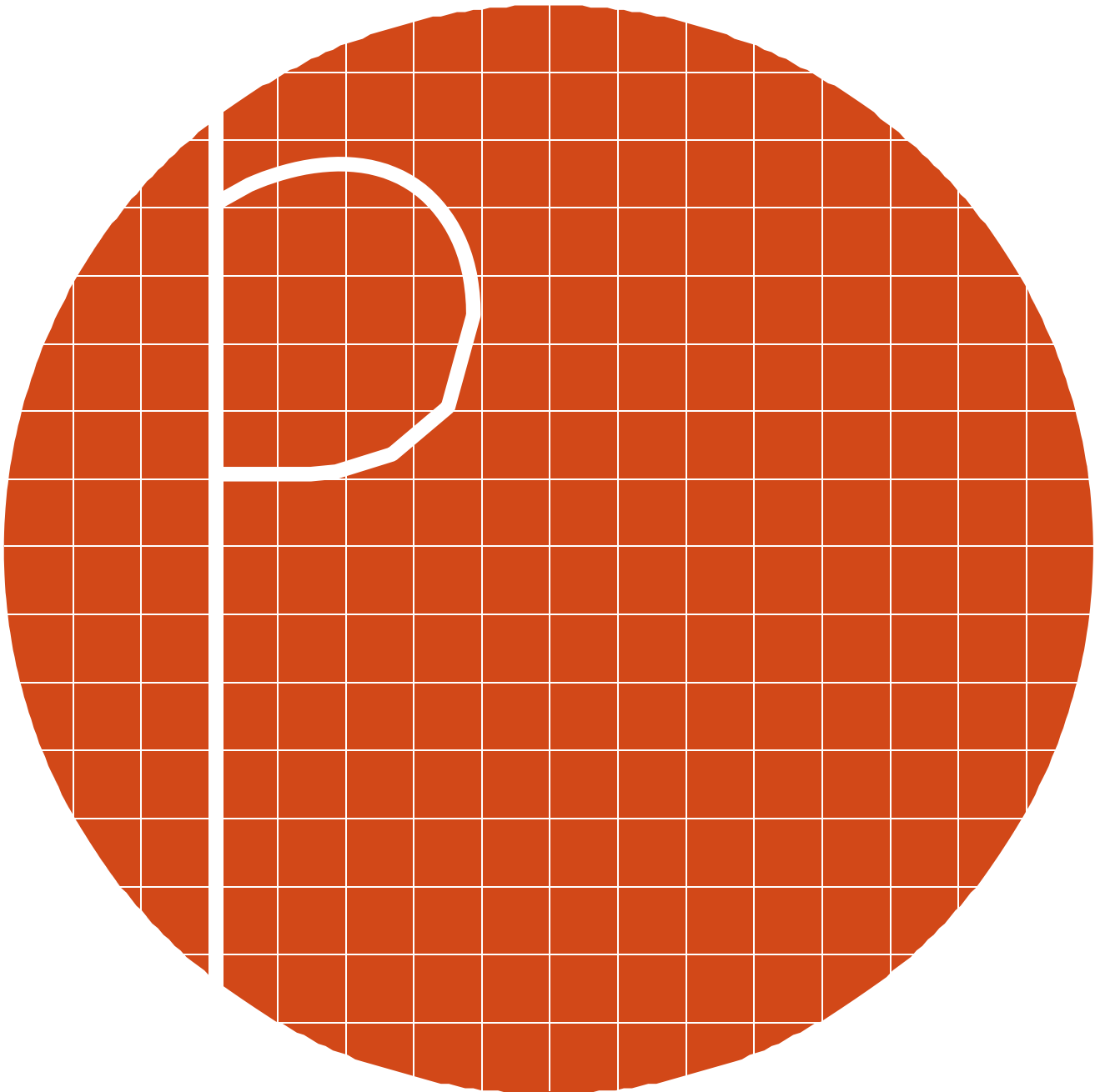


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## **Paper: Infrastructures, intermodality and innovation**

The cost for Italy of the logistics gap, towards a new intermodal and digital paradigm





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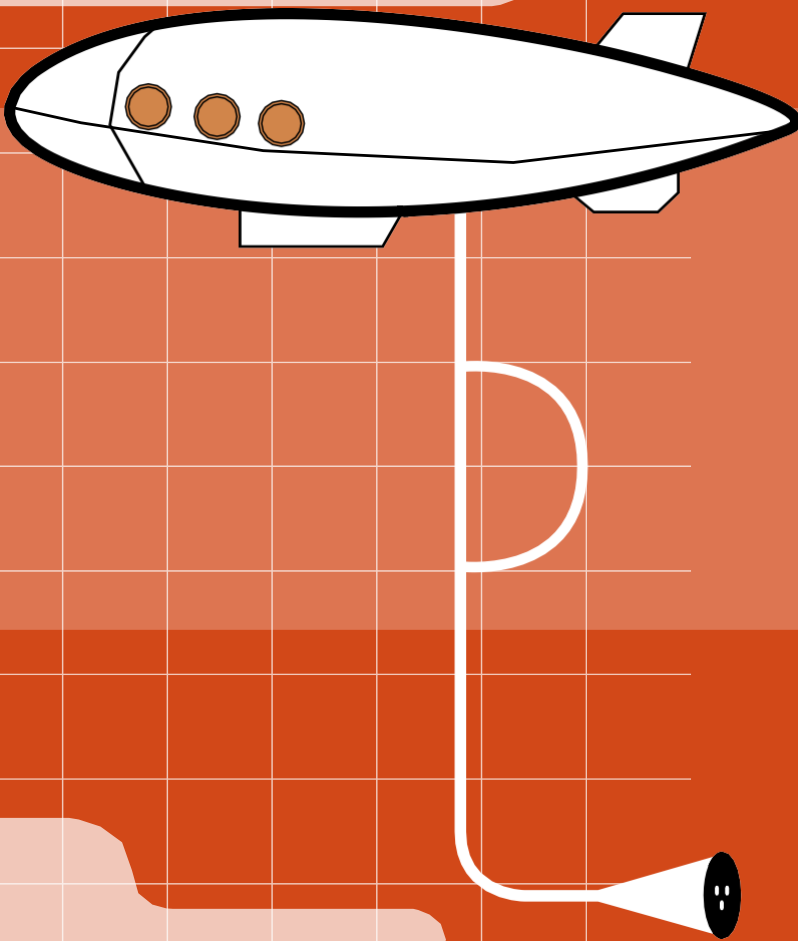
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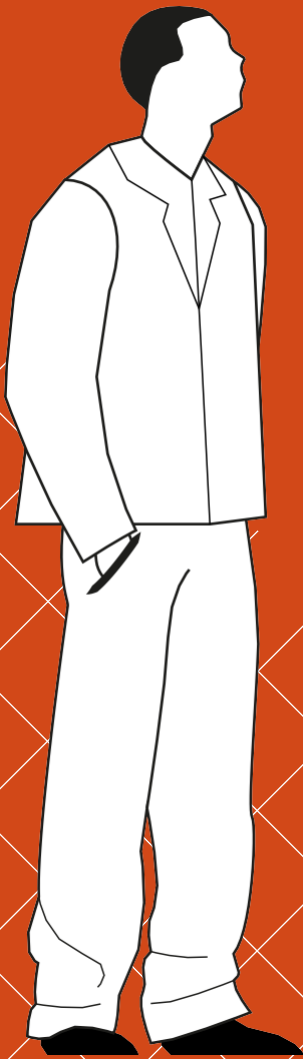
That's right, Italy is suffering from a logistical delay which limits the performance recorded on foreign trade. A gap that particularly affects certain sectors such as agri-food and some territories such as the South. But let's try to understand more.

