SUPPORT TO THE STRATEGIC SUPPLY CHAINS

Sectoral Strategic Guidelines

CONTENTS

KEY MESSAGES

- The current trajectories of geographical reconfiguration of global value chains represent **an important opportunity for the Italian Economy and for Italian enterprises** to rethink their role and strategic positioning within the European and international production and distribution networks.

- In defining the **scope of reference of the strategic supply chains**, it was deemed appropriate to consider, on the one hand, those **sectors that historically play a central role in the Italian economy**, guaranteeing its prestige and recognition on international markets and, on the other hand, those **supply chains that anticipate emerging transformational phenomena**, crucial to achieve the European and national strategic objectives related to energy and digital transitions. These supply chains mainly refer to export- and internationally-oriented industrial sectors - therefore mainly related to the primary and manufacturing sectors - but they also include all production-related services, from those upstream (e.g. R&D, design) and downstream (e.g. distribution, marketing, sales, customer support), to the more cross-cutting ones (e.g. financial and logistics services).

- In this context, **three areas of focus are identified, linked to as many macro-objectives**, that could improve the competitiveness and growth prospects of the national productive fabric:

  - **supporting enterprise growth**, encouraging development projects undertaken by enterprises along internal lines, with special attention paid to the investments launched by leading enterprises in the supply chain; promoting aggregation among enterprises through acquisitions, mergers and joint ventures; promoting vertical and horizontal integration of the supply chain through forms of coordination among enterprises, such as consortia, strategic alliances, interprofessional and producers organisations and supply chain contracts;

  - **supporting consolidation and promotion of national and European positioning within GVCs**, facilitating the attraction of greenfield investments, including through reshoring and nearshoring initiatives; supporting the participation of enterprises in European projects, especially in innovative and emerging supply chains;

  - **supporting exports and internationalisation**, sustaining direct sales abroad, in order to facilitate access to foreign markets by non-exporting enterprises, and strengthening the presence of those companies that already operate in them; encouraging the adoption of digital solutions useful for exports and internationalisation of companies; fostering the development of international projects, with particular attention to those undertaken by leading companies in the supply chain.

- The effective pursuit of the strategic priorities outlined above is linked to **at least five enabling context factors**, which concern all the areas of focus considered, i.e. streamlining bureaucratic procedures in order to **facilitate business activity** and the attraction of investments from abroad, strengthening the **managerial, digital and technological capabilities** of companies, promoting the **development of the logistics and transport sector**, of a **support system for R&D activities** and of the **capital market**.

- In this context, CDP can intervene, according to **additionality and complementarity criteria,** helping to fill the investment gaps that require **long-term commitment capacity** in sectors and territories where market operators fail to mobilise adequate resources. More specifically CDP can encourage the identification and financing of development projects of leading companies in the supply chain, promoting the **consolidation of productive ecosystems**.

- To ensure transparency and accountability of decision-making processes, CDP aims to measure the quality and impact of the supported actions. To this end, CDP uses a **set of KPIs** for monitoring and evaluating each field of intervention.

1. Context

1.1 International framework for support to strategic supply chains

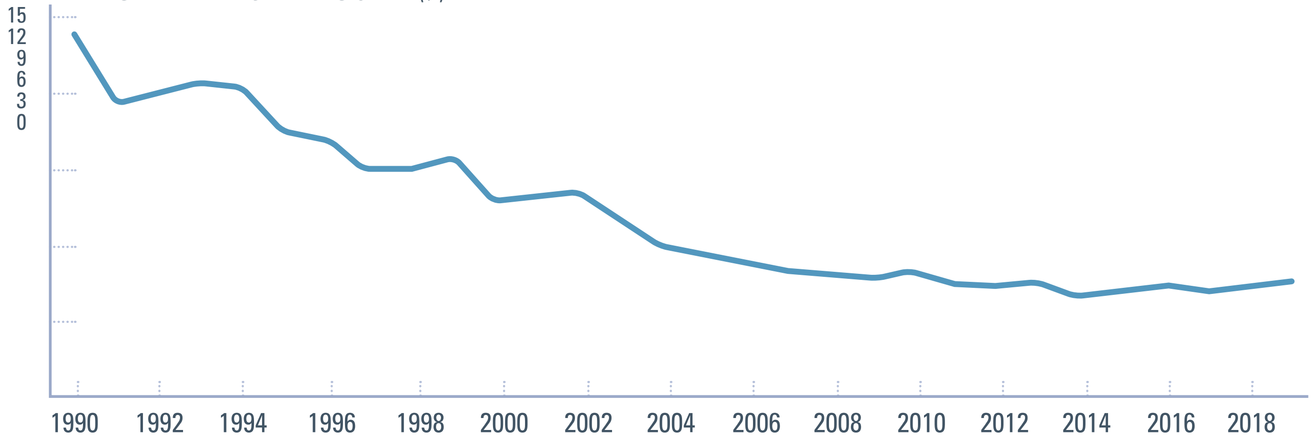
1.2 Positioning of Italy: strengths and gaps

1. CONTEXT

1.1 INTERNATIONAL FRAMEWORK FOR SUPPORT TO STRATEGIC SUPPLY CHAINS

Since the **first half of the 1990s**, the **liberalisation of international trade** and the simultaneous **reduction of tariff barriers** have promoted **longer and more geographycally-dispersed** (so-called Global Value Chains - GVCs) (chart 1). In this context, **the access to lower-cost labour in less developed countries** and **the rise of information, communication and transport technologies** have accelerated the process of integration of different national markets as well as the global fragmentation of production processes.

CHART 1 –AVERAGE TRADE TARIFFS APPLIED GLOBALLY (%)

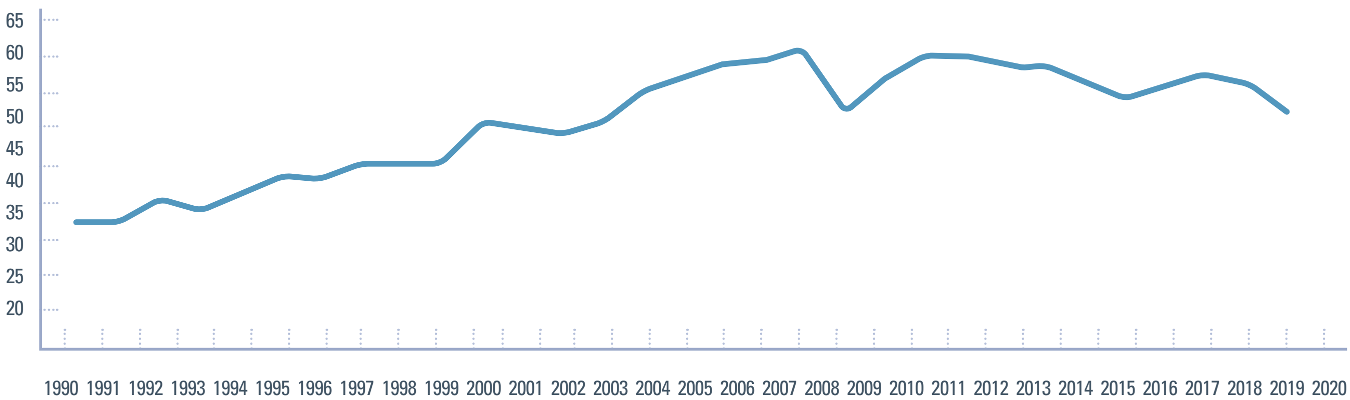


Source: CDP calculations based on World Bank data

Note: average trade tariffs are calculated as the average of the rates actually applied globally on all products subject to duty, weighted by the import shares of each partner country.

Following the Great Financial Crisis there has been a **profound transformation of international trade and investment patterns**, with the establishment of new production paradigms characterised by **shorter** and, thus, less vulnerable value chains. A number of **factors** have contributed to the geographical reconfiguration of GVCs, including the **increase in maritime transport costs**, the **reduction of the wage gap** between advanced economies and emerging ones[1], the **growing importance of automation technologies**, the implementation of **more restrictive trade and investment policies** and the environmental and social **sustainability** imperatives linked to production activities[2]. This "new normal", characterised by **slower growth in world trade and cross-border investment flows**, has been referred to as " **slowbalisation**" (chart 2).

CHART 2 - SHARE OF WORLD TRADE (% OF WORLD GDP)



Source: CDP calculations based on World Bank data

[1] Between 2008 and 2009, real wages in China more than doubled. This increase is linked to the exceptional improvement in productivity - now almost equivalent to that in the West - and it affected particularly workers in the manufacturing sector.
[2] World Investment Report 2020, UNCTAD.

