New Direction

CONNECTING PEOPLE AND BUSINESS

INFRASTRUCTURE AND TRANSPORT POLICY

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New Direction

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New Direction is registered in Belgium as a not-for-profit organisation and is partly funded by the European Parliament.
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INTRODUCTION

Bearing in mind the challenges of the future in transport and logistics is a key element for a successful and competitive European market.

European Union has not been able to create a single market for transport due to the lack of capability to discuss with the new players growing in the sector.

On the other side of the world there is China, which is changing the equilibrium of the economy at global level, in particular the new initiative “one belt, one road” is going to be a key driver of the country’s development.

With more than 500 million inhabitants the European Union could be competitive if it was able to create a real single transport market.

European Union invested billions of euro in new infrastructures connecting Countries, but a clear integrated vision and strategy were missed. The effects of new infrastructures were far behind from the expectations.

The result was a patchy system, many infrastructure projects were delayed and the countries were unable to reach the targets established by the European Commission on time.

The case of the Berlin airport is just one of the numerous examples that we can find all around Europe.

One of the biggest problem was the inability of the European Union to control the costs of the projects and how each country spent the European funds, that come from the taxpayers of every single European Member State.

The budget was in many cases not respected and there was an overall misused of taxpayers’ money.

Along the paper we will see many examples why the single market is not effective and still far from being achieved, even though it has been the political target of many Commissioners in the last years, particularly in the transport and infrastructure markets.

Economy of scale and of network are key elements that will be analyzed in the paper. Without a single transport market, companies in the logistic and transport sector will not be able to be key players in the global and competitive economy of the future.

Connecting people and business have to be the main target of the European Commission, but in the last decades there are just a few examples of successful creation of a real single market at European level, as in the aviation industry.

In the paper there will be a focus about the significance of a single market in the transport and logistics sector and the importance for incumbent political party to understand it.

Unfortunately in many cases the nationalistic views prevailed going to the detriment of a European infrastructure network, which wasn’t integrated.

Now with China at the door, European Countries has no clear strategy.

Some Countries decided to stipulate agreements, for example Greece or Italy, with the “one belt, one road initiative” while other Countries decided to go in the opposite direction.

In the paper we will see how the Initiative could be a good opportunity if the European Institutions would understand the importance of the Chinese plan in terms of geopolitical equilibrium. At the same time, a

united front at European level could be an opportunity to have an higher bargaining power in making agreement with China, finding one single direction.

The example of ports policy, which are the main entry and exit point for international trade, is another typical example of incapacity of creation of a single market.

Europe is a sort of patchwork, not only in the management of the Port Authorities with a sort of socialist vision of the management of the infrastructures, often managed by public entities, but also in terms of legislation.

European Union has never been able to change the mentality in the port management to a pro-active vision to attract more foreign investments.

At the same time, some Member States went in chaotic direction by integrating ports and rail infrastructures.

European Union invested billions of euro to try to create single networks, but was not be able to integrate the different modes of transport.

For example in the last years, just the European Union Agency for Railways tried to have a more integrated view of rail with other transport modes. The role of the Agency was downsized because it found a lot resistances by many Member States that didn't want to create a strong independent authority.

Rail freight is the example of the failure of the European Union. Even though were spent billions of Euro of investments, it was not possible to create a competitive network for rail freight.

The target of modal shift from road to rail for the goods will be in fact missed again: 30 per cent of the goods on rail will never be reached by 2030 as was indicated in the White Paper of the European Commission.

Probably the modal share of rail freight will reach 20 per cent in 2030 and not due to lack of investments, but due to the lack of efforts to create a single market.

Rail freight works well when there is possibility to have long routes with a lot of tons of goods on the same train. The lack of harmonization at European level with regards to different national rules, languages and infrastructure characteristics hinder and block the modal shift to the more environmental friendly rail transport.

On the other side, the air transport industry is the best integrated and it could be an example for other sectors.

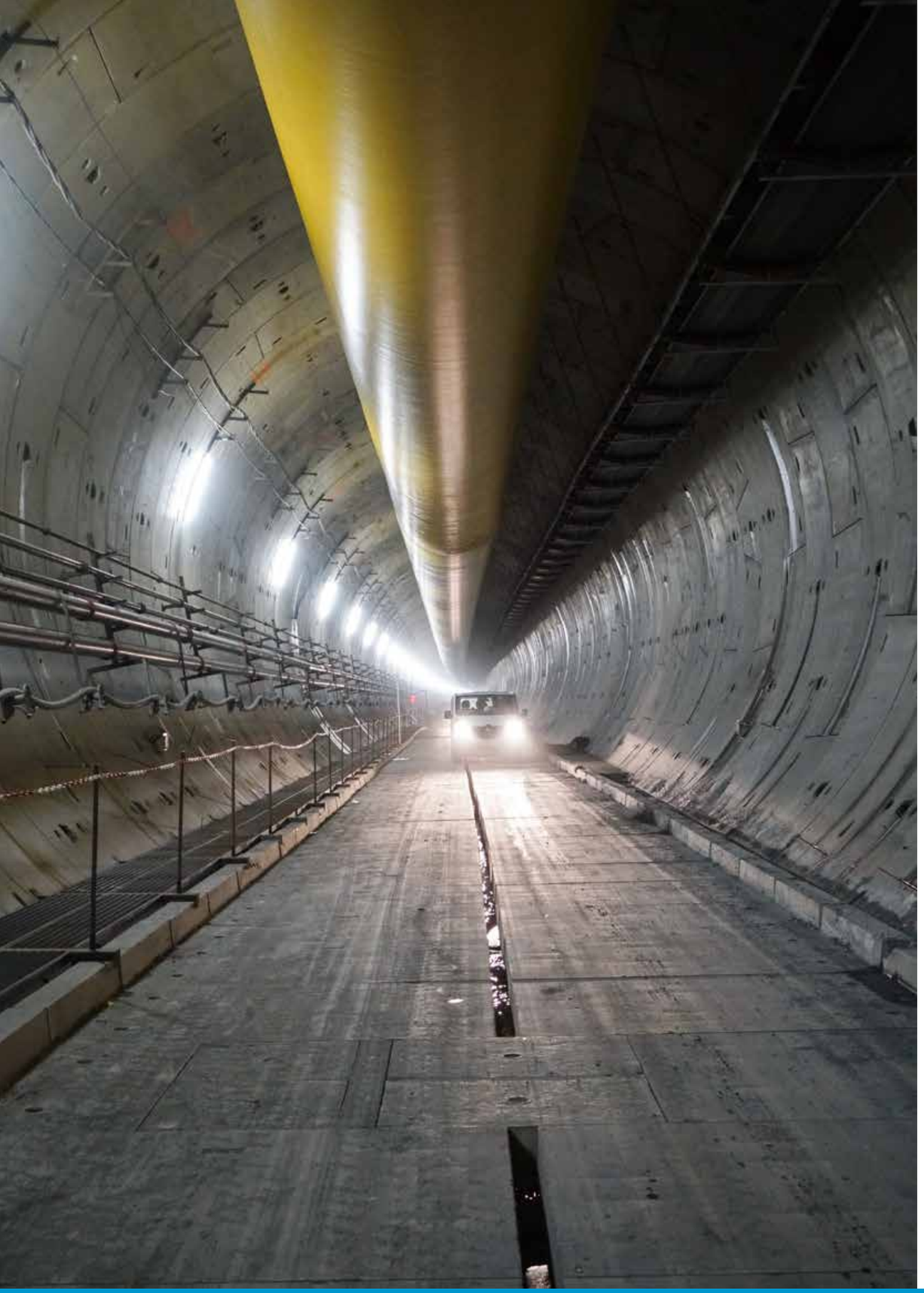
The European air market is fully liberalized and integrated not just within the Union but also with Switzerland, Norway, Iceland, Morocco and other Countries. The air Single market shows how the liberalization could work well with clear benefits for the consumers.

Air transport has to continue to be an open market and European Union has to pay more and more attention to the excessive concentration of the market.

At the same time, air transport is one of biggest polluter, a rising problem of the transport sector in Europe.