We often hear about the logistics gap in our country. What is it about? And what are the possible remedies?



## Abstract

- Despite the exponential increase in agri-food exports to foreign markets with the record value of 61 billion Euro reached in 2022, the analysis of data on the country's logistical development still shows a large unexpressed potential.
- According to estimates based on Istat and Sace data, Italy's logistical delay cost over 93 billion Euro in lost exports in 2022, equal to 15% of the overall value of national exports. The agri-food sector is one of the most affected with 9 billion Euro in losses.
- In Italy, 87% of goods moved travel by road with values that place our country among the highest ranking in Europe. The incidence of road transport in Italy is also higher than the EU average of 77%.
- Although Italy's orographic conformation shows a clear disadvantage compared to other European countries, the logistics model is still largely unbalanced, with the railway network, for example, stopping at just 13% of goods handled. The absence of double tracks, present in only 46% of the lines, represents just one example of some of the deficits that characterise the Italian infrastructure system.
- Furthermore, the considerations that emerge from the sectoral and territorial segmentation are interesting. In the first case, agri-food is included in the production sectors that suffer more than others from the country's logistical delay due, among other aspects, to the high perishability of the products and the high capillarity of the agricultural production fabric. Furthermore, in the second case, the large gap between areas of the country should not be forgotten, with the South suffering from an even greater logistical delay than the North.
- In order to reduce the logistical imbalance of our country, it is crucial to launch immediate strategies, exploiting the opportunities that have opened up also thanks to the National Recovery and Resilience Plan (Pnrr). These new projects, together with further strategies that may be implemented, will be able to support a synergistic development of the various alternatives from an 'intermodality' perspective, enhancing the advantages offered by 'digitalisation'.



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# 1.





## 1. Logistics gap, 93 billion lost, 9 of which for agri-food alone

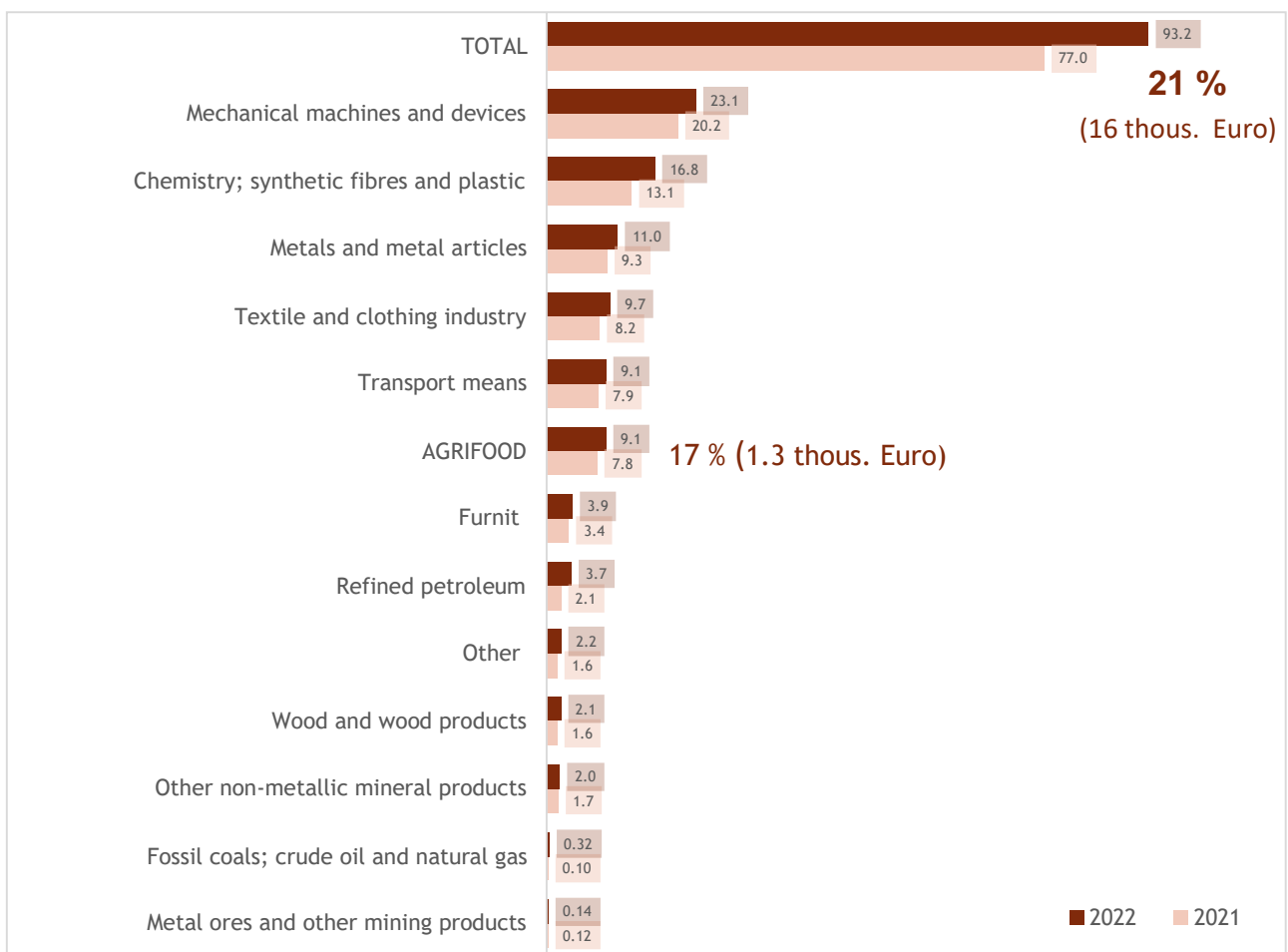
Italy boasts a high propensity for international trade which has its roots in the quality and appreciation of Italian products on global markets. In recent years, Made in Italy food has gained a prominent position on foreign markets, reaching the record value of 60.7 billion Euro in exports in 2022. The result of uninterrupted growth which over the last 10 years has seen the value of Italian products increase on foreign markets by over 80% and that should continue, according to initial projections, also in 2023.