The **crisis** caused by **Covid-19**, the subsequent **robust rebound** of global demand and, more recently, the **effects of the Russia's invasion of Ukraine** have further exacerbated the critical issues related to global supply chain management. These events have produced sudden stops in the export of raw materials and components which are crucial to Europe's industries, **highlighting the vulnerability** of long, **non-diversified** and **"just-in-time" supply chains**.

The **reorganisation of GVCs** is not a one-way process and **can** follow **very different development paths**[3]. In this context, the main purpose of the policies adopted by the EU institutions is to **shorten GVCs** - especially those related to **strategic sectors**[4], **- to make them more resilient and sustainable, while preserving and enhancing their competitiveness and circularity**[5].

The shortening of GVCs involves promoting greenfield investments in those sectors and production stages not covered by any company domestically. These investments can also be made **through reshoring** - i.e. the process of returning a business operation, that has been previously offshored, back to the company's original country - or **nearshoring** - i.e. when business activities previously offshored are transferred to countries close to the company's original one. If adopted at European scale, this strategy could contribute to a greater **diversification and risk-sharing (also in terms of geopolitical and climate risks), eventually enhancing the role of the EU regional bloc within the global economy**.

[3] Zhan, J. X. (2021). GVC transformation and a new investment landscape in the 2020s: Driving forces, directions, and a forward-looking research and policy agenda. Journal of International Business Policy, 206-220.
[4] European Commission (2021), Trade Policy Review - An Open, Sustainable and Assertive Trade Policy.
[5] European Union (2021). Post Covid-19 value chains: options for reshoring production back to Europe in a globalised economy. For more details on the strategic relevance of recycling and reusing raw materials in short supply in Europe, please refer to the document of Sectoral Strategic Guidelines for the Circular Economy.

1.2 ITALY'S POSITIONING: STRENGTHS AND GAPS

Strengths	Gaps
Medium-sized enterprises among the most **productive** in the EU	Prevalence of **micro and small enterprises**
High **diversification** of **production**	**Lag** in **high-tech segments**
Close **integration** within **European value chains**	**Limited ability** to **attract** and **retain investments from abroad**
High **propensity** to **export** and **internationalisation**	**International positioning** excessively **focused on mature markets**

1.2.1 Size of the businesses, productivity and manufacturing specialisation

The Italian productive fabric is characterised by a **high vertical fragmentation of supply chains**, which is reflected in the large prevalence of micro and small enterprises as well as in a **relatively low average size of companies (i.e., for Italian companies it is one third of their German counterparts)**.

The small size of the enterprises, in the absence of a strong strategic coordination among the actors along the supply chain to which they belong, has negative impacts on the **competitiveness** and **efficiency of the entire** national production system: smaller enterprises have lower investment capacity (also in R&D activities) and **productivity** than medium and large companies.

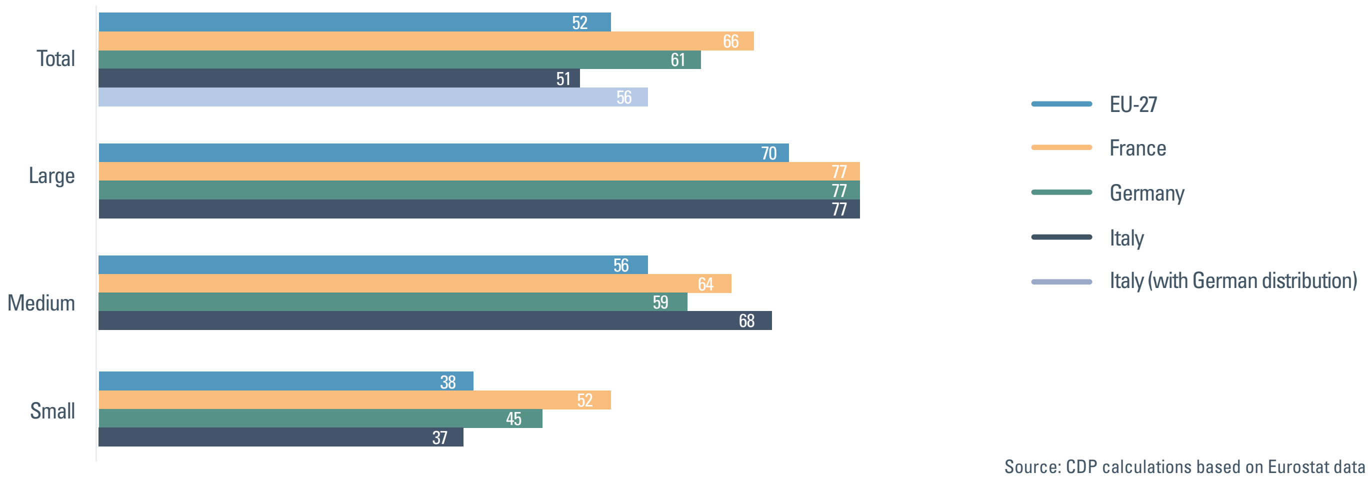
In particular, with reference to the issue of **company's size**[6] and productivity (measured as value added per employee), it should be noted that in Italy:

1. the **productivity of enterprises** is equal on average to 51 thousand euro per employee, this value being much lower than that of Germany (61 thousand euro) and France (66 thousand euro);
2. **small enterprises** have a productivity that is almost 8 thousand euro (37 thousand euro compared to 45 thousand euro) lower than that of German enterprises and about 15 thousand euro lower than that of French enterprises of similar size (52 thousand);
3. **medium-sized** enterprises are **more productive than those in Germany and France** (68 thousand euro compared to 59 thousand euro in Germany and 64 thousand euro in France). However there are far too few medium-sized companies in Italy (about 24 thousand, 0.6% of the total compared to, for example, 2.2% of the total in Germany) and therefore they are unable to influence in a significant way the average productivity of the entire economy.

By applying the **distribution of medium-sized enterprises of Germany to the Italian entrepreneurial fabric** (and therefore assuming that a share of enterprises makes a leap in size, moving from a small to a medium business) and maintaining steady the productivity thresholds for Italian companies, Italy would benefit of an i**ncrease in total productivity of about 10%**, which would bring **the average productivity per employee to 56 thousand euro, thus halving the productivity gap with German enterprises** (chart 3). In other words, 70 thousand more medium-sized companies would be enough to completely change the narrative on low Italian productivity.

[6] The size classes of the enterprises are defined as follows: micro, from 0 to 9; small, from 10 to 49 employees; medium, from 50 to 249 employees; large, over 250 employees.

CHART 3 - AVERAGE PRODUCTIVITY OF ITALIAN ENTERPRISES AND COMPARISON WITH GERMANY, FRANCE, EU27 (€ THOUSAND, VALUE ADDED PER EMPLOYEE)



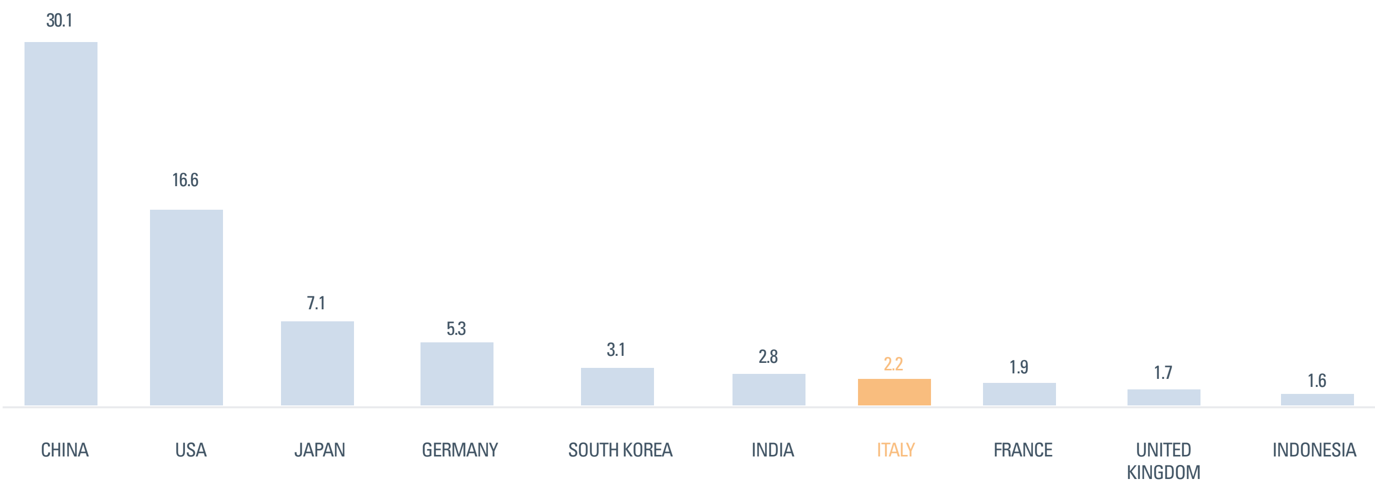
Source: CDP calculations based on Eurostat data

In **a context of global competition**, it is crucial for enterprises to **grow in size** and **strengthen strategic coordination** with other players along the supply chain, so that they can benefit from economies of scale and greater resilience to external shocks.