It is important to remember that transport is the second more polluting sector in the European Union in terms of Greenhouse Gas emissions (GHG), after energy production. European Union is putting a lot of efforts to be leader in the reduction of the CO2 emissions. Putting too strict limits in the transport sector could affect competitiveness.

The focus in the last chapter will be on road transport: innovation is coming very fast in the sector, but Europe is not able to create a real market for the companies. Free market and deregulation was often seen as "bad words" at the European Union level, while it is thank to a free competitive market that Europe could be a leader in the industry.



1

INFRASTRUCTURE

1.1 Big investments but time consuming

European Union made a lot of investments in the past to try to create a European single network of infrastructures.

The most known projects are linked to the corridors that during the years where heavily subsidized.

That investment didn't give the expected results , also because there was a clear lack of coordination between the Member States.

A typical example is coming from Italy with the Turin – Lyon tunnel, where the Italian State received around 40 per cent of the financing from the European Union but the project is still missed.

The different points of view of the Countries stopped or delayed many projects

Huge investments are not just delayed of many years, but many times the costs overrun. important cost overrun.

A very interesting report of the European Court of Auditors completed at the end of 2018 showed as the duration of the infrastructure works could take more than 30 years and in some cases the projects are finished around 50 years after the planning.

Problems are not only linked to international projects, as shown by the Munich-Verona rail line, but also to the national infrastructure.

Table 1: HSR lines, duration of work

AUDITED HIGH-SPEED RAIL LINES AND MUNICH-VERONA STRETCH	PLANNING STARTED	WORK STARTED	In operation	Years since planning	Duration of work in years
Berlin - Munich	1991	1996	2017	26	21
Stuttgart - Munich	1995	2010	2025	30	15
Rhin - Rhône	1992	2006	2011	19	5
LGV Est Européenne	1992	2002	2016	24	14
Madrid - Barcelona – French Border	1988	1997	2013	25	16
Eje Atlántico	1998	2001	2015	17	14
Madrid - León	1998	2001	2015	17	14
Madrid - Galicia	1998	2001	2019	21	18
Milan - Venice	1995	2003	2028	33	25
Turin - Salerno	1987	1994	2009	22	15
Munich - Verona	1986	2003	2040	54	37

Source: European court of Auditors

In some cases the overrun cost could be 600 per cent of the initial plan cost, but quite in all the case analyzed by the European Court of Auditors, the actual cost is 20-30 per cent higher than the initial estimated cost.

In the next table it is shown as the Stuttgart – Munich and the Berlin – Munich as critical examples.

Not only in the rail infrastructure Germany had problems as it is clear from the case of the new Berlin airport, that it was set to be open in spring 2012 and it will be probably open in 2020 with a total cost of more than 10 billions of euro.

The problems of Germany are also found in Italy and in some others Countries, but this lack of ability to complete on time the infrastructure is affecting the possibility to have a real single market.

Table 1: HSR lines, estimated and overrun costs

AUDITED LINE	TOTAL LENGTH	TOTAL COST	Initial estimated cost	Actual cost overrun	Initial construction cost per km	Final completion cost per km
	(km)	(million euro)	(million euro)	(%)	(million euro)	(million euro)
Berlin-Munich	671	14 682	8 337	76.1 %	12.4	21.9
Stuttgart-Munich	267	13 273	1 838	622.1 %	6.9	49.7
Rhin-Rhône	138	2 588	2 053	26.1 %	14.9	18.8
LGV Est Européenne	406	6 712	5 238	28.1 %	12.9	16.5
Madrid-Barcelona-French Border	797	12 109	8 740	38.5 %	11.0	15.2
Eje Atlántico	165	2 596	2 055	26.3 %	12.5	15.7
Madrid-León	345	5 415	4 062	33.3 %	11.8	15.7
Madrid-Galicia	416	5 714	n/a	n/a	n/a	13.7
Turin-Salerno	1 007	32 169	n/a	n/a	n/a	31.9
Milan-Venice	273	11 856	n/a	n/a	n/a	43.4

Source: European court of Auditors

The lack of capability in building the infrastructure on time as per contract has had a clear impact in the missing links still existing in many Countries and in many international connections.

EUROPEAN UNION POLICY

European Union invested hundreds of billions of Euro in infrastructure to have a single infrastructure network.

Many times policies didn't work because there was not a single vision and the conflicts among Member States. At the same time there was not control of the budget as was underlined in the first paragraph.

Delays and overrun costs have been a typical panorama. Lack of accountability checks by the European Commission has given freedom to the Member States to continue being inefficient by using taxpayers money.

Infrastructures in Europe are a sort of socialist long term plan with very small intervention of private players.

A SOLUTION FOR THE INFRASTRUCTURES

European Union has to have a role of coordinator and strategic vision, but Member States need to have more responsibility on the infrastructure construction.

Private investments have to be encouraged. Unfortunately the political level interferes constantly in technical processes of development of infrastructure, creating uncertainty and delays.

European Union has to be more open to attract the foreign investments.

We would highly recommend the European Commission to introduce a wider use of cost – benefit analysis for having a better use of the taxpayer money.

1.2 North – South Corridors

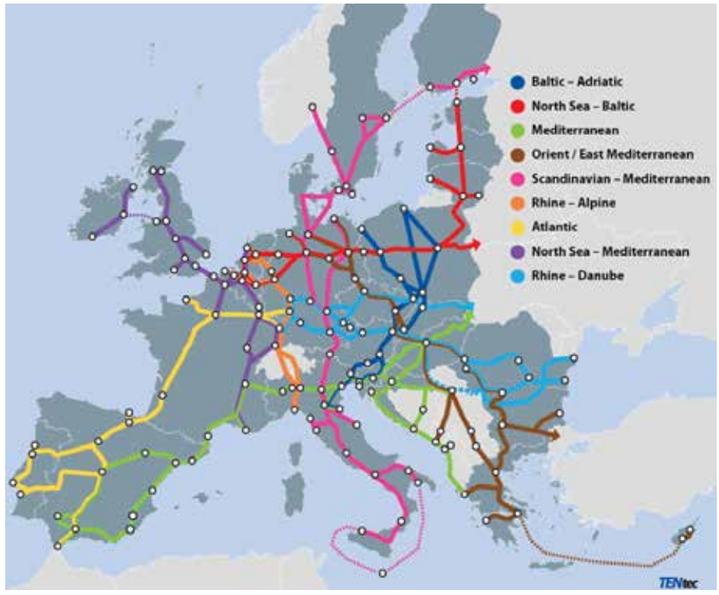
The connection with the rest of the European networks, ranks in the European project"Ten-T" (Trans European Transport Networks) has the following purposes (according to Decision 1692/96/EC of the European Parliament and of the Council of 23rdJuly 1996):

- establishment and development of the connections, key links and interconnections needed to eliminate bottlenecks, fill in missing sections and complete major routes;
- the optimum combination and integration of the various modes of transport;
- gradual achievement of interoperability of network components;
- the development and establishment of systems for the management and control of network traffic and user information with a view to optimizing use of the infrastructures.

In this project, a high speed and/or high capacity infrastructure plays a central role in the process of developing nine different mobility "corridors" for the transportation of people and goods.

Corridors are not just east-west, but it is clear the axe north-south is more and more important (as shown in figure).

Figure 1: Ten-T core network corridors



Source: European Commission

The corridor Rail Baltica is a clear opportunity to link new very dynamics markets as the three Baltic States and Poland.

This is a cross border megaproject to connect European and Baltic hub with a new infrastructure.

This project will increase connectivity in the Baltic States but also connecting the airports to the rail network, giving the benefits of intermodality.

Figure 2: Rail Baltica project and corridor

Source: Rail Baltica

The budget of 5,8 billions of euro is very important for a greenfield project, but also it is a clear European project that it could have very high socio-economic benefits, in terms of business opportunities.

The project is very complex not only for the financing, but also especially the political dimension.

Coordination is not easy to achieve in this kind of projects and the quantity of the stakeholders to be involved adds even more complexity to the project.

The project is also important to achieve modal shift from road to rail, one of the main targets of the European Commission and the Member States.

