storage services, advanced algorithms, convenient shipping options, live tracking, cash on delivery (COD) and warehouse management softwares.

Another interesting opportunity for SMEs is the possibility to involve importers in their e-commerce processes. As an example, if a company relies on several dealers in other countries, they may want to reach final customers directly to gain better visibility. However, importers often perceive digital commerce as a threat or an attempt to bypass them. In order to

address this concern, figure 4.10 shows how Calicantus Srl provides a solution that enables sales from e-commerce to be attributed to importers, who issue invoices themselves thanks to an orchestration.

Figure 4.10 The all channels solution



Source: Calicantus Srl

After a deep analysis of Calicantus Srl case study, several broader implications for the successful adoption of e-commerce by Italian SMEs to export abroad and promote Made in Italy are presented. Firstly, e-commerce emerges as a valuable channel that SMEs should use to increase visibility. According to Valentino Bergamo and Elvis Colla, the final user is omnichannel, with 60% of products and brands research taking place online.

Secondly, digital commerce allows to reach new types of target markets, which are neither traditional B2C nor B2B. The Parmigiano Reggiano case illustrates how the consortium successfully sells products to small stores and restaurants across Europe through e-commerce. Similarly, Flos and Elica leverage Calicantus Srl’s services to directly reach new customer segments worldwide, respectively designers and installers.

Furthermore, the six cases prove that niches' leaders particularly benefit from e-commerce in creating premium brands. Specifically, electronic commerce allows premium brands to reach a wider international market, in a faster way and at lower costs and complexity compared to other traditional selling channels. Indeed, e-commerce permits Selle Italia to offer both ultra performant expensive products for professionals and premium products for a wider audience. This is possible thanks to the ability of premium brands to educate clients and provide personalized services through online commerce.

As mentioned previously, Italian SMEs struggle to manage the complexities of selling online abroad. Therefore, to create a virtuous process when approaching the e-commerce channel, SMEs should rely on experts like Calicantus Srl. Their processes enable brands to remain flexible, since they can decide on the best digital commerce strategy at any time, according to their priorities. This means that, once they have mastered these processes, companies can also insource some activities. In this way, SMEs became progressively autonomous, with internal or mixed teams.

Finally, another condition for the successful adoption of e-commerce is the aggregation of Italian SMEs. The Parmigiano Reggiano example demonstrates how sharing resources and objectives facilitates access for micro local businesses to digital opportunities, competences and technologies. This case proves that e-commerce represents a fundamental channel for systemizing Italian SMEs and promoting Made in Italy at international level. In this regard, the role of Calicantus Srl is essential since, according to the legislation, the consortium is prohibited from directly selling products.

In conclusion, the Calicantus Srl case study, alongside the experiences of the six analyzed businesses, highlights the transformative potential of e-commerce for Italian SMEs. Evidence shows that electronic commerce is not only a tool for increasing sales, but also a strategic means to enable SMEs to expand their reach, promote premium brands and build a direct relationship with new customer segments. Digital commerce allows small businesses to access international markets that were once out of reach, positioning them to compete with larger enterprises. Furthermore, a collaborative approach is fundamental for SMEs to maximize the benefits of e-commerce and compete on a global scale. At the same time, the support of e-commerce experts like Calicantus Srl in navigating the complex e-commerce landscape is crucial, as it helps small businesses overcome several barriers and inefficiencies.

CONCLUSIONS

This work had the objective of investigating the transformations that characterize the Italian SMEs operating internationally, focusing on the role of digitalization and e-commerce in facilitating their global expansion. Results reveal that global trade is shifting towards a more fragmented worldwide economic system, characterized by the regionalization of production and sourcing. Such an evolving landscape highlights the importance for Italian firms to adapt their strategies to exploit emerging opportunities.

Despite the current geopolitical turbulence, the international growth of Italian SMEs remains resilient. In particular, medium-sized firms emerge as champions, both in terms of export propensity and ability to cope with periods of geopolitical instability. Indeed, the Italian positive export dynamics are predominantly attributed to such firms. While the Italian industrial district persists as a successful model for Italian SMEs, relying solely on it may not suffice to ensure future prosperity. In order to remain competitive in an increasingly geopolitical challenging context, Italian SMEs should embrace innovative approaches to communication and advertising strategies.

In such a context, digital tools represent a significant opportunity for Italian SMEs to further expand their internationalization. The dual transition emerges as a key strategy to boost the internationalization of Italian SMEs. However, many SMEs struggle in the appropriation of a competitive advantage leveraging digitalization, as their current efforts to embrace the digital transition are insufficient. To fully exploit the potential of such a transition, SMEs should innovate their business models, while institutions should provide more than just financial support, investing in educational and training initiatives aimed at equipping SMEs with the necessary digital knowledge and skills.

E-commerce is identified as a key future asset for Italian SMEs seeking to scale their operations internationally and enhance the global reputation of Made in Italy. It allows SMEs to compete with larger firms, while expanding their boundaries without significant investments. Moreover, online commerce fosters SMEs' propensity to innovate and develop new skills and competencies. Nevertheless, in order to successfully exploit e-commerce, it is imperative for SMEs to embrace a new way of working, relying on digital instruments and new paradigms.

The Calicantus Srl' case study provides evidence that e-commerce experts facilitate SMEs to overcome several obstacles they encounter when adopting such a technology, while providing opportunities to leverage unique advantages. Specifically, experts help SMEs to focus on critical activities beyond marketing and strategy, such as administrative and accounting procedures, which are essential for successful e-commerce processes. The analysis of six SMEs supported by Calicantus Srl evidence that their solutions enable small businesses to enhance customer experience, reach new types of target markets and establish successful premium brands. Consequently, relying on experts like Calicantus Srl is fundamental for SMEs wishing to create a virtuous process when approaching the e-commerce channel.

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