This is especially important nowadays, after the Covid crisis and in light of the emerging changes affecting the global scenario following the Russia's invasion of Ukraine. These factors are **affecting particularly small businesses**: they need to have access to the right amount of financial and human resources to innovate and to **increase the adoption of digital technologies**. Within the changing global scenario, firm **growth become an essential lever for the survival and future development of businesses**.

With regard to productive specialisation, Italian manufacturing ranks seventh in the world for value added, with a global share of **2.2%** of global manufacturing value added (chart 4).

CHART 4 – RANKING OF THE MOST INDUSTRIALISED COUNTRIES (SHARE OF MANUFACTURING VALUE ADDED, 2020)



Source: CDP calculations based on IHS- Global Insight data

The highest share of value added produced in Italy is concentrated in a number of sectors for which the country has a role of global leadership, like **machinery**, **metal products**, **food**, **textiles and clothing.** These industries, indeed, account for almost 50% of the value added produced in Italy.

The strength of the Italian industry is also supported by a **high degree of production diversification,** which constitutes an important driver of economic development[7]. **Italy ranks third in terms of production diversification after China and the USA**[8]. and it is the most diversified country with respect to **manufacturing exports**, ahead of Germany and the USA[9].

Nevertheless, the Italian economy **lags behind with respect to the more technology-and knowledge-intensive sectors**. It is a critical issue that reflects an **industrial structure where there are few large enterprises able to bear the costs and risks of investments in research activities**, More generally, it also mirrors some of **the deficiencies of the Italian system of knowledge creation and dissemination** (related to schools, universities and research centres). Despite the slight increase in recent years, R&D expenditure undertaken by Italian enterprises is just under 1% of GDP and remains much lower than that of EU companies (about 1.5%) and German companies (over 2%)[10].

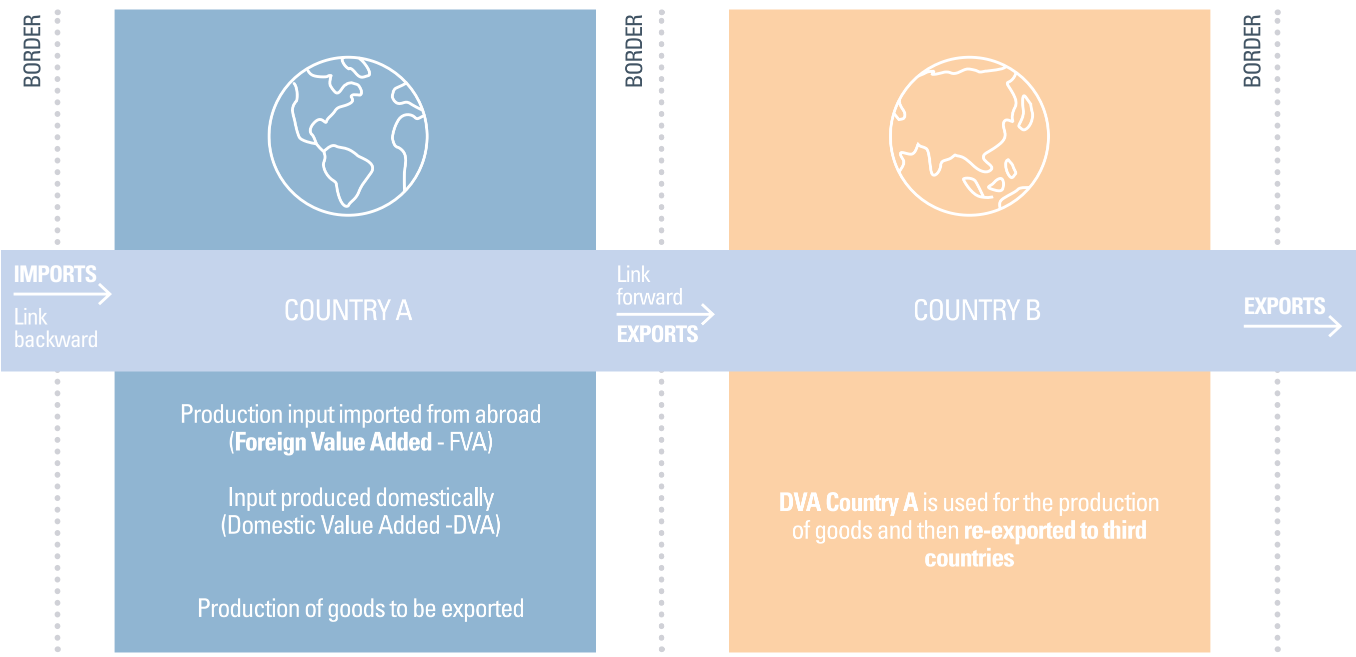
With reference to the **number of patent applications submitted** to the European Patent Office (EPO), Italy holds a **marginal position in knowledge-intensive sectors**, which play a crucial role in the global technological competition: **computers** (0.7% of the total applications submitted), **semiconductors** (1.4%), **biotechnologies** (1.5%) and **pharmaceuticals** (2.1%)[11]. The consequences of this lag are not confined to the weakness of these specific sectors, but spread throughout the economic and social system – given the pervasive nature of these enabling technologies – and limit their potential.

1.2.2 Positioning in the GVCs and attractiveness of the economy

Italy is **particularly interconnected within the GVCs** and its participation has progressively increased over the years. According to the latest data available, **more than 40% of Italy's total exports consist of goods produced within the GVCs.**

In that context, Italy occupies an **intermediate position**, with both strong backward and forward linkages (figure 1). On the one hand, the **use of foreign intermediates in Italy's exports accounts** for more than 23% of total exports, while, on the other hand, the use of Italian intermediates in other countries exports' represents more than 19% ot total exports.

FIG. 1 – EXPORTS RELATED TO GVCS (% OF TOTAL EXPORTS)