EUROPEAN UNION POLICY

Corridors were an important step forward for the European Union. The review of the TEN-T policy with the identification of nine Core Network Corridors was made in 2013.

Theoretical framework, map and guidelines of Core Network Corridor, defined in EU regulation 1315 and 1316 of 2013 are a typical example of the difference between fund allocation and the real construction of infrastructure.

Member States are obliged to align national infrastructure investment policy with the European priorities and the funding for projects is provided by the Connecting Europe Facility.

The objective is to close gaps and removing bottlenecks. In 20 years of history the TEN-T has never obtained the results expected due to the resistances of some Member States (the example of the delays in the implementation of the European Rail Traffic Management System in the rail industry showed as technical barriers could be an element to defend State Owned monopolies).

A SOLUTION FOR THE CORRIDORS

The control of the fund allocation in the Connecting Europe Facility is a key milestone for a new European Union policy.

Decisions are taken at political level without a clear technical analysis for the corridors as for the infrastructure in general.

Member States and European Union should have a clear role in the control of the money used for building the core network.

Delays should not be allowed in the core network construction and a clear definition of the funds allocation for every part of a project has to be strictly monitored.

Politicians interfere too much in the decision of the key infrastructure that have to be built, as in the case of the Turin – Lyon Corridor in Italy.

Delays always produce overrun costs and political level has not to be able to block a project well defined in advance.

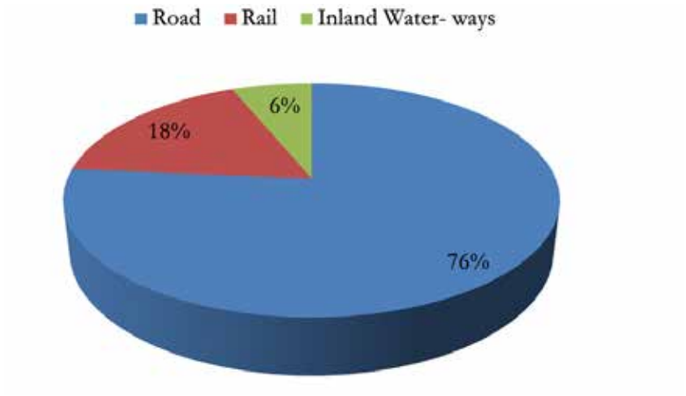
Right now, regulation 1315 and 1316 of 2013 seem to be a sort of a map of wishes for the European Union, but at the practical point there are some cases where the investments are well developed, but in many others there are waste of taxpayer money.

1.3 Modal shift or multimodality

The modal shift is a clear target of the European political level and this is the reason why there are so many investments in railroad. The share of transport greenhouse gases emission of railroad is by farther the lowest in the transport sector.

If we consider the modal shares for freight land transport, railway has around 18 per cent of the market share, while road still has 76 per cent. The inland water-ways has the rest of the part of the market share, 6 per cent.

Graph 1: Modal split of Freight Transport in EU 28



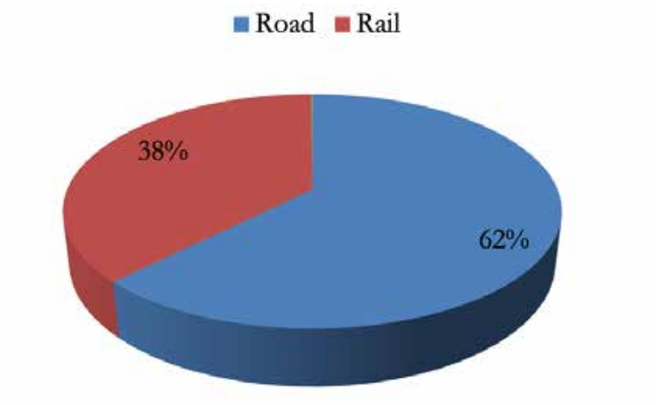
Source: Eurostat

In the last years, investments in the corridors have had a small effect of the market share of the railway because there is a clear lack of integration between Countries.

There was just a strong effect on the high speed rail market, because of the growth of this kind of infrastructures.

A typical example of the modal shift to the rail is Switzerland, where the State was able to implement a big plan of infrastructure and at the same time, and disincentive road traffic.

Graph 2: Modal split of Freight Transport in Switzerland



Source: Eurostat

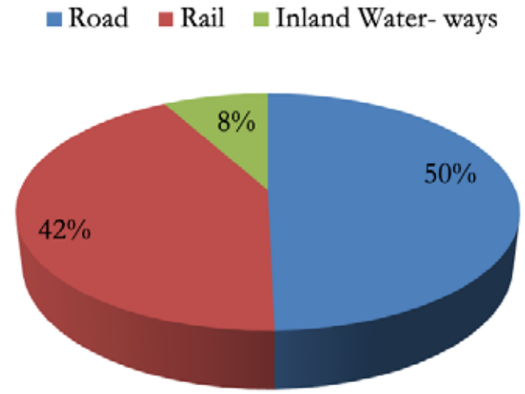
Another example that it is not well known in Europe in the freight traffic is US where there are the biggest players in the railroad market with private operators able to compete with the road freight market.

In this case, trains long 5 kilometers can run on the rail infrastructure, while in Europe still infrastructures managers are not able to manage 750 meters long trains.

Freight trains has reached 42 per cent of the modal market, a value that it is higher than Switzerland.

Corridors are all around US and many times also between NAFTA market with transnational operators.

Graph 3: Modal split of Freight Transport in US



Source: Eurostat

EUROPEAN UNION POLICY

In the white book of 2011, the European Commission settled very important targets about the modal shift from road to rail. For example, by 2030, 30 per cent of road freight transported over 300 kilometers should shift to other modes.

After 8 years and billions of euro spent, European Union is not able to increase the modal share of rail and overrun of costs of building infrastructure is a “new normal”.

There was no coordination between Member States and the European Union in the investments and not enough control of the policies implemented by the Member States.

A SOLUTION FOR THE MODAL SHIFT

The role for the Member States and of the European Union has to be clearer.

Regulation has to be more pro-liberalization in all the sectors, rail included, because without a clear competitive and single market, it is a non-sense to continue to invest in creating corridors along Europe.

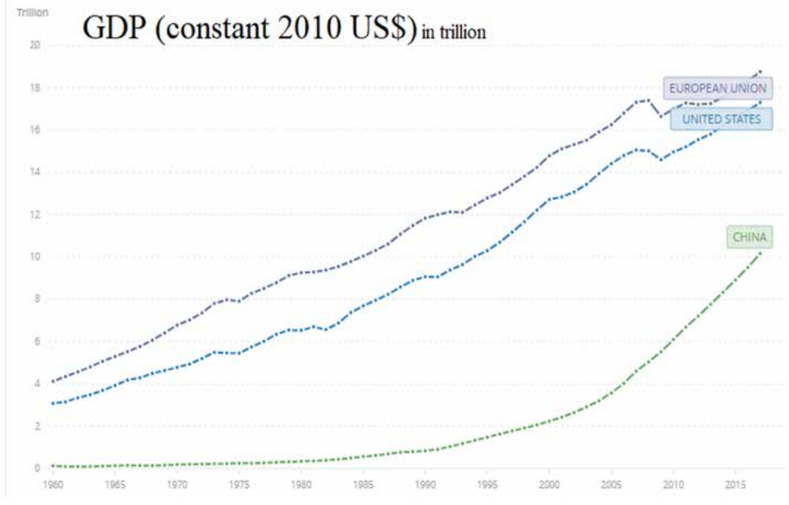
Spending billions of Euro to create a single network but continuing having technical barriers due to the different regulations should not be the main policy of the European Commission.

Investments should be given only to Member States that accept to adopt an European single regulation framework.

1.4 The role of Europe

Europe could have a great role in coordinating and financing the infrastructures. The European economic area is still the first in the World in terms of gross domestic product at constant level.

Figure 3: GDP in most important economies



Source: The World Bank

The economic area needs better logistics and transport connectivity in terms of infrastructure, paying attention to the capability of the States to build new projects.