But at the same time the country is suffering a significant delay compared to its main international competitors due to a logistics gap which translates into a cost for the country of 93 billion Euro in "lost exports" equal to 15%.

of the overall value of national exports (a). Among the most affected sectors is the agri-food sector, for which logistics is crucial also due to the high perishability of the products and the high capillarity of the agricultural production fabric. The sector is placed at the top of the loss ranking with 9 billion Euro equal to 10% of the overall loss estimated for the country.

The agri-food sector holds the 5th position together with the means of transport which suffer annual damage of 9.1 billion. Worse effects are found only for textile and clothing products with 9.7 billion Euro, for metals and manufactured goods with 11 billion Euro, chemical products 16.8 billion Euro and in first place for the machinery and mechanical equipment sector which recorded an estimated damage of 23.1 billion Euro.

Graph 1.1: Lost exports 2022 by sectors (billions of Euro)



Source: Divulga Study Centre Estimates



# 2.



## 2. A long way to go, 87% of products still travel by road

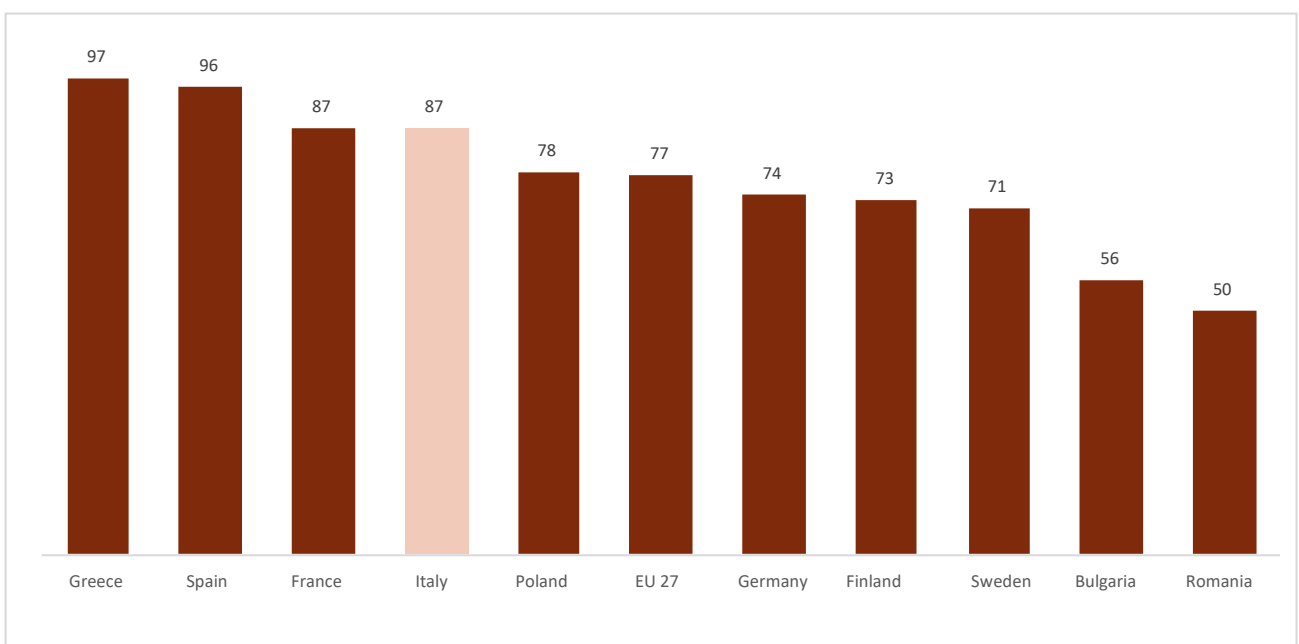
Italy remains among the European countries that use road transport with greater intensity, with a significant incidence of 87% of goods moved, higher than the EU average of 77%. Excluding from the analysis the countries that have a small surface area (b), i.e. less than 100 thousand km<sup>2</sup>, Italy ranks among the top places in Europe after Greece, Spain and France, but ahead of Poland, Germany, Finland, Sweden, Bulgaria and Romania.

Although the orographic conformation of the Peninsula is a central element in the management of the main

transport infrastructures, with Italy suffering a physiological delay compared to other European countries with flatter geographies, the national logistics model is largely unbalanced with a still too limited contribution from other methods of moving goods, the railway network first and foremost.