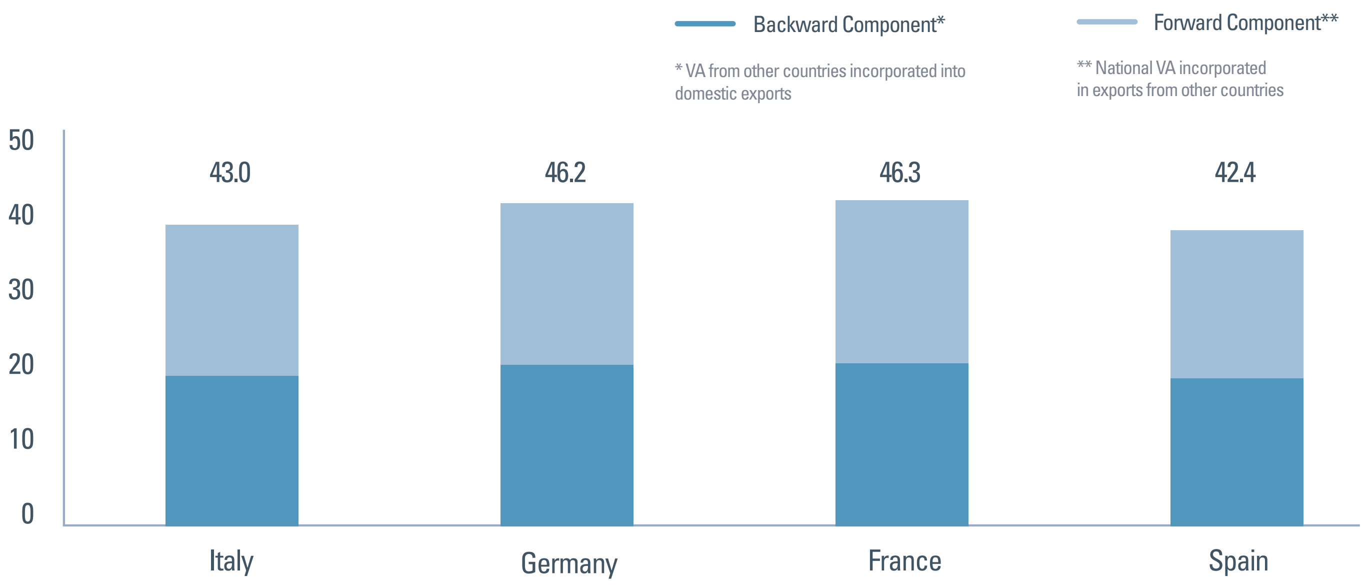


Source: CDP calculations

[7] See Imbs and Wacziarg, 2003; Hausmann and Hidalgo, 2010; McIntyre et al., 2018.
[8] See Romano L. and Traù F., Italian industry and productivity. Going beyond the mainstream view, in L'Industria, 2020.
[9] Ibidem.
[10] Source Eurostat, data for 2020.
[11] Source European Patent Office, data for 2021.

However, **in comparison to France and Germany, Italy exhibits lower levels of participation in GVCs**. This is partly due to the configuration of the Italian production fabric, which is characterised by a relatively strong presence of small and medium-sized enterprises, which **largely use domestic inputs in their production processes** (chart 5).

CHART 5 – EXPORTS RELATED TO GVCS (% OF TOTAL EXPORTS)



Source: CDP calculations based on OECD (TiVA) data

Compared to other advanced European economies, Italian enterprises have in fact **maintained a relatively large share of the production** of goods and services **within national borders**: about **71% of exports consist of value added actually produced in Italy**, a larger share than that of France, Spain and Germany[12].

Moreover, **Italy represents a central node of the European production network** as a supplier of intermediate and final goods and services. To date, **Italy ranks sixth in the world in terms of exports to other European countries** (with 270 billion euro of exports in 2021)[13].

50% of the foreign inputs used to produce domestic goods for exports are imported from Europe (backward links), and about 65% of the Italian value added incorporated into goods of third countries is exported by other European economies (forward links).

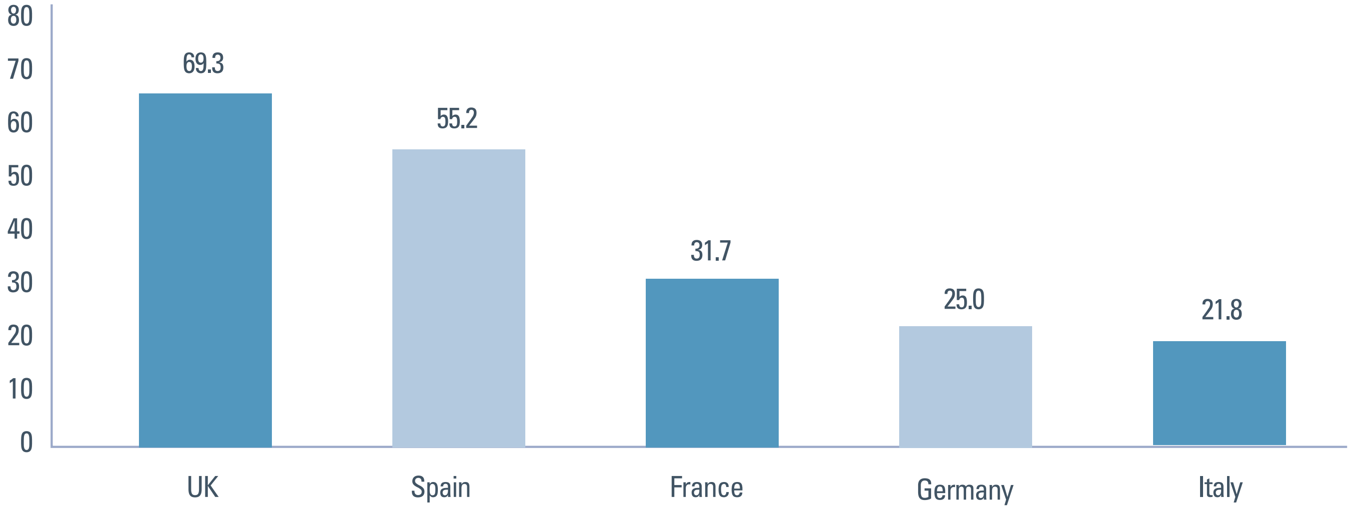
More specifically, the exports of Germany and France contain 6.4% and 3.6% of the total Italian value added, respectively. Also through these economies the Italian value added reaches the most important non-EU markets (USA and China) and the other member countries[14].

In this context, fostering the attraction of **foreign investments** could represent a strategic initiative to improve **Italy's position within GVCs,** with positive impacts in terms of **competitiveness and growth.**

Though having the **economic potential to be a very attractive country**, in fact, Italy has a lower volume **of foreign direct investment** (FDI) **than the other major European economies** (chart 6).

[12] Source Asian Development Bank data, data referring to the latest available data (2019).
[13] Source Eurostat data.
[14] See note 12.

CHART 6 – ITALY IS LESS ATTRACTIVE THAN PEERS (INCOMING FDI STOCK AS A % OF GDP, AVERAGE 2016-2020)



Source: CDP calculations based on UNCTAD data

The reasons for this **low attractiveness** are manifold: the **complexity of the regulatory framework**, which limits the ability of enterprises to reach the size needed to grow and compete; the efficiency and correct functioning of capital and labour markets; a high perception of corruption; the poor efficiency of the PA, in particular with respect to the needs of the small and medium-sized enterprises[15]. This greatly hinders the country's potential, considering that 1/3 of Italian exports depends on the 14 thousand foreign multinationals present across Italy.

1.2.3 Internationalisation and exports

Italy **ranks eighth globally in terms of exports** (after China, USA, Germany, the Netherlands, Japan, South Korea, Hong Kong and France) with a **global market share of 2,8%** (higher than the country's global share of GDP) and with a considerable weight on the GDP (around **30%**). All this despite the fact that the exporting enterprises represent just over 6% of manufacturing businesses and are almost all (90%) concentrated in the Centre North of the country. Increasing the number of exporting enterprises, especially from underepresented areas of the country, would allow Italy to further strengthen its role in world trade.

The position of Italian leadership is highlighted in the **Trade Performance Index (TPI)**[16], where **Italy ranks among the top three countries in the world** in **eight sectoral groups out of twelve**, **following Germany** (figure 2).

Moreover, Italy has consolidated its leadership over time as a global exporter, moving towards **products with higher unit value and better quality.** A significant part of the Italian production system has, indeed, undertaken a **qualitative upgrading** process to respond to the **growing price competition from emerging markets**.

This **repositioning strategy** has developed thorough **processes of vertical and horizontal diversification**, that is by improving the quality of the goods already produced and by producing more sophisticated products respectively[17].

[15] Doing Business developed by World Bank and Global Attractiveness are among the international surveys that summarise the competitive positioning of the different countries in terms of attractiveness. Index calculated by The European House – Ambrosetti. According to the latter, Italy ranks 18th out of 144 countries, with gaps recorded particularly in terms of efficiency and correct functioning of capital, goods and labour markets, within which it is positioned in the medium-low attractiveness range.

[16] The Trade Performance Index is a synthetic indicator developed jointly by WTO and UNCTAD that considers 22 elementary quantitative indicators that, for each country, provide the size of exports, their dynamics, their relationship with import flows, the degree of sectoral and market diversification, competitiveness and both sectoral and geographical specialisation; such synthetic indicator is calculated for 180 countries and for 14 different sectoral groupings. The chart only shows those in which Italy excelled before Covid.

[17] See the Scenari Industriali report, Confindustria 2020.