Europe has in many cases a very wide network of infrastructure, but it has been shown before, the missing links and the lack of a single market could give the expected benefits.

Graph 4: Transport Infrastructure network

INFRASTRUCTURE (1000KM)	EUROPE	USA	China
Road network (paved)	5 000	4 426	4 227
Motorway network	76,8	97,9	131,0
Railway network	217,1	202,3	124,0
Electrified rail lines	116,6		36,9
Navigable inland waterways	41,9	40,2	127,1

Source: Eurostat

The European road and rail network are the widest in the World, even if in other Countries strong investments are changing the panorama.

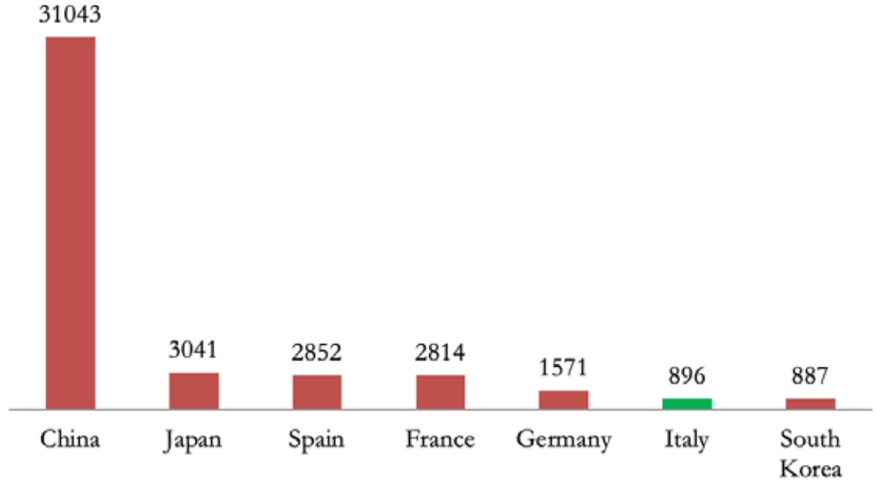
This is the case of the high speed railway network. Europe was the leader for many years, but in the last decade China took the leadership.

China started the construction of the first high speed line network in 2008 (when it was completed the Beijing – Tianjin for the Olympics Games) and in ten years the network is quite 3 times wider than all the Countries of Europe together.

These big investments are making China leader in technology.

Europe has the possibility to react if the Member States will be able to join forces and create a single market, not only in terms of infrastructure but also with regards to the benefits it will bring to the customers.

Graph 5: HSR lines in the World



Source: UIC data

EUROPEAN UNION POLICY

Member States invested more than 100 billions of euro in the creation of the high speed network.

In many cases, the financing of the European Union was higher than 50 per cent.

Many connections between Countries are completed thank to the taxpayer money, but still there is not a real single market in high speed rail.

The third railway package legislation of 2007 opened in theory the market for international passengers of rail from 1st of January 2010 (directive 2007/58), but on the main high speed international services still there are monopolies (for example on Paris-Bruxelles HSR services).

A SOLUTION FOR A BETTER EUROPEAN HIGH SPEED RAIL

Legislation gave some general indication about the liberalization of the railway market, but no detailed regulation has been written to eliminate the technical barriers that blocked a real competition.

The European policy maker has to tackle against the State Owned Enterprises in the railway industry that received billions of euro for the construction of the infrastructure, but want to maintain their monopoly.

Using the taxpayer money to subsidize incumbents is a waste of money. The lack of unbundling is still a problem.

It would be beneficial to have a real separation between infrastructure managers and rail undertakings, in order to guarantee a fair competition between operators.

2

PORTS, KEY FOR EXPORTS

2.1 A global sector

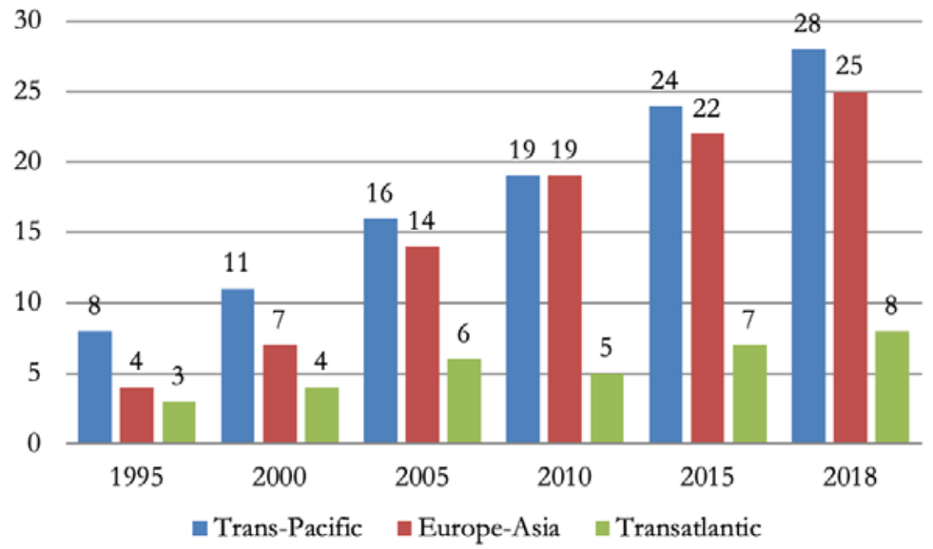
Europe is leader in terms of exports. Many of European Countries have a positive trade balance and the most important sector for the international trade of goods is for sure the seaborne sector.

In general are in the ports where the majority of the trade is managed.

The maritime sector is facing big changes and challenges. China is growing and becoming a leader player in the sector, thanks to the fact that the majority of the traffic is in the Asian continent.

The containerization of the traffic is the other big element to take into consideration in last decades. Containers are key element for the efficiency of the maritime sector.

Graph 6: containerized cargo traffic



Source: UNCTAD data

When we analyze the traffic, we can see the growth of container traffic all around the World.

In 1995, the Trans-Pacific, Europe-Asia and Transatlantic market counted just for 15 million of TEU (Twenty feet Equivalent Units).

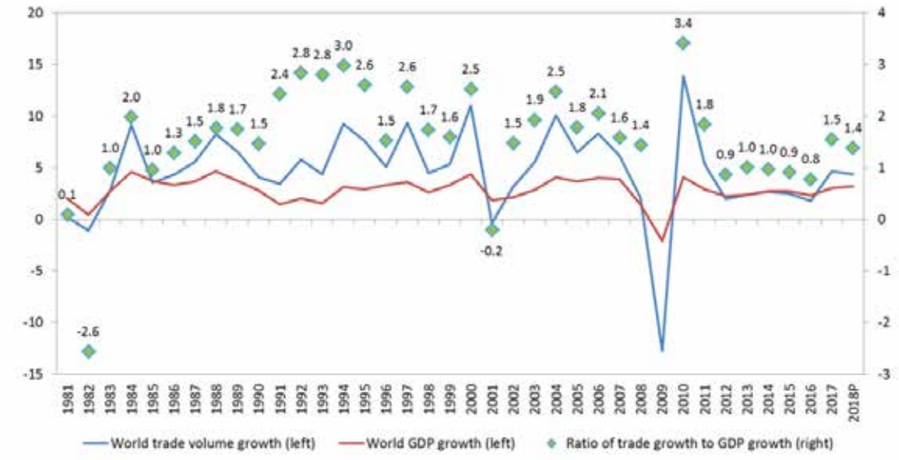
In 2018, the same three major area of traffic had more 60 million of TEU.

The traffic is not balanced between the Continents. There is a clear shift to Trans-Pacific and Europe-Asia market in the last decade.

These two markets are three times bigger than traffic between US and Europe.

The world trade volume grew in the last 40 years at higher level than gross domestic product and this is the reason why the maritime sector is more and more important.