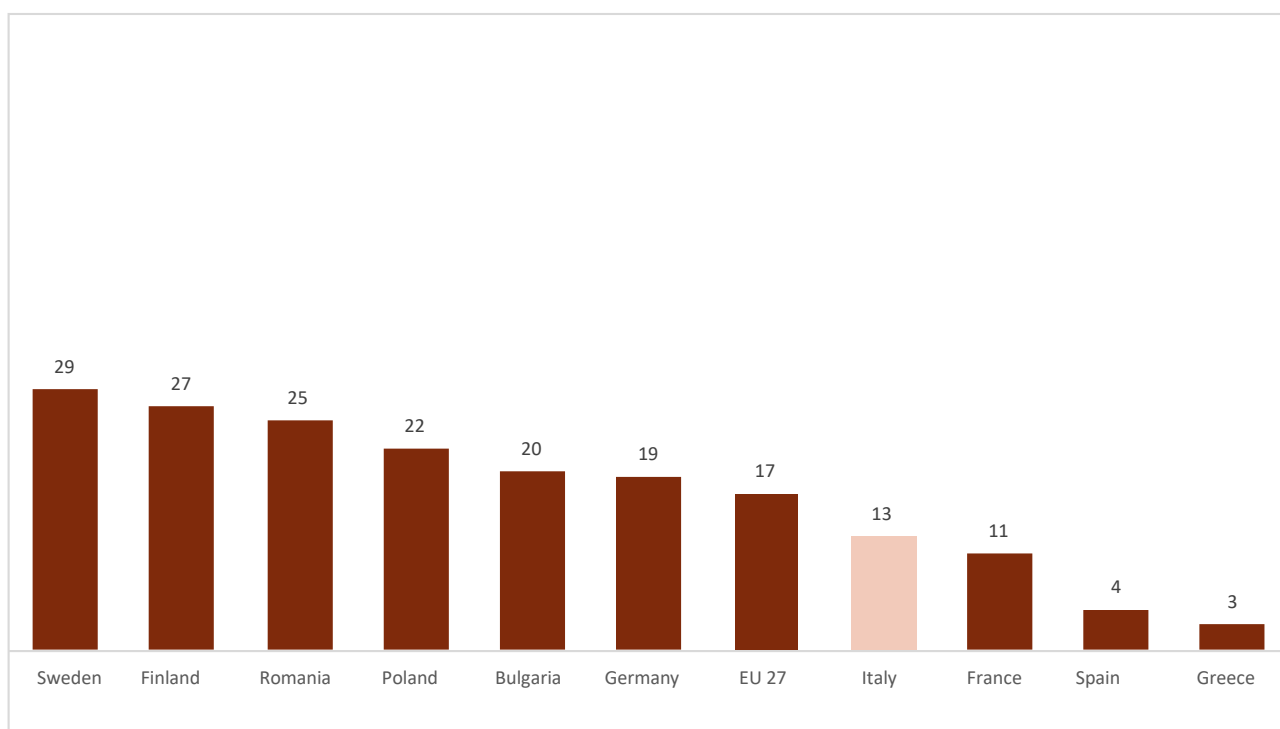
The numbers still show little potential for integrating road transport with rail and maritime transport (the so-called 'intermodality' concept) and overall Italy stops at just 13% of goods moved by trains, below the European average of 17%.

Graph 2.1: Road freight transport (%)



**Source:** Elaboration by the Divulga Study Centre on Eurostat data

Graph 2.2: Rail freight transport (%)



**Source:** Elaboration by the Divulga Study Centre on Eurostat data



## Box - Fuel costs

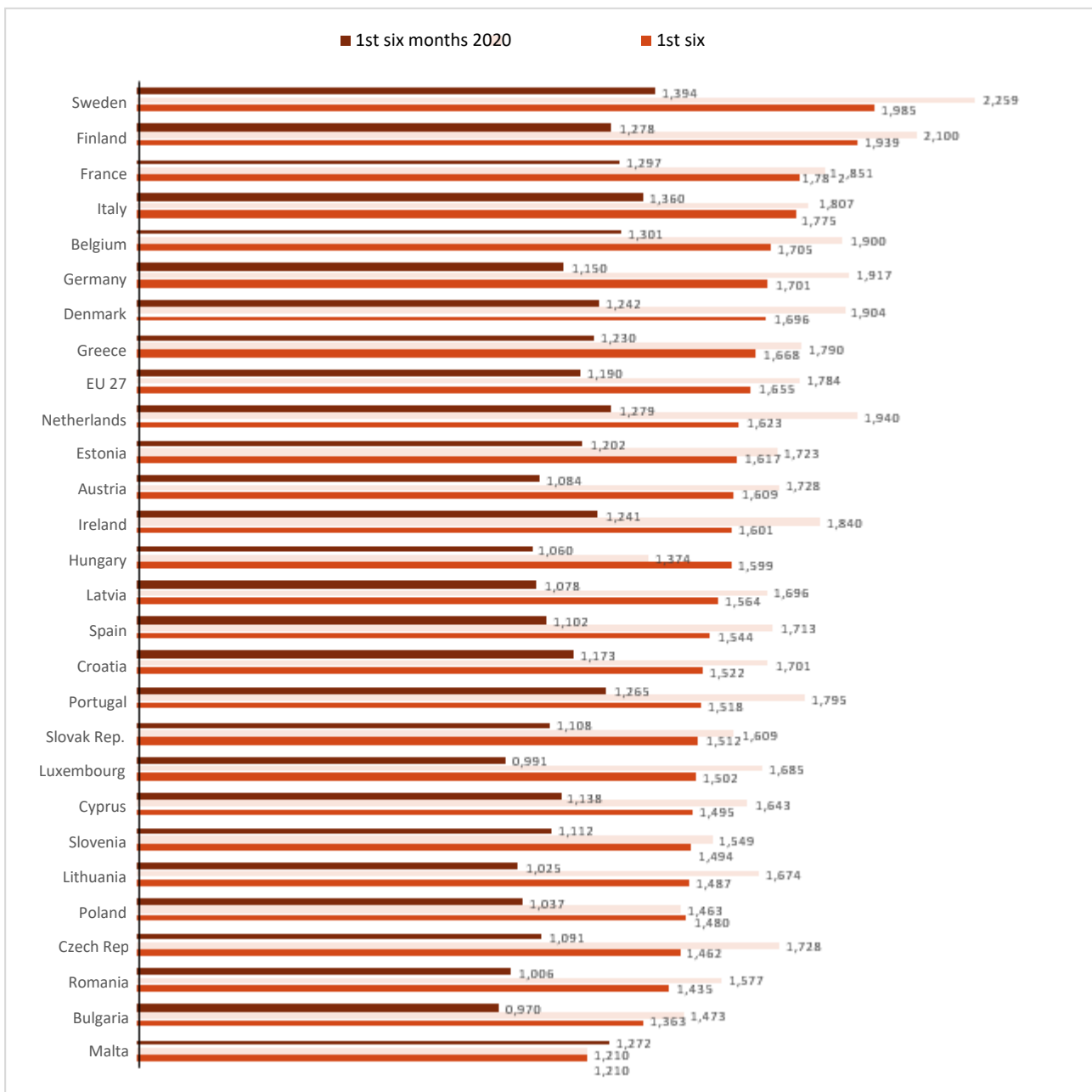
With a half-yearly average price charged at the pump of 1.755 Euro/litre, Italy went from ninth to fourth position for fuel costs, recording decidedly higher values compared to 2020 (+31%) but in line with last year ( -2%), when the concessions on excise duties and taxes by the government were in force (Graph 2.3) (1).