FIG. 2 – RANKING OF COUNTRIES IN TERMS OF EXPORTS (TRADE PERFORMANCE INDEX, 2020)

	2018			2006		
	1°	2°	3°	1°	2°	3°
Transports	GERMANY	CHINA	ITALY	GERMANY	FRANCE	SOUTH KOREA
Non-electronic machinery	GERMANY	ITALY	CHINA	GERMANY	ITALY	SWEDEN
Chemicals	GERMANY	CHINA	FRANCE	GERMANY	THE NETHERLANDS	FRANCE
Basic products*	GERMANY	CHINA	ITALY	GERMANY	CHINA	SWEDEN
Miscellaneous products**	GERMANY	THE NETHERLANDS	ITALY	GERMANY	ITALY	SWITZERLAND
Electrical machinery and household appliances	GERMANY	ITALY	FRANCE	GERMANY	ITALY	FRANCE
IT and consumer electronics	GERMANY	HUNGARY	SINGAPORE	SWEDEN	CHINA	SINGAPORE
Processed food	GERMANY	THE NETHERLANDS	FRANCE	THE NETHERLANDS	GERMANY	FRANCE
Products made of wood	GERMANY	FINLAND	SWEDEN	GERMANY	FINLAND	SWEDEN
Textiles	CHINA	ITALY	GERMANY	ITALY	GERMANY	TAIWAN
Clothing	ITALY	CHINA	FRANCE	ITALY	CHINA	ROMANIA
Leather, leather goods and footwear	ITALY	CHINA	FRANCE	ITALY	CHINA	VIETNAM

* Non-ferrous base metals, ferrous metals, ceramics, glass.
** Optical instruments, medical and photographic equipment, toys, precision instruments, weapons, ammunition and musical instruments.
Source: CDP calculations based on TPI data

Despite these strenghts, there remains a key weakness related to the low geographical diversification of Italian exports, which **are still heavily concentrated in mature economies**. This does not allow Italian exporters to fully seize the opportunities offered by fast-growing emerging markets with an expanding middle class. **In this respect, Asia is the geographic area where there are the best growth prospects**. However, Italy **still plays a marginal role in these markets** compared to other major European economies: less than 1% of the global imports of Malaysia and Thailand come from Italy, while 3.2% and 2.7% of the total goods imported by these countries, respectively, come from Germany.

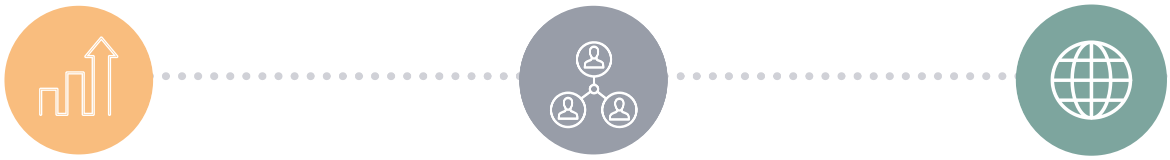
2. Areas of focus and strategic priorities

2.1 Enterprise growth

2.2 Consolidation and promotion of national and European positioning in GVCs

2.3 Development of exports and of internationalisation

2. AREAS OF FOCUS AND STRATEGIC PRIORITIES



1 ENTERPRISE GROWTH

2 CONSOLIDATION AND PROMOTION OF NATIONAL AND EUROPEAN POSITION IN GVCs

3 DEVELOPMENT OF EXPORTS AND OF INTERNATIONALISATION

- The gradual process of reorganisation of international production processes underway **offers an important window of opportunity for Italy and for national enterprises**, to rethink their role and strategic positioning within shorter and more regionalised value chains.

- In line with what has been developed at European level[18], **in defining the framework of the strategic supply chains** for the Italian production system, it was considered appropriate to examine **three interrelated dimensions**:

  1. the **economic and market potential of the supply chain**, i.e. its weight in the economy (current and/or potential in the future);
  2. the **degree of technological innovativeness**, i.e. the extent to which the value chain is based on the exploitation of strategic key enabling technologies[19] and major outcome of R&D such as autonomous driving or low carbon technologies;
  3. **societal and political importance** for Italy and for Europe, because the development of that value chain contributes to societal challenges and/or policy goals (e.g. climate change, ageing population) and is also instrumental to achieve the European objectives of greater sustainability, circularity, security, autonomy and technological independence.

- Based on these premises, it is possible to identify **10 strategic supply chains for the Italian production system**, organised into two separate clusters: the **distinctive Made in Italy value chains** and the **«value chains enabling the twin transition»** (figure 3)[20].

FIG. 3 – STRATEGIC SUPPLY CHAINS FOR THE ITALIAN PRODUCTION SYSTEM

DISTINCTIVE MADE IN ITALY VALUE CHAINS		VALUE CHAINS ENABLING THE TWIN TRANSITION
AGRIBUSINESS	METAL AND ELECTROMECHANICS	AEROSPACE
DESIGN, FASHION AND FURNITURE	CHEMICALS AND PHARMACEUTICALS	RENEWABLES, BATTERIES AND HYDROGEN
AUTOMOTIVE		
SHIPBUILDING	TOURISM, ART AND CULTURE	SEMICONDUCTORS

Source: CDP calculations

[18] European Commission (2019). "Strengthening Strategic Value Chains for a future-ready EU Industry", Strategic Forum for Important of Common European Interest.
[19] European Commission (2018). "Re-finding industry Report", Independent High-Level Group on Industrial Technologies
[20] The outlined scope is consistent with the strategic industrial policy guidelines defined at both national and European level. With reference to the national framework, the 10 supply chains identified coincide with those recently indicated by the Ministry of Economic Development (MISE) as strategic (Ministerial Decree of 13/01/2022) and therefore benefiting from the concessions set out in the Development Contracts (Directorial Decree of 25/03/2022) implementing certain measures of the PNRR (M1C2 - Investment 5.2, M2C2 – Investment 5.1 and Investment 5.2). In addition, the set of identified supply chains is consistent with that of the sectors of particular interest to European industrial policy strategies. They are all included in the 14 industrial ecosystems identified by the European Commission, and many of them have been the subject of specific support initiatives, such as industrial alliances and funds for Important Projects of Common European Interest (IPCEI).

- The areas identified are considered, according to a supply chain logic, to include **the entire production process, from upstream activities** (e.g. R&D services) **to downstream activities** (e.g. distribution, marketing, customer service, maintenance), which also represent – depending on the specific supply chain considered – the segments with the highest value added.

- The first cluster includes those sectors that **traditionally play a key role for the Italian economy**, guaranteeing its prestige and recognition on international markets. These **sectors have a considerable impact on the production system and their global demand has recorded positive average annual growth rates over the last decade**.

- This group of value chains includes all segments of the **primary sector** (agriculture, livestock, forestry and fisheries), **the core of the national manufacturing industry** (food and beverage industry; design, fashion and furniture; automotive; shipbuilding; metal and electromechanics; chemical and pharmaceutical) and the **tertiary sectors related to tourism, artistic and cultural activities**. Taken together, these seven supply chains account for one fifth of the Domestic Value Added and for more than four fifths of total exports (figure 4)[21].

FIG. 4 – THE "DISTINCTIVE MADE IN ITALY VALUE CHAINS"

	VALUE ADDED (weight of the supply chain on total economy, %)	EXPORTS	GLOBAL DYNAMICS (CAGR 2009-2019, %)
AGRIBUSINESS	4	9	PRIMARY SECTORS +4
CORE MANUFACTURING	11	72	MANUFACTURING +5
TOURISM, ART AND CULTURE	5	-	SERVICES +4
TOTAL	20	81	

	VALUE ADDED (weight of the supply chain on total manufacturing, %)	EXPORTS	GLOBAL DYNAMICS (CAGR 2009-2019, %)
FOOD INDUSTRY	11	8	+4
DESIGN, FASHION AND FURNITURE	14	15	+4
AUTOMOTIVE	5	8	+6
SHIPBUILDING	1	1	+1
METAL AND ELECTROMECHANICS	38	38	+5
CHEMICALS AND PHARMACEUTICALS	8	14	+4
TOTAL	78	84	

Source: CDP calculations based on ISTAT, WITS and UNWTO data

- The second cluster considered includes sectors that **reflect emerging transformational phenomena that are key** for achieving the European and national strategic objectives related to energy and digital transitions. These areas represent extremely promising production niches, but they are still marginal if compared to the national industrial ecosystem. More specifically:

  - **aerospace.** The innovative fields of application for **aerospace technologies** are manifold: from smart mobility to telemedicine; from precision agriculture to the monitoring of migration flows. This **sector has been expanding in recent years: around 40% of the currently operating satellites has been launched in 2020,** mostly by China and the United States. Italy could play an important role and it has developed an excellence at the international level in the field of R&D in this sector, ranking sixth in the world (after the USA, Russia, France, China, Japan) and second in Europe, in terms of investments to GDP[22];

  - **semiconductors**. As indispensable components of chips, they are essential inputs to create advanced applications in the most technology-intensive sectors such as communications, information technology, health and transport, **for which global demand is growing rapidly**. This is a field where Europe is highly dependent on foreign supplies, especially with respect to the most advanced chips. European semiconductor producers represent only 10% of world production and do not cover the highest value added segments of the value chain which are those related to the design and manufacturing phases. Despite having made significant progress in the sector in recent years, with a promising increase in production capacity and several highly specialised companies, Italy remains largely dependent on foreign supplies to meet its national demand;

[21] Istat, data for 2019.
[22] Osservatorio Space Economy, La Space Economy per la competitività e lo sviluppo sociale del Paese, 2022.