Figure 4: World trade volume and World GDP



Source: Unctad and the World Bank data

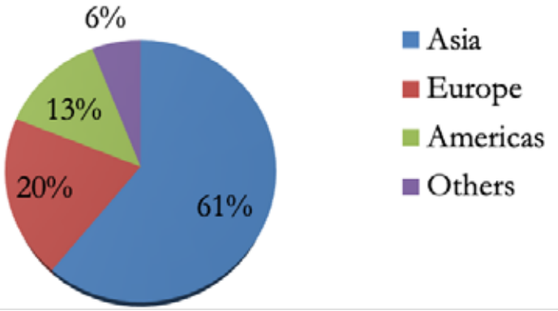
There is a clear effect of multiplication between the GDP and the trade volumes. In the last 20 years, in general we can assume a 1.5 times factor.

Europe has a great role to play in the maritime sector, but intermodality is needed more and more to distribute the goods all around the Continent.

A clear role could be played by freight rail in the ports, but in many case Europe suffers of inefficiency and lack of coordination.

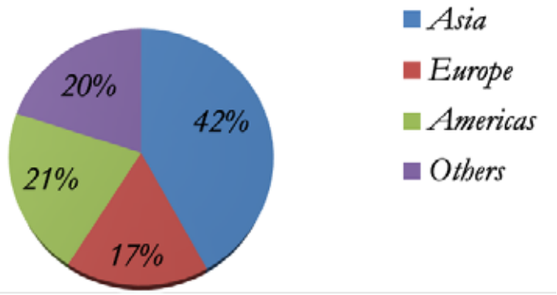
The importance is especially clear when we analyze the traffic in the different part of the World: except Asia, Europe is playing an important role in the seaborne.

Graph 7: World Seaborne Trade - unloaded



Source: UNCTAD data

Graph 8: World Trade Seaborne - loaded



Source: UNCTAD data

Around 20 per cent of the traffic is linked to Europe and in the case of the unloaded traffic is higher than all America continent.

2.2 Silk Road

The maritime traffic between Asia and Europe is growing as shown in the graph about containers, from 4 to 25 million of TEU from 1995 to 2018.

This grow is linked to the increase of the traffic between China and Europe.

Around 94 per cent of the trade by volume between these two parts of the world is done by the maritime sector.

It is important to underline that air transport that has just 1.8 per cent of the volume traffic, in reality has around 28 per cent of the trade by value.

Figure 5: transportation of goods between China and Europe

Transportation	Trade by volume	Trade by value
Ocean	94%	64%
Air	1.8%	28%
Rail	0.9%	2%
Road	3%	6%

Source: Center for Strategic and International Studies

The development of the Silk Road, led by the increase of the traffic between China and Europe, it is a challenge for the freight market all along the route.

Rail sector is developing a new segment of traffic between the traditional maritime sector and the aviation from China to Europe and vice versa traffic.

Maritime is the cheapest way to connect China to Europe but the shortest route is around one month long, while the aviation route has the best performance in terms of time, but it is the most expensive.

This new market has a strong growth in the last years: the advantage of the Rail is that it is faster than maritime sector and much more cheaper than aviation.

The rail connection on the silk road had already started and there are many possibilities to develop this important freight traffic. All the important rail freight players from Europe and China confirmed their interest about the new business.

The silk road, or the Belt and Road Initiative is a project of China to connect the Country with a worldwide network of infrastructure.

Many questions have been raised by different States, but independently of the position, the project will change the equilibrium of the economies in the World.

Figure 6: the Silk Road

Source: The World Bank

EUROPEAN UNION POLICY

European Union has not had a clear strategy about ports management in the last decades. Foreign investments were welcomed in some cases and criticized in others by the European Commission.

Europe didn't understand the role of the ports in the global economy, especially for a continent vowed to the exports.

In many cases ports management companies are still State Owned Enterprises and a private sector mentality is not really taken into consideration by the European Commission.

The Commission's strategic goals had been set out in 2009 and the implementation report was published in 2016 without a real strategy of development.

A SOLUTION FOR THE PORTS

European Union has to oblige Member States to go in the direction of a private management of the Ports Authorities.

A clear regulation against the intervention of the State in the sector has to be done by the European Commission in the next five years.

An higher role of private investments has to be developed without having the prejudice against foreign investments.

An higher connectivity with the "one belt one road Initiative" could be taken into consideration, due to the fact that the "silk road" has already changed the equilibrium in the international trade via seaborne.

European Union has to be able to settle new clear targets in the intermodality between ports and rail infrastructure, because the TEN-T networks are far from the targets.

2.3 The importance for Europe

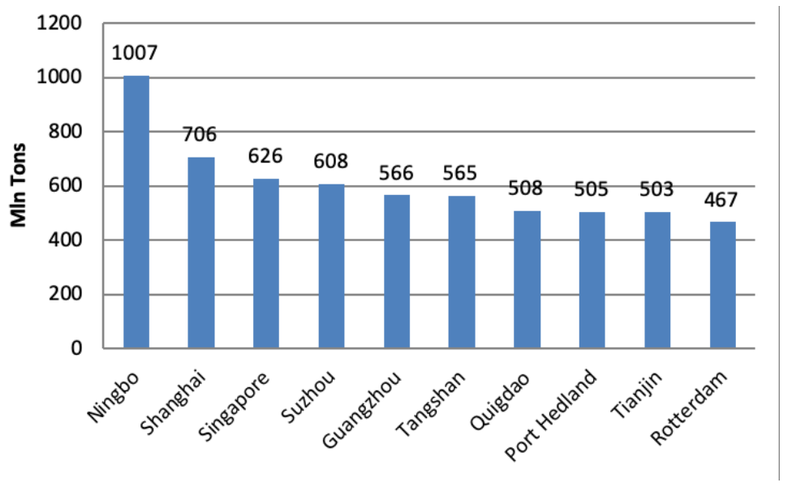
The maritime sector is very important for Europe as it has been showed in the previous graphs.

At the same time, there is just one port by cargo transported in the top ten at global level that it is European: Rotterdam.

The traffic, in terms of millions of tons, is the half of the leader, the port of Ningbo in China.

The majority of the ports in the top ten are in China and this a clear trend of the global market.

Graph 9: Global top 10 ports by cargo in 2017



Source: UNCTAD data

If we consider the container traffic the situation is quite similar: European ports are not in the top ten, and just Rotterdam and Antwerp are able to be in the top 15.

European ports need support from other transport modes, especially from the rail sector.

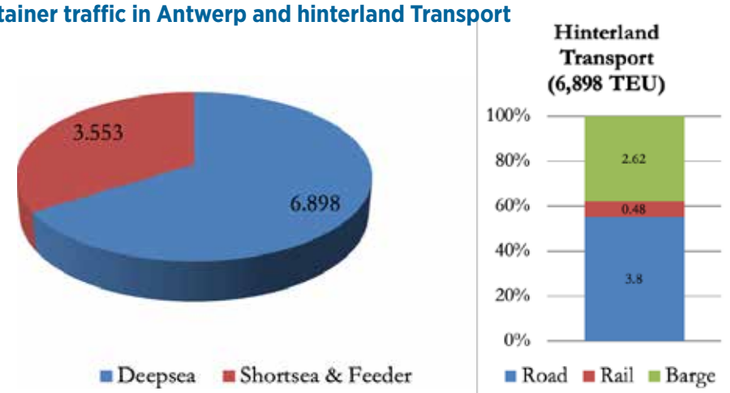
In the last years, combined transport was not developed in the right way.

For example in Antwerp, the second port in Europe, the rail is able to catch just 0,48 millions of TEU per year, while the road transport more than 2,62 millions.

In the case of Antwerp combined transport with barge is working very well, due to the geographical position of the port.

In general, there is a lack of capabilities to create a real multimodality transport network in Europe.

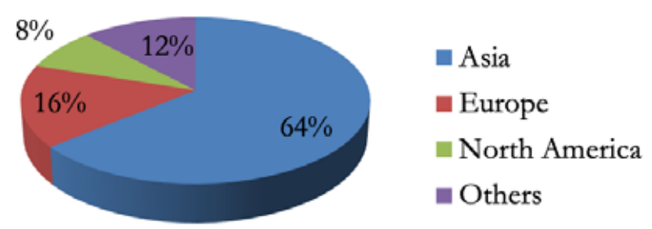
Graph 10: Container traffic in Antwerp and hinterland Transport



Source: UIC data

Europe is still important because is the second market for the container traffic in the ports as shown in the next graph.