Leading the ranking of countries with higher fuel costs are Northern European countries including Sweden in first position (1,985 Euro/litre, -12% compared to the 1st half of 2022) and Finland (1,939 €/Lt., -8%) followed by France in third position (1,782 Euro/litre, -4%) just before Italy.

Overall, the prices recorded by the European Commission illustrate a general containment of prices compared to 2022 with values that are however decidedly higher than the pandemic period. The average European price of diesel has grown by 39% from 2020 to today, reaching 1.655 Euro per litre in the first half of 2023 although there was a drop of 7% on the same period last year.

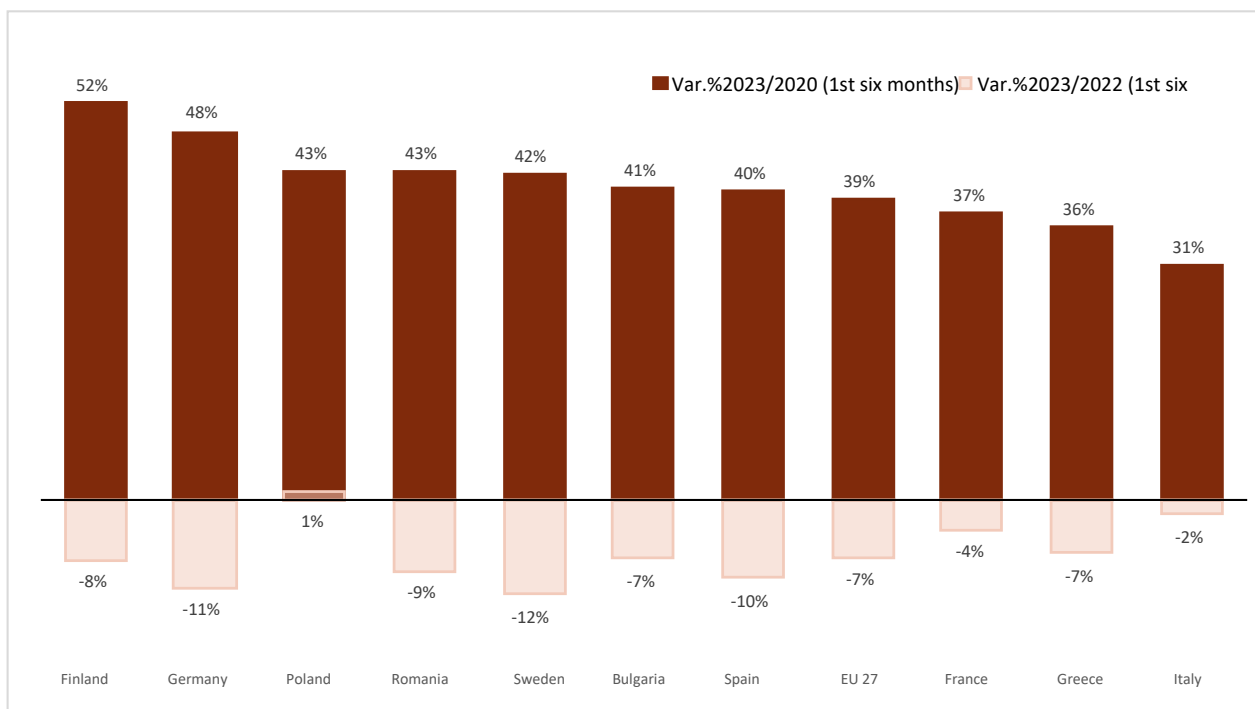


Graph 2.3: Diesel price quotes



Source: Elaboration by the Divulga Study Centre on EU Commission data

Graph 2.4: Change in diesel price at the pumps



**Source:** Elaboration by the Divulga Study Centre on EU Commission data



3.

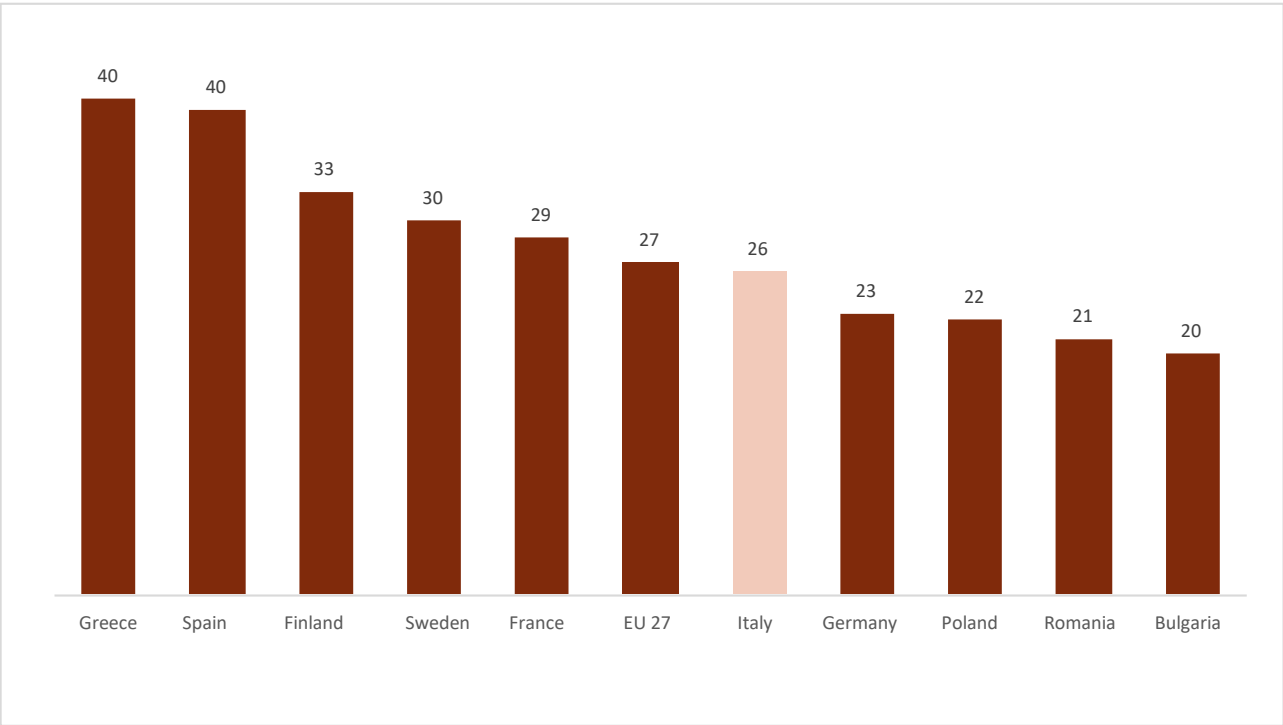


### 3. The burden of logistics for the agri-food sector

Regarding the agri-food sector, we can see how logistics infrastructures have a significant impact on the competitiveness of companies.