- **renewables, batteries and hydrogen**[23]. In the field of **renewable technologies**, Europe currently has fairly limited, if not completely insignificant, global market shares (as in the case of photovoltaic panels)[24]. Although European industry lags substantially behind in these sectors, Italy has a good competitive position, compared to the other 26 EU countries, for some renewable technologies (so-called 100% renewable energy technologies), such as speed multipliers and hydraulic turbines[25]. However, at the national level, the relevance of renewable technologies is still limited when compared to the entire electro-mechanics industry, with a share equal to just 1% of total production value and 2% of total exports[26].

  Alongside the subset of core renewable technologies, among the so-called auxiliary technologies (i.e., cross-cutting solutions to accelerate the green transition) batteries are particularly important and strategic. On the one hand they play a key role in enabling the integration of renewable sources within the electric system and on the other hand they strongly contribute to the electrification of mobility. The battery market is **growing quickly**: in this field 2010-2019 global exports more than doubled, with an average annual growth rate of 9%[27]. However, Europe is still a marginal producer in this area, with a global market share of around 3% in 2019, compared to 85% of Asian countries[28]. The sector is still in a early stage of development also in Italy. Within the broader field of technologies and components for renewable plants, indeed, it accounts for a little more than a third and a quarter of the value of production and exports, respectively. Furthermore, dependence on foreign supplies for batteries remains very high[29].

  The **hydrogen** supply chain is closely linked to that of renewables in two ways: firstly, the production of "green" hydrogen is directly related to the intensification of the contribution of the renewable energy sources in the power generation; and secondly, hydrogen is a storable energy vector that can help overcoming the variability and intermittence problems of wind and solar power supply. **Over the next 30 years, global hydrogen production is expected to grow significantly**, from a share close to zero of global energy demand to a share between 12% and 22%[30]. In this context, although Italy has not major industrial players, it can rely on a set of advanced industrial capabilities connected and/or instrumental to the development of this sector. Specifically with regard to the production of electrolysers and related components, Italy ranks second (behind Germany), with a share of just over a quarter (25.2%) of EU production[31].

  The strategic importance of these sectors is further underlined both by the numerous Important Projects of Common Interest (IPCEI) launched and by the amount of resources allocated under the PNRR, which highlight their transformative potential for the national economy. For the aerospace sector, in the period 2021-2026, a total of approximately 4.5 billion euro has been allocated (of which 2.3 billion euro of resources provided for by the PNRR and the supplementary fund and the remaining loans allocated under other national funds). Renewable technologies and storage systems are among the sectors receiving the subsidies provided by the Development Contracts (directorial decree of 25/03/2022), implementing the investments set out in the PNRR (M2C2 – Investment 5.2), with 1 billion euro of resources allocated (of which 400 million euro for photovoltaic technology, 100 for wind and 500 for batteries). Furthermore, two IPCEIs have been launched to support Italian companies investing in the batteries' sector, for a total amount of 1 billion euro. Finally, for the development of the hydrogen value chain, the PNRR provides 450 million euro, of which 250 allocated under the IPCEIs. Italian enterprises were also awarded over 1 billion euro under the first IPCEI on hydrogen, which was given the green light by the European Commission to finance 5.4 billion in public aid.

- For the supply chains identified above and in light of the strenghts and gaps underlined, it is possible to define **three areas of focus:**
  - support for enterprise **growth**;
  - consolidation and promotion of **national and European positioning in the GVCs;**
  - support for **exports** and **internationalisation**.

[23] For an analysis of the relevance of these sectors for energy transition objectives, see the related Sectoral Strategic Guidelines. In addition, the same document highlights the importance of supporting industrial development projects in the field of alternative energy vectors (i.e. biogas).

[24] In 2020, Europe produced only 3% of the world's photovoltaic modules, compared to 67% made in China. On the other hand, the situation regarding the development of wind turbines is better: in 2021, three European companies were among the top 10 producers in the world, with a share of about 30% of the total installations worldwide, compared to 45% made by the 6 Chinese companies in the same ranking. Sources: Fraunhofer Institute for Solar Energy Systems, ISE, Photovoltaics Report (2022) and BloombergNEF, 2021 Global Wind Turbine Market Shares report (2022).

[25] The methodology behind identification of the perimeter of renewable technologies is described in the following reports and insights: "Le energie rinnovabili: sfide e opportunità per il manifatturiero italiano", written by Prometeia and Intesa Sanpaolo together (2022), "Transizione energetica: la filiera delle tecnologie delle rinnovabili in Italia", by the Intesa Sanpaolo Research Department Sanpaolo (2021), "Libro bianco per uno sviluppo efficiente delle fonti rinnovabili al 2030" published by Confindustria (2018).

[26] Istat and Eurostat, data for 2019.

[27] UNComtrade, data for 2019.

[28] European Commission, Report on the Implementation of the Strategic Action Plan on Batteries: Building a Strategic Battery Value Chain in Europe (2019).

[29] See note 26.

[30] IRENA, Geopolitics of the Energy Transformation, 2022.

[31] The European House-Ambrosetti, H2 ITALY 2050, 2020.

2.1 ENTERPRISE GROWTH

- **Two strategic lines of action** are outlined, linked to the different **growth strategies. These strategies are not to be regarded as competitive ways to achieve the company's growth objectives, but rather as complementary. The right combination of such strategies during the various phases of the business life cycle** is fundamental for companies to grow in size. In particular, two lines of action have been identified:

  - **support for the "internal" growth** of enterprises, through **development projects** undertaken during different phases of the business life-cycle: for example, **investments to expand production capacity** of existing production lines, the **set up of new prodution, logistical and commercial units**, or new subsidiaries and the financing of startups and innovative SMEs. Particularly strategic in this area is **supporting leading companies along the supply chain**, i.e. those that are at the centre of one or more productive ecosystems and play a key role in orchestrating and coordinating other companies within them. Targeted support for the expansionary investments of these pivotal players has a **a twofold objective**: on the one hand, **it encourages the creation and consolidation of national and European industrial champions** and, on the other, **it might activate, indirectly, growth processes in other enteprises linked to them through buy- and supply-relationships**;

  - **support for "external" growth**, both through M&A and through forms of coordination among enterprises. More specifically:

    - **acquisitions, mergers and joint ventures**. Supporting aggregation projects of this type, by creating strategic synergies between similar or complementary innovative companies / startups operating in the same sector, aims **to build up large players, capable of establishing themselves nationally and internationally in both economic and financial terms**. Over the years, **mergers and acquisitions** (M&A) have become established in Italy as **key instruments to support the process of enterprise growth and consolidation in many different economic sectors**. **In 2021**, in the wake of the sudden recovery of economic activities after the first wave of Covid-19 pandemic, **the Italian M&A market saw over 1,200 finalised transactions** (best result in terms of volumes from 1988 to date) **for a total value greater than 100 billion euro**, higher compared to previous years[32]. However, the results for the first half of 2022 show a decline, mainly due to the slowdown in the activities of industrial buyers linked to **the current uncertainty of the global context** and the high volatility of capital markets[33]. On the other hand, the Venture Capital (VC) market continued to grow, from around 600 million euro in 2019 to 1.9 billion euro in 2021, exceeding 1 billion euro in the first half of 2022. Precisely in this context**, initiatives supporting enterprise growth by external lines play an increasingly relevant role**;

    - **consortium agreements, strategic alliances, interprofessional and producer organisations and supply chain contracts**, to facilitate the vertical and horizontal integration of value chains and the pursuit of common growth objectives. These organisational models allow for the creation or consolidation of a network through which **several smaller enterprises**, - while maintaining legal and operational autonomy[34]-, **coordinate their activities to benefit** from a greater critical mass and, more generally, **from the scale and scope economies typical of medium-sized and large companies.** Through these agreements, enterprises can benefit from **sharing investiments, skills, tools, machinery, markets, distribution and supply channels** without having to acquire these assets independently, thus reducing both related costs and risks. Given the fragmentation of the Italian production system, the implementation of structured inter-company collaboration agreements is a **key tool that can allow smaller enterprises to strengthen their competitiveness**, especially in foreign markets, and respond effectively to the new challenges arising from the current reorganisation of international production processes, climate change and the energy and digital transition (so-called twin transition).