Graph 11: World container ports by geography



Source: UNCTAD data

Around 16 per cent of the containers are loaded or unloaded in the European ports, while in North America just 8 per cent the total. Asia is dominating this world, led by China.

2.4 Competitiveness

Competitiveness of the European ports is strictly linked to the possibility of increasing the intermodality with the rail.

Rail is the perfect partner for the maritime sector, but many times ports are not able to have integration in terms of infrastructure and technology.

There are many bottlenecks that have to be solved in the next years and probably it will be interesting for the European Union to focus on this sector that it is still moving the majority of the goods.

To be competitive, European ports have to invest more and more in technology. Around 15 per cent of these infrastructures are already using a part of autonomous technology to increase the productivity.

Competition between ports is encouraging the entire sector to think about their productivity and their performance but at the same time it is important to remember that ports are facing big players, which are becoming more and more powerful.

Europe has to be able to support the European “champions” in the maritime sector not with monetary incentives, but with lighter regulations.

Heavy regulation represents limit for further developments of this important market, reason why it is important that Member States are able to set a clear regulatory framework with a few barriers.

EUROPEAN UNION POLICY

European Union is focusing in the “Motorways of the Sea”, with the main objectives and projects linked to the article 12a of the TEN-T guidelines.

This theoretical framework is useless for a real increase of the modal shift from road to sea because many States continue to incentivize the road freight transport.

Lack of real integration between sea-land infrastructure was never really tackled with clear incentives.

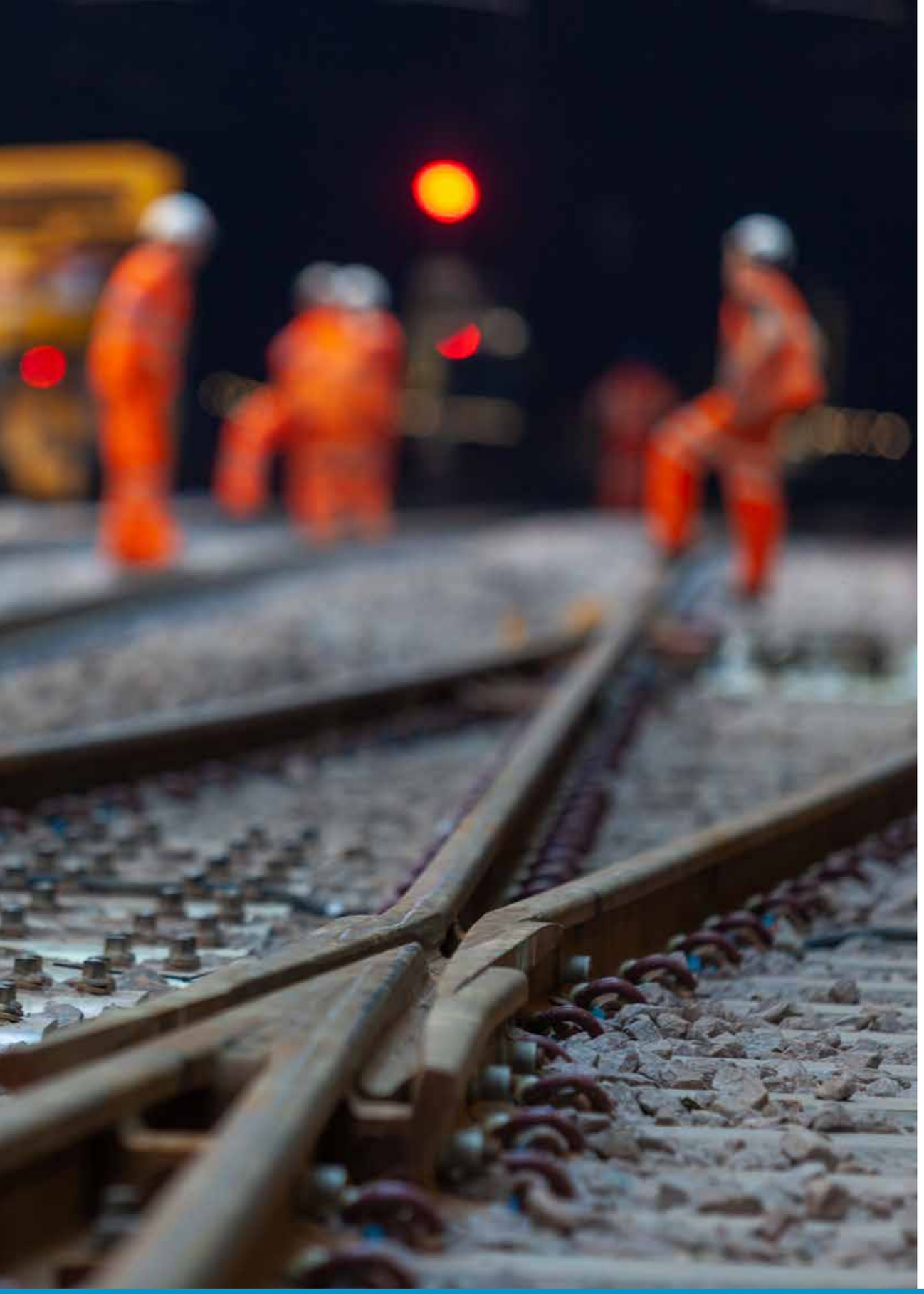
A SOLUTION FOR THE INTERMODALITY SEA-LAND

European Union has the possibility to incentivize modal shift from road to sea thanks to the elimination of the incentives to road transport and higher incentives to integrate rail and sea transports.

Focus on the infrastructure in the ports, especially physical and digital infrastructures are needed.

TEN-T included intermodal infrastructures in the ports, but at the same time is needed an European rail single market to give the possibility of increase the share of it.

Containerization is a key element to be taken into account by European policy makers to try to increase the multimodality rail-sea.



3

INTERMODALITY AND RAIL FREIGHT

3.1 Benefits of intermodality

In the maritime sector chapter, we analyze the importance of intermodality between ports and rail transport.

In Europe many ports are not ready to receive train long 750 meters and this is a clear limit to a further improvement of the logistics sector.

At the same time, it is key to understand that we need more and more intermodality, not only for the goods arriving in the ports that have to be loaded on the trains, but also for the goods unloaded from the trains and loaded on the trucks.

A good system is one that it is able to see the best efficiency for every single part of the network of the logistic chain.

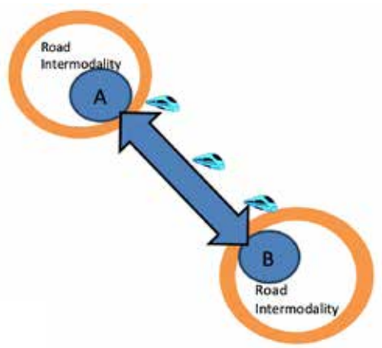
The rail is for freight transport a sort of the backbone and this important to use it at the highest level of potentiality.

At the same time, when the goods arrive close to the urban centers, the distribution with trucks is probably the most efficient.

This is the reason why dry ports are so important and the logistics centers are playing a major role in the logistic channel.

In the next figures, it is clear and simple to understand the role of every single transport mode, because intermodality is important to increase the competitiveness of the logistic sector.

Figure 7: Road and rail intemodality scheme

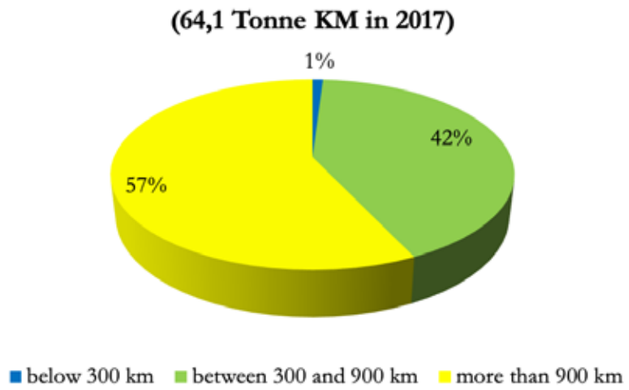


Source: TRA consulting elaboration

The combined transport is working very well for longer routes, especially more than 300 kilometers.