In fact, in volume, over a quarter of the products handled are food and drinks, in line with the European average of 27%.

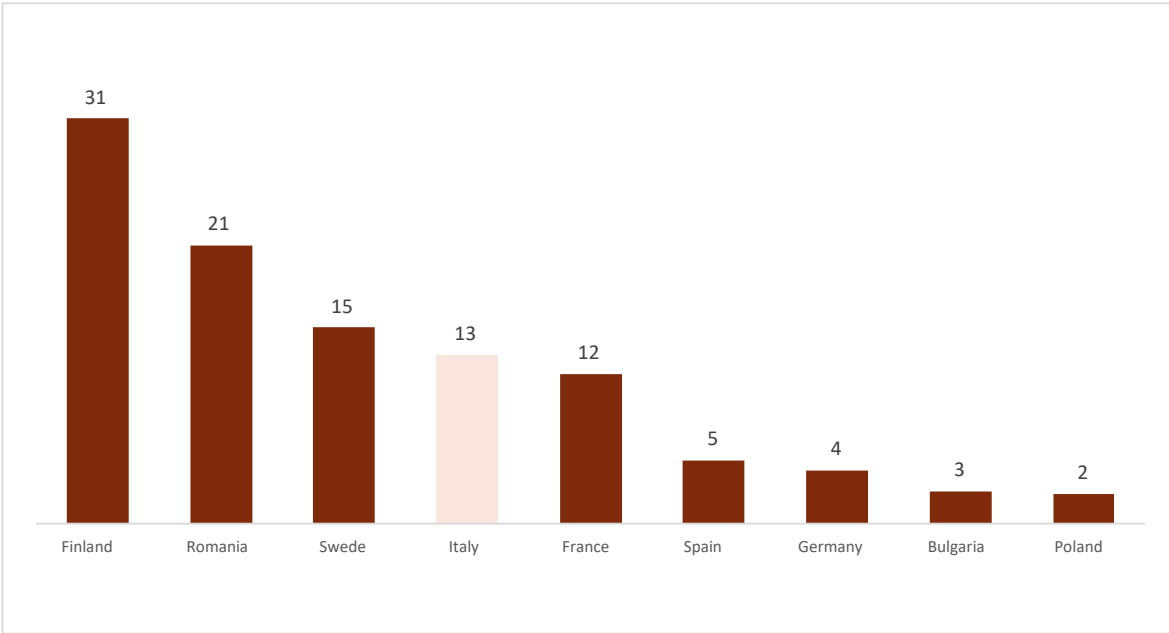
Graph 3.1:% incidence of transport of agri-food goods by road (Ton-km) (2)



Source: Elaboration by the Divulga Study Centre on Eurostat data

Regarding rail transport, agri-food products represent 13% of the total goods moved by rail. Values that confirm the need for investments in a fast and efficient intermodal logistics system for the transportation of highly perishable products.

Graph 3.2:% incidence of transport of agri-food goods by rail (Ton-km)



**Source:** Elaboration by Divulga Study Centre on Eurostat data (data not available for the EU)



## Box – The corridors with Europe, from Mont Blanc Fréjus

Italy has a number of corridors for the movement of people and goods towards the rest of Europe. These include Ventimiglia, Mont Cenis/Fréjus, Sempione, San Gottardo, Brennero, Tauri, Mont Blanc and San Bernardino.

The first six connections also allow intermodality (combination of rail and road transport) while the last two only refer to road transport.

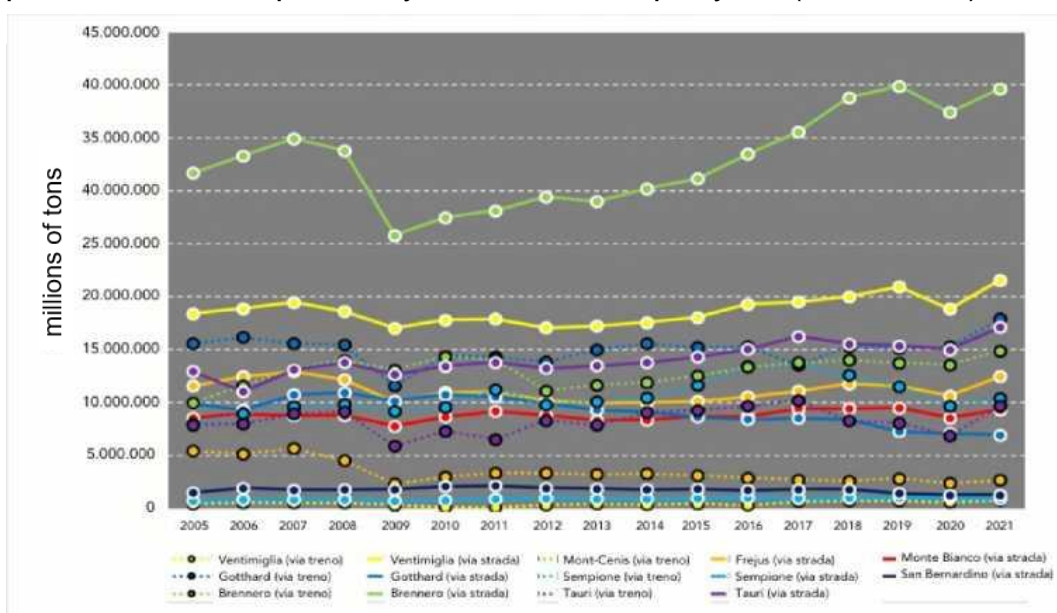
Overall, thanks to these corridors with Europe, over 166 million tons of products have been transported, 66% of which by road (109.5 million tons) and 34% by rail (56.4 million tons).

Numbers that are growing compared to the pre-pandemic period (4%) and 11% compared to 2020, the first year of Covid.

This increase concerned both road and rail transport, with an average growth of 9% and 16% respectively on all corridors.