[32] KPMG M&A Report, 2021.
[33] KPMG M&A report, first half of 2022.
[34] The importance of maintaining independence is an extremely important cultural aspect of the Italian business system, of which it is a peculiar feature. Also for this reason, supporting these forms of collaboration between enterprises as a growth instrument is of high strategic importance for Italy.

2.2. CONSOLIDATION AND PROMOTION OF NATIONAL AND EUROPEAN POSITIONING IN GVCs

- **Two strategic lines of action** are outlined, with the objective of strenghtening the role of Italy and Italian enterprises within the process of regionalisaton of strategic production chains at European level:

  - **support for greenfield investments** aimed at increasing the number of companies that reorganise their activities from a more regionally perspective (including those investments linked to **reshoring and nearshoring initiatives** of supply chains and/or production facilities of enterprises already operating within GVCs). Despite the **complexity and high costs associated with this type of initiatives** (especially in the case of reshoring or nearshoring entire plants and production lines, rather than just supplies), the choice **to reorganise the activities of the value chain at a more local level can guarantee a number of advantages for enterprises**. These include 1) **the "made-in" effect**, i.e., in the specific case of reshoring, this relates to the possibility of building on the "Made in Italy" label, perceived abroad as synonymous with high quality materials and processes, 2) **strengthening the brand**, through greater **environmental and social sustainability** of activities, 3) **greater control** over the production process, 4) **improved** quality of **products and pre and post-sales services offered to customers**, 5) **the greater proximity to R&D activities** to promote innovation processes, 6) **lower transportation lead times and costs,** 7) and, with reference to this last point, **greater productivity**[35]. It is important to underline that support for reshoring processes in Italy, in particular, must be contextualised within the broader range of **initiatives aimed at attracting investments from both Italian and foreign operators**. In this perspective, the objective is therefore to improve the attractiveness of Italy's territories and **facilitate, without distinction, the processes of return, entry and consolidation** in the country of the activities of enterprises with both Italian and foreign control. The recent creation of a Fund to promote foreign direct investment, together with the establishment at the Ministry of Economic Development of a **technical secretariat to support the Interministerial Committee for the Attraction of Foreign Investments (CAIE)** is an important step in this direction, aiming at developing some guidelines to facilitate the spontaneous return of productive activities to Italy and to attract and consolidate foreign investment with a high impact in terms of economic growth, employment and contribution to innovation;

  - **support for the participation of enterprises in European projects**[36], with the aim of strengthening **national and European competitiveness** in strategic sectors by increasing synergy and integration between member countries' value chains. The involvement in programmes of this type represents **an opportunity for Italian enterprises, of all sizes, to play out a leading role** especially in innovative and emerging sectors (e.g. aerospace, semiconductors and microelectronics, renewable technologies, batteries, and hydrogen) that to date represent **promising production niches that, however, are still marginal** within the Italian economy as a whole. These value chains reflect current emerging and transformative trends and **their development and consolidation at European level is essential to achieve the EU's objectives** of twin transition, greater independence from foreign supplies and technological sovereignty.

2.3. DEVELOPMENT OF EXPORTS AND INTERNATIONALISATION

- **Three strategic lines of action** are outlined to support the needs of enterprises related to exports and internationalisation:

  - **support for direct sales abroad**, through tools and initiatives that promote access to international markets by non-exporting enterprises and strengthen the presence of those companies that already operate abroad, with the aim of **contributing to the increase and consolidation of the** relative **export shares**. Initiatives aimed at consolidating the presence of companies in more mature markets should be combined with actions to support the export diversification in emerging economies, which, due to their dynamism, offer greater margins for growth, albeit at higher risks;

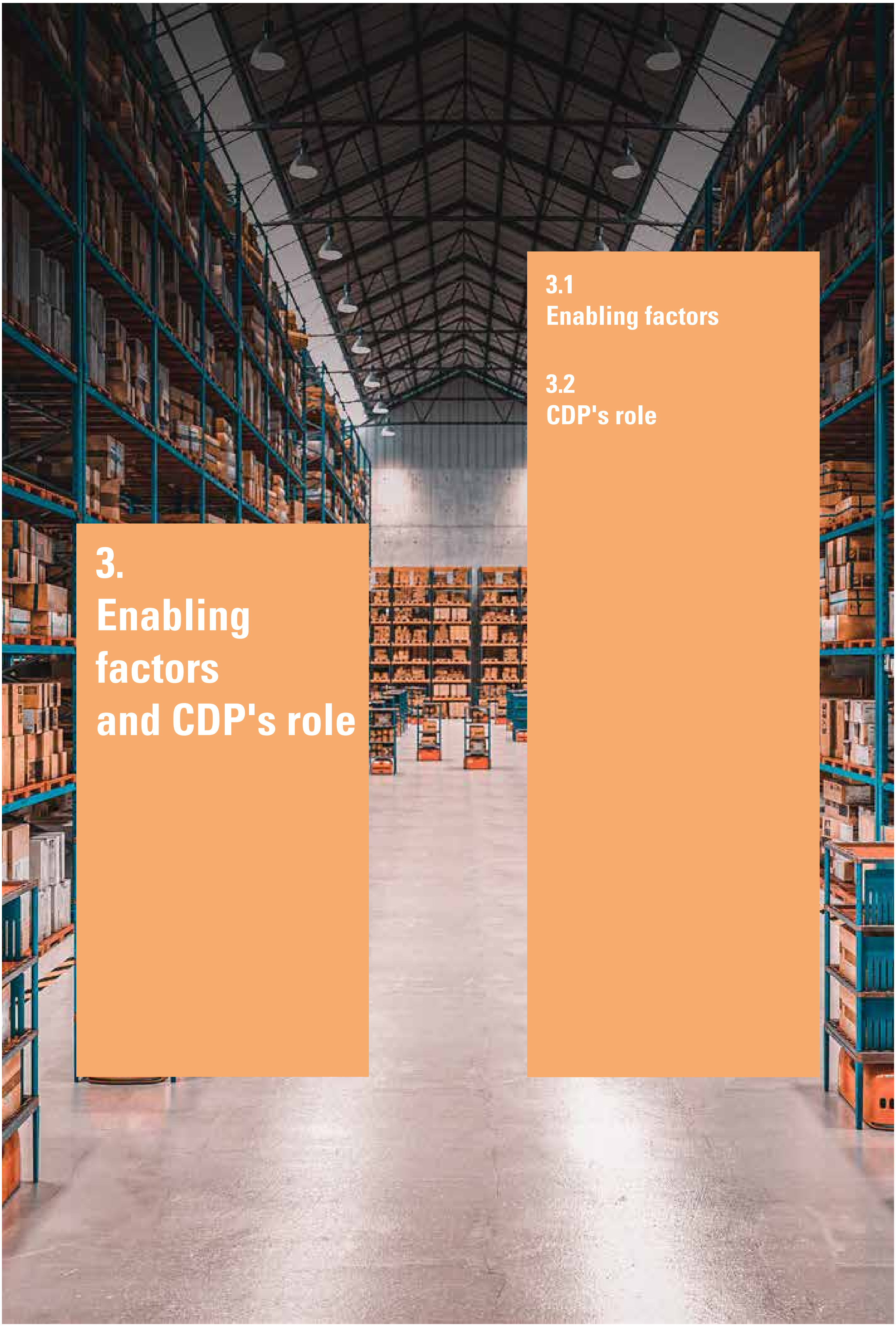
  - **support for the adoption of digital solutions for boosting exports and internationalisation**, the creation of **e-commerce websites or apps** in multiple languages, the participation to **digital platforms** and multi-brand online channels and the implementation of **marketing and digital advertising strategies and campaigns** appropriate for the relevant supply chain. These tools can actually allow enterprises to expand their customer portfolio, explore new target markets by diversifying the risk, test new products on the market and select their specialised suppliers more easily. In recent years, **there has been an expansion**