Of course, this number depends of many factors (access charge, incentives, disincentives, etc.) but combined transport traffic in Europe is now concentrated on the longest routes.

Graph 12: combined transport traffic in Europe



Source: UIC data

In 2017 more than 60 million of Ton kilometers were transported by combined transport and 99 per cent was for routes longer than 300 kilometers and the majority of traffic was for more than 900 kilometers.

The market share of combined transport is too low and this is the reason why it is important more effort from the freight rail sector.

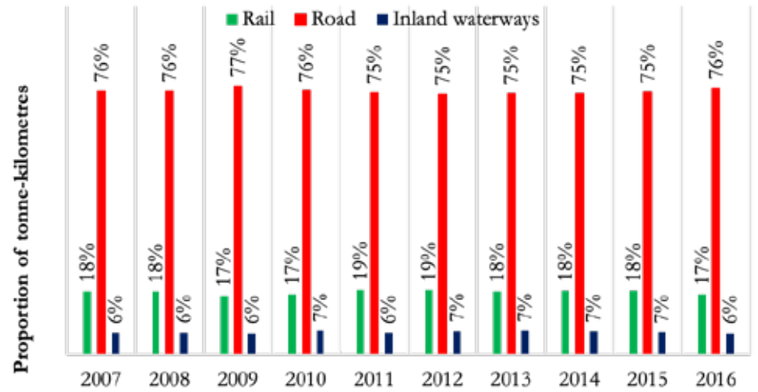
Multimodality is a key driver of competition in the logistic sector and Europe could play an important role.

3.2 A single railroad is not enough

In the last years it was clear the effort of the European Union and the many Countries to invest in the rail infrastructure.

If we analyze the data, this effort has not brought big results in terms of modal shift in favour of rail freight.

Graph 13: Modal share for freight transport

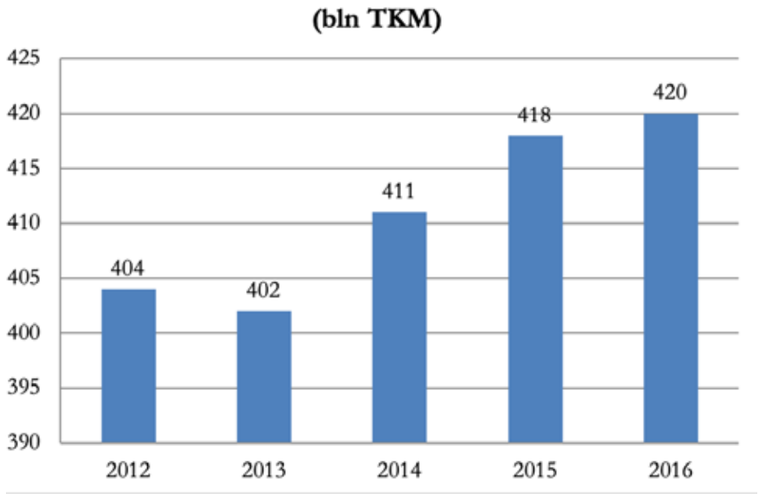


Source: Eurostat

In fact, around 75 per cent of the traffic is still using road transport and the rail market share is around 17-19 per cent, depending of the years.

Rail freight market has big problems to increase and catch new markets, even if the liberalization of rail market happened more than 10 years ago is still not working very well.

Graph 14: Rail freight market



Source: Eurostat

The number of Tons kilometers transported by rail freight have increased over the last 5 years, from 404 in 2012 to 420 billion in 2016, but the result is not satisfactory if we compare with the money invested in the rail sector.

Corridors were a clear strategy of the European Union but the rail freight sector suffers from some historical problems that are far to be solved.

EUROPEAN UNION POLICY

European Union invested hundreds of billions of Euro to build a core network of railways around Europe, but the market share of the rail freight market is flat.

Four packages of liberalization of railway were not able to change the direction in the railway market due the fact that it is not existing yet a real single railway area.

Incumbents are still dominating the rail freight market and the liberalization is not effective because there is no separation between the infrastructure managers and the railway undertakings (except in few cases).

A SOLUTION FOR MULTIMODALITY AND RAIL FREIGHT MARKET

The revision of the regulation 913 of 2010, regarding the core network rail corridors and a better vision about multimodality are needed.

Regulators as the European Union Agency for Railways should have more powers in front of the Member States to create a single rail market from a technical point of view.

No funds from European Union has to be given to those Countries that didn't open the market to competition.

It is a non sense to give the taxpayer money to Member States that don't permit the opening of the railway market with an higher rate of utilization of the network, thanks to the arrival of new entrants in the sector.

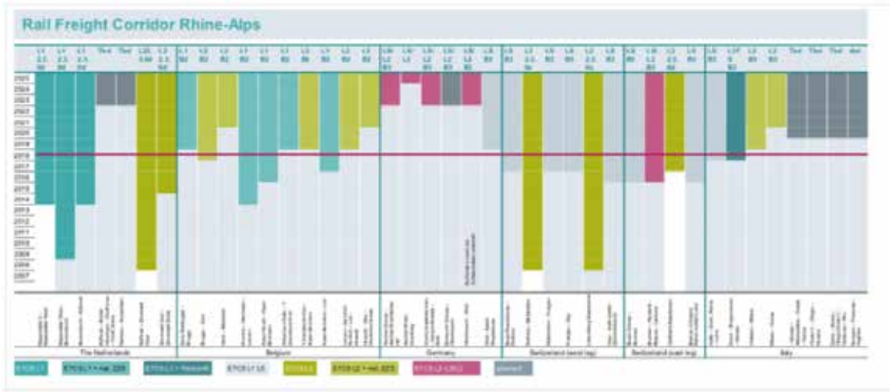
3.3 Not just the corridors

Corridors are many times confused as a simple infrastructure.

A very clear example is coming from the Corridor Rhine-Alps, one of the most important corridors north – south.

In this case, even if the infrastructure is already connected (with improvements under way), the technology used to communicate between the train and the infrastructure manager is changing many times along the route.

Figure 8: Rail freight corridor Rhine-Alps technical specification



Source: Siemens

Rail operator, therefore, needs to be equipped with different systems, this means increase of cost. The higher cost makes rail freight less competitive than the main competitor, road transport.

At the same time, the barriers still exist because doesn't exist a single European standard in the European railway market. The complexity is added by the high level language requirements requested to train drivers every time they cross a border. In fact, the European legislation states that train drivers must be B1 level competency in every country in which they drive a train.

EUROPEAN UNION POLICY

Different languages and technical barriers are still an open point at European level: they are the main problems to the creation of a single way of communication in the corridors.

TEN-T was a driver to unblock the bottlenecks, but even if the physical infrastructure is completed, the different specifications of interoperability are still blocking the creation of a single corridor.

Corridors have still not real coordination between the infrastructure managers of different Countries.

A SOLUTION FOR THE CORRIDORS

Corridor managers should have an higher power of decisions in front of the different infrastructure managers.

European Union has to be able to create a single policy for corridors for a better use of the infrastructure after investing billions of euro in TEN-T policies.

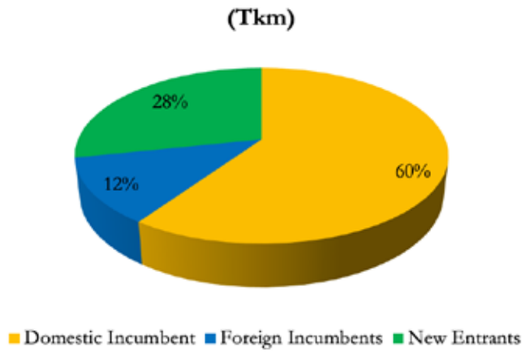
Revision of the corridors, expected to be this year, is a perfect time to change completely the system and to create a real single system for corridors.

3.4 More competition, more benefits

More competition and the creation of a single market would increase the efficiency of all the logistic sector in Europe.