In 2021, over 23,700 heavy vehicles passed through the main transalpine corridors every day (3)

Graph 3.3: Tons transported by train and road per year (2005-2021)



**S**ource: Elaboration by the Divulga Study Centre on iMonitraf data



Table 3: Goods transited (millions of tons)

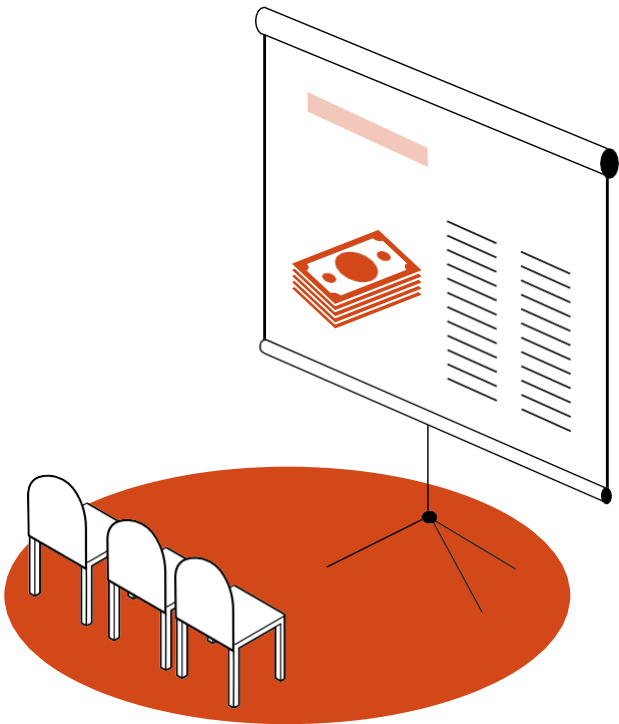
Corridor	2020	2021	Var.%21/20
<b>BRENNERO</b>			
Total	51	54.6	+7
- Railway	13.6	14.9	+10
- Road	37.4	39.7	+6
<b>TAURI</b>			
Total	21.9	26.7	+22
- Railway	6.9	9.6	+40
- Road	15	17.1	+14
<b>VENTIMIGLIA</b>			
Total	-	22.4	-
- Railway	0.8	0.8	+1
- Road	-	21.6	-
<b>FRÉJUS</b>			
Total	-	15.2	-
- Railway	2.7	2.7	0
- Road	-	12.5	-
<b>SEMPIONE</b>			
Total	10.7	11.3	+3
- Railway	9.7	10.4	+7
- Road	1	0.9	-12
<b>MONT BLANC</b>			
- Total (road)	8.6	9.4	+9

**Source:** Elaboration by the Divulga Study Centre on iMonitraf data





# 4.



## 4. The blaze of costs

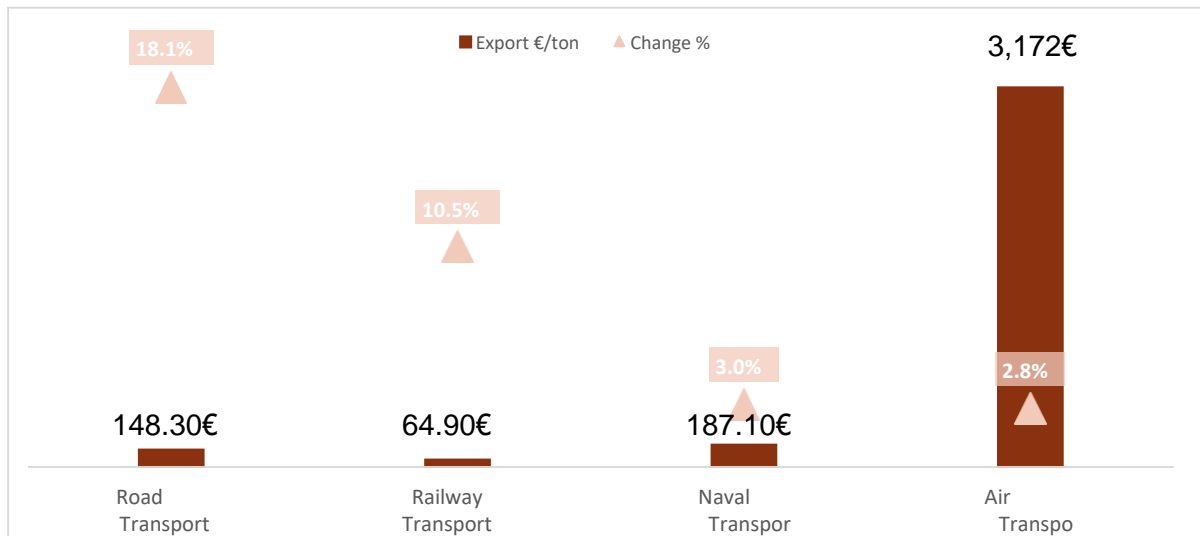
According to data from the Bank of Italy, the incidence of the costs of international transport of goods on the value of goods exported from Italy has risen for the third consecutive year (4). The main causes include the increase in fuel costs and the post-pandemic expansion of trade which has characterised almost all sectors. Added to these general trends are factors specific to individual sectors, such as the impact of geopolitical tensions and supply-side limitations in ship handling, which were particularly acute in the first half of 2022. The costs of air, naval and road transport remained at levels close to historic highs. In the following graph (Graph 4.1) we can observe how road transport is among those modes most penalised by the increase in costs in the last year (18.1%) with

increases even greater than those recorded for rail transport (10.5%).

Analysing the unit values by mode of transport, however, rail transport boasts the lowest cost per ton with 65 Euro/ton, followed by road transport with 148 Euro/ton and movements by ship, 187 Euro/ton. Definitely higher values for air transport with over 3 thousand Euro per ton.