[35] Polytechnic University of Milan and ALSEA (2021), "Scenari del commercio mondiale e il ruolo dell'Italia: trend in atto, catene globali del valore e potenziale dell'e-commerce". Barbieri et al. (2022), "Processi di reshoring nella manifattura italiana", Rivista di politica economica, 79-114.
[36] Such as the Important Projects of Common European Interest (IPCEI).

of digital exports in Italy, which in 2021 grew by 15% compared to 2020, both for end customers' products (b2c) and for intermediate goods (b2b), reaching 15.5 and 146 billion euro respectively[37]. This positive trend represents a growth **opportunity especially for smaller companies** with limited financial capacity relative to medium and large companies: by adopting these digital solutions at relatively low costs they can more easily access foreign markets and enter GVCs, both upstream and downstream. In this perspective, it is crucial to **intensify support initiatives and actions aimed at increasing the presence of enterprises on the main e-commerce channels**;

- **support the development of international projects**, by promoting investments in foreign markets, along all the different phases of the initiative, from planning to feasibility assessment, all the way to the implementation. Actions supporting internationalisation may concern, without distinction, greenfield investments (i.e. creating new commercial branches), brownfields (i.e. expanding and converting assets already owned by the company) and acquisitions. Particularly relevant are the initiatives to support international investments directed to downstream integration of the supply chain, thus developing and consolidating the distribution and marketing network, through which enterprises can enhance their presence in foreign markets and ensure pre- and post-sales assistance and services to their clients, improving the commercial offer. More specifically, in some supply chains (e.g. design, fashion and furniture and, in the medium term, agribusiness), the control of physical retail distribution channels (in addition to the online ones mentioned above) constitutes one of the main competitive advantages for enterprises, allowing them to reach the different market segments through the marketing of their own brands and the licensed ones and due to a variety of differentiating elements for consumers. In other supply chains (e.g. metal and electromechanics, shipbuilding), the development of an international distribution and marketing network is equally strategic for the provision of sales services (financial and insurance) and after-sales services (assistance, maintenance, refitting) with a high value added. Also in this case, **supporting the international development projects** undertaken by leading companies within the supply chain is particularly strategic, because through these initiatives also suppliers and sub-contractors of these key enterprises might access and/or strenghten their presence in foreign markets.

[37] Osservatorio Export Digitale, Polytechnic University of Milan (2022), "L'export digitale sfida le consuete e le nuove incertezze".



3. Enabling factors and CDP's role

3.1
Enabling factors

3.2
CDP's role

3. ENABLING FACTORS AND CDP'S ROLE

3.1. ENABLING FACTORS

- The effective pursuit of the strategic priorities outlined above is linked to **five cross-cutting enabling factors**:

1. **simplification and rationalisation** of rules and procedures that **facilitate corporate activity** in Italy, creating a **business environment conducive** to attracting and consolidating productive investments, as well as promoting and supporting new innovative entities in the territory. Improving the **efficiency of the national bureaucratic-administrative system** is an essential enabling factor to increase the rate of dynamism of the business ecosystem and allow enterprise to grow and compete, also in foreign markets, to boost productivity and to attract foreign investment[38];

2. improving **business culture** through training and professional development programmes aimed at strengthening **managerial skills** in the areas of governance, extraordinary finance transactions, acquisitions, effective succession planning and management, exports and internationalisation;

3. an appropriate **development of the logistics and transport sector** that strengthens the competitiveness of the national productive fabric, facilitating access to foreign markets for Italian enterprises, and positioning Italy as a key European entry point of freight flows from non-EU markets[39];

4. the promotion of a support system for R&D activities, especially for more innovative and emerging sectors, to develop new technologies, products and services and to **strenghten the digital and technological capabilities of enterprises**[40];

5. the development of the **capital market**, with the expansion of the range of debt and equity instruments to support the national production system, to adequately assist Italian enterprises in their growth and internationalisation processes along the entire business life cycles[41].

3.2 CDP'S ROLE

- In this context, CDP can contribute to bridging the gaps highlighted, intervening **additionally and complementarily** with the market, taking account of the **critical issues** that characterise the national productive fabric as a whole, such as:
  - **high fragmentation**, with a predominance of micro and small enterprises characterised by a **higher average degree of risk** due to their limited investment and R&D capacity and their lower productivity;
  - **limited attraction of productive investments from abroad**, especially of those multinationals operating in those sectors that are considered to be of strategic importance in light of the current global trends;
  - **lag in high-tech segments and in developing the Venture Capital market**, which not only affect the most technology-intensive sectors, but also the economic and social system in general, given the pervasive nature of these enabling technologies[42];
  - **limited exposure to emerging foreign markets**, which are characterised by higher risk profiles and/or entry barriers, which may discourage traditional credit channels from supporting businesses.

[38] In recent years, the government has taken a series of measures to launch a major process of cutting red tape in the country. In this regard, worth remembering is the most recent, namely the Simplification Decrees of 2020 (Decree-Law 76/2020), 2021 (77/2021) and 2022 (73/2022), which introduce a series of organic measures aimed at supporting the production system through more streamlined and faster procedures (e.g. simplifications in the field of public contracts and construction, speeding up administrative procedures, elimination of bureaucratic obligations, redefinition of responsibilities concerning the abuse of office and damages for public treasury).
[39] For further details, please refer to the Sectoral Strategic Guidelines for Transport and Logistics Nodes.
[40] For further details on the relevant issues in this regard, please refer to the documents of the Sectoral Strategic Guidelines for Technological Innovation and Digitisation.
[41] For a detailed analysis of the Capital Market, see the related Sectoral Strategic Guidelines.
[42] It should be noted that the relevant issues in this regard, such as support for innovative start-ups, the innovation ecosystem and the processes of technology transfer from the academic world to the industrial world, will be discussed in detail in the document of Sectoral Strategic Guidelines for Technological Innovation.

- In particular, CDP may act – also depending on the degree of autonomy it may enjoy in the various markets/sectors and the specific characteristics of the different counterparties – in order to:

  - **contribute to bridging the gap in investments and loans** in sectors and territories where operators are unable to mobilise adequate volumes of resources, including through the use of **blended finance** instruments and in **complementarity with already allocated public resources**;

  - **promote investments** in areas that require **long-term commitments especially in high-tech and innovative segments**, acting as a catalyst for other parties' resources;

  - **identify leading companies within value chains and financing their development projects**, in order to promote **the consolidation of productive ecosystems**;

  - **encourage the establishment and growth of innovative companies (startups and SMEs)**, also through the **activity of Venture Building** – creation of innovative companies that can innovate the relevant chain and respond to the specific needs of the companies that belong to it.

- To specifically assess the relevance, priority and strategic coherence of actions in the areas of focus identified, CDP is inspired by **additionality and complementarity** criteria, identifying the most appropriate operational instruments based on the characteristics of the counterparties (type, geographical location, etc.) and the characteristics of the sector (e.g. degree of maturity, profitability).

4. Recommendations

4. RECOMMENDATIONS

For each of the areas of focus, the **specific strategic guidelines** to **prioritise** (although not exhaustively) CDP actions in the field of **Support to Strategic Supply Chains** are summarised below.

AREAS OF FOCUS	ENTERPRISE GROWTH	
STRATEGIC PRIORITIES	A.1	Supporting **development projects** undertaken by enterprises **along "internal lines"**, with particular focus on the **investments** made by the **leading companies in the supply chain** and **startups with particularly innovative products/services**
	A.2	Promoting aggregation **between companies** through acquisitions, mergers and joint ventures as well as through processes of vertical and horizontal integration of the supply chains

AREAS OF FOCUS	POSITIONING IN GVCS	
STRATEGIC PRIORITIES	B.1	Facilitating the **attraction of greenfield investments**, also through **reshoring and nearshoring initiatives**
	B.2	Supporting the **participation** of enterprises **in European projects**; especially in the most innovative and emerging supply chains

AREAS OF FOCUS	EXPORTS AND INTERNATIONALISATION	
STRATEGIC PRIORITIES	C.1	Supporting direct sales **abroad, facilitating access to foreign markets** by non-exporting enterprises and strengthening the presence of those companies that already operate abroad
	C.2	Support the **adoption** by enterprises **of digital solutions** that are useful for exports and internationalisation
	C.3	Supporting the **development of international projects**, with particular focus on those undertaken by the **leading companies in the supply chain**

cdp