Despite the European Union liberalisation reforms, the structure of the market is not very competitive. In fact in many European countries market access barriers remain for private companies or even State Owned companies operating outside their home territory. Around 60 per cent of the market share is controlled by the incumbents that are in general State Owned Enterprises.

Graph 15: Rail freight market share



Source: IRG data

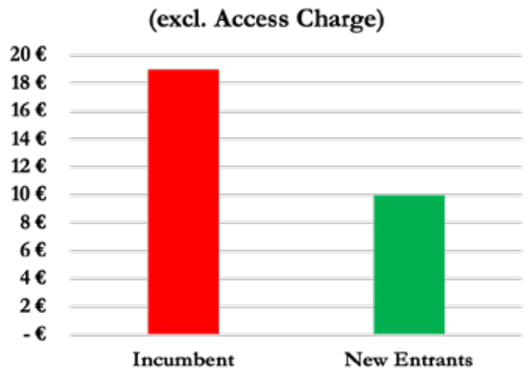
Another 12 per cent is the market share of the incumbent that entered in different markets. Just 28 per cent of the market is controlled by the new entrants.

In general situation of the competition in the freight market is very different in every Country.

Competition could be blocked by several decisions of the States that try to defend the national incumbent.

In this way, the logistic in general and the customer in particular are the losers, because the sector is not efficient.

Graph 16: Cost per Train KM in rail freight market



Source: TRA consulting elaboration

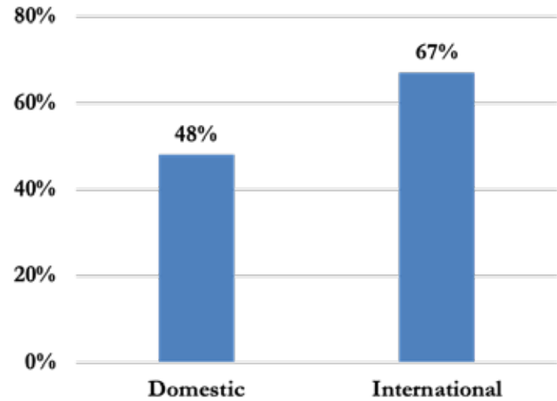
An example from Italy shows the difference of cost between the incumbent and the new entrants.

The incumbent still has a structure of cost linked to the past and this is the reason why the cost per train kilometer is quite the double.

High costs do not permit the rail freight sector to be competitive and to increase the modal shift as requested by the European Union.

Italy is not bad example in terms of competition, because the new entrant took 48 per cent of the market share in the domestic market and more than two third of the international market.

Graph 17: Market share of new entrants in Italy



Source: TRA consulting elaboration

3.5 New markets, new businesses

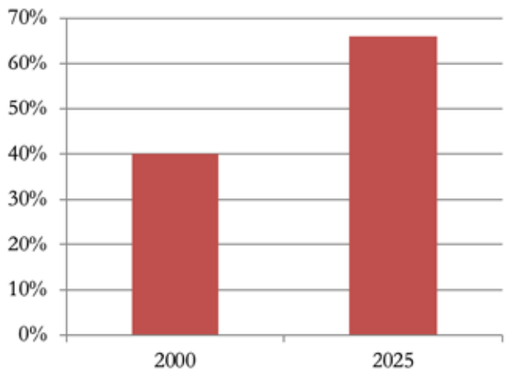
The development of the European rail freight market could be helped by developing new products.

In particular the increase of the individually packaged goods, due to the grow of the e-commerce, could lead to a change of paradigm also in the rail market.

Around 70 per cent of the goods will be packaged in the next 5 years.

E-commerce is more and more linked to the commerce of goods. In Italy, for example, the majority of the business is already coming from goods and not from services.

Graph 18: Individually packaged goods forecast



Source: TRA consulting elaboration

This change of business could help to develop the time sensitive market also in the rail industry.

In particular the use of the high speed rail network for the distribution of high value goods could be a possibility.

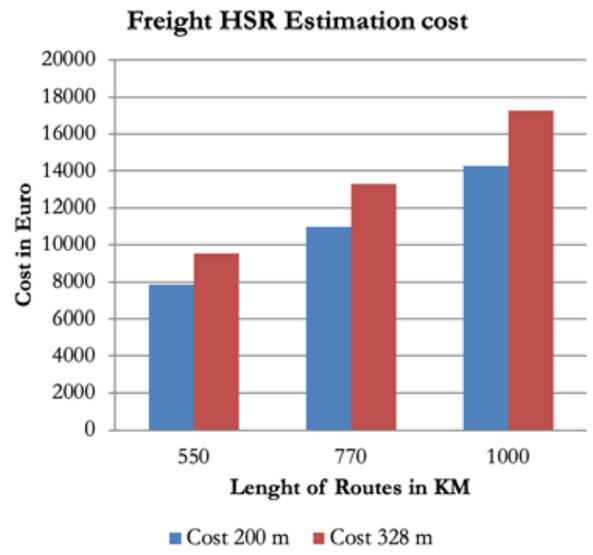
The backbone will be not only the rail, but also the high speed rail network in the freight services.

The benefit is that there is possibility for night connections, loading the goods late in the evening and deliver them early in the morning.

In the morning is possible the distribution thanks to the road intermodality in the urban areas.

The cost could be competitive with air transport, because the capacity of an high speed train could be the double of a big airplane.

Graph 19: New business model in rail freight market



Source: TRA consulting elaboration

In this rail freight world that could change, has to be taken into consideration that there are more and more a different world of logistics.

In general there are big global companies that are competing around the Continents, reason why Europe need to be in a position to be competitive.

Autonomous vehicles will be more and more important, as we saw in the port technology.

Big players that have money to invest in technology could continue to compete at world level.

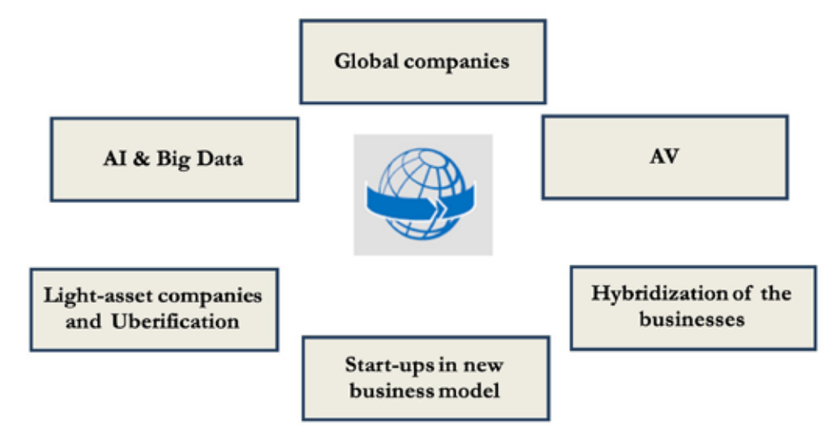
At the same time, there is possibility for start-ups to be disruptive and try to enter in new markets or to create new ones.

Europe is very weak on this stage, because technological start-ups need a single digital market.

Big data and artificial intelligence are key elements in the development of the logistic business.

Big players have resources to invest in the development of these instrument that could lead to a higher productivity and efficiency.

Figure 9: the future of the logistics



Source: TRA consulting elaboration

The last point is the arrival of light-asset companies (a sort of Uberification), but it is not very clear if it could be possible to have this kind of business model in the rail freight market.

The future is very challenging and the European Union has to go further in the creation of a single market in the rail freight transport, if we want to maintain the sector competitive and the logistic sector more efficient.

EUROPEAN UNION POLICY

The regulation regarding access charges is still not clear at European level.

High access charges are often used as a barrier to block competition as well as the decision in many cases not to separate Infrastructure managers from railway undertakings which remain part of the same companies.

Incentives for reducing access charges are possible but direct cost for using the infrastructure have to be covered by the railway undertaking.

Incumbents are still dominating the rail freight market and the 4th railway package hasn't set clear rules about liberalization.

A SOLUTION FOR RAIL FREIGHT