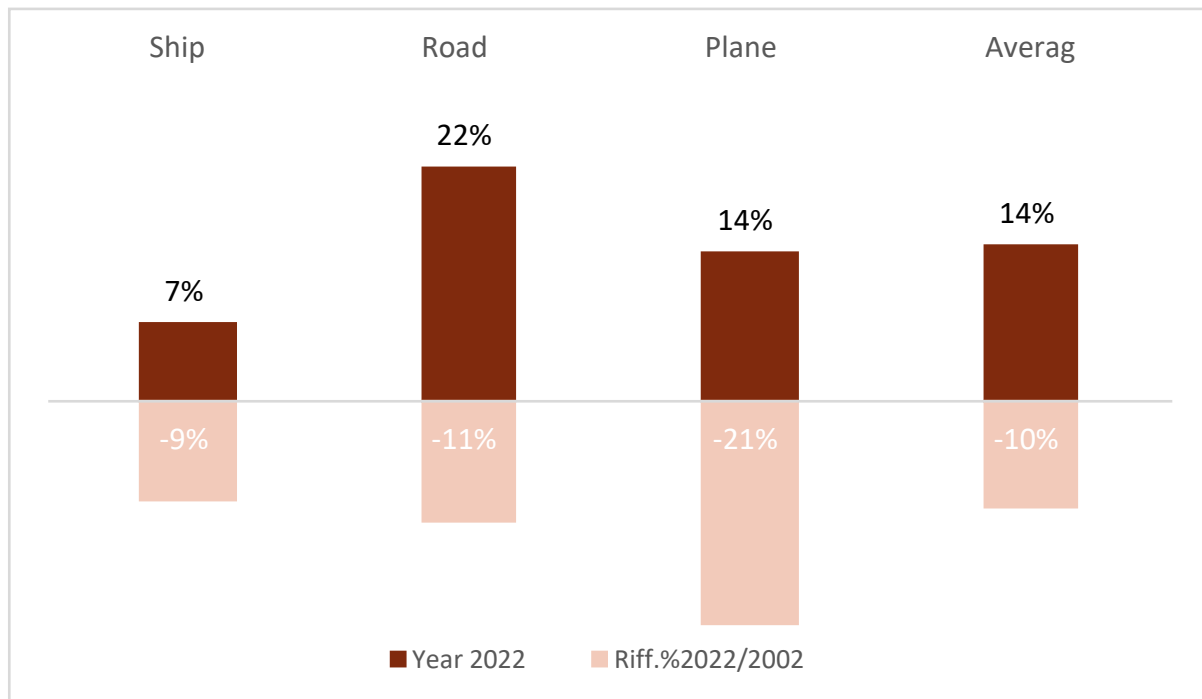
Comparing these values with the ISTAT values relating to foreign trade, it clearly emerges that the agri-food sector is one of those most affected with the incidence of the cost of transport for the export of agri-food products which is confirmed in all cases as being above the general average. The incidence in road and naval transport of agri-food products is approximately double what is paid overall on average, while it is three times higher for railway logistics and over five times that of air transport. The progressive decline in the presence of market shares of Italian carriers penalises the logistical capacity and infrastructural competitiveness of the country system, despite the country's strong vocation towards exports.

Graph 4.1: Average transport costs 2022 and % change 22/21



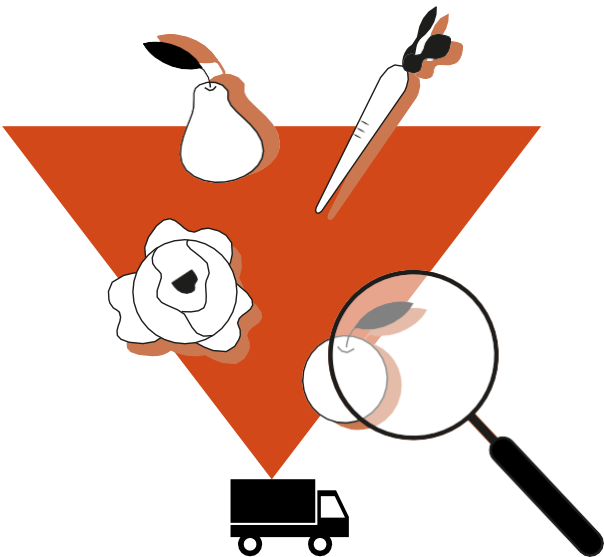
**Source:** Elaboration by the Divulga Study Centre on Bank of Italy data

Graph 4.2: Market shares of Italian carriers on commercial flows in Italy



**Source:** Elaboration by the Divulga Study Centre on Bank of Italy data

5.



## 5. The logistics of the future between intermodality and innovation

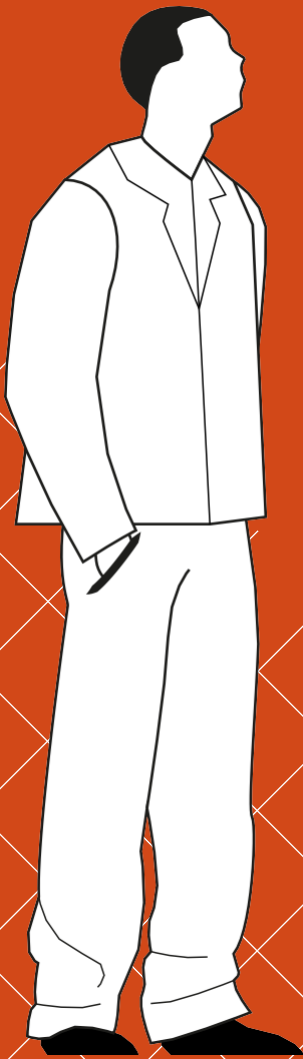
The opportunities that have opened up also thanks to the National Recovery and Resilience Plan (Pnrr) undoubtedly represent an important opportunity to reduce the logistical imbalance of our country. These new projects, together with further strategies that will be implemented, will be able to provide a significant contribution to the synergistic development of the various alternatives from an 'intermodality' perspective, also enhancing the opportunities offered by 'digitalisation'. The adoption of an intermodal approach would in fact allow for better integration of the various methods of moving goods with clear consequences on the economic and environmental sustainability front. Often precisely on this last aspect, in fact, the transport of goods by road generates just under 30% of emissions

to which another 45% is added for the movement of passengers, while railway logistics (goods and passengers) have a practically residual impact (0.08 Gt; 1%). The remaining 11% is attributable to air transport and shipping (5).

The need for an intermodal approach combines well with the new opportunities deriving from digitalisation. We are faced with increasingly complex logistics due to the increase in the range, the fragmentation of orders and the lack of homogeneity of consumer requests (6). New technologies represent a key element for improving the efficiency and effectiveness of processes by enhancing the centrality of data and information.

An essential path to recover Italy's logistical gap and to reduce the imbalance between the North and South of the country.

n.





## Notes

(a) Divulga Study Centre Estimates  
based on Sace and Istat data

(b) Austria, Belgium, Cyprus, Croatia,  
Denmark, Estonia, Greece, Ireland,  
Latvia, Lithuania, Luxembourg, Malta,  
The Netherlands, Portugal, The Czech  
Republic, Slovakia, Slovenia, Hungary.

**b.**



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[<http://www.imonitraf.org/DesktopModules/ViewDocument.aspx?DocumentID=AYzHjjK/xrl=>]
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[[https://blog.osservatori.net/it\\_it/innovazione-logistica](https://blog.osservatori.net/it_it/innovazione-logistica)]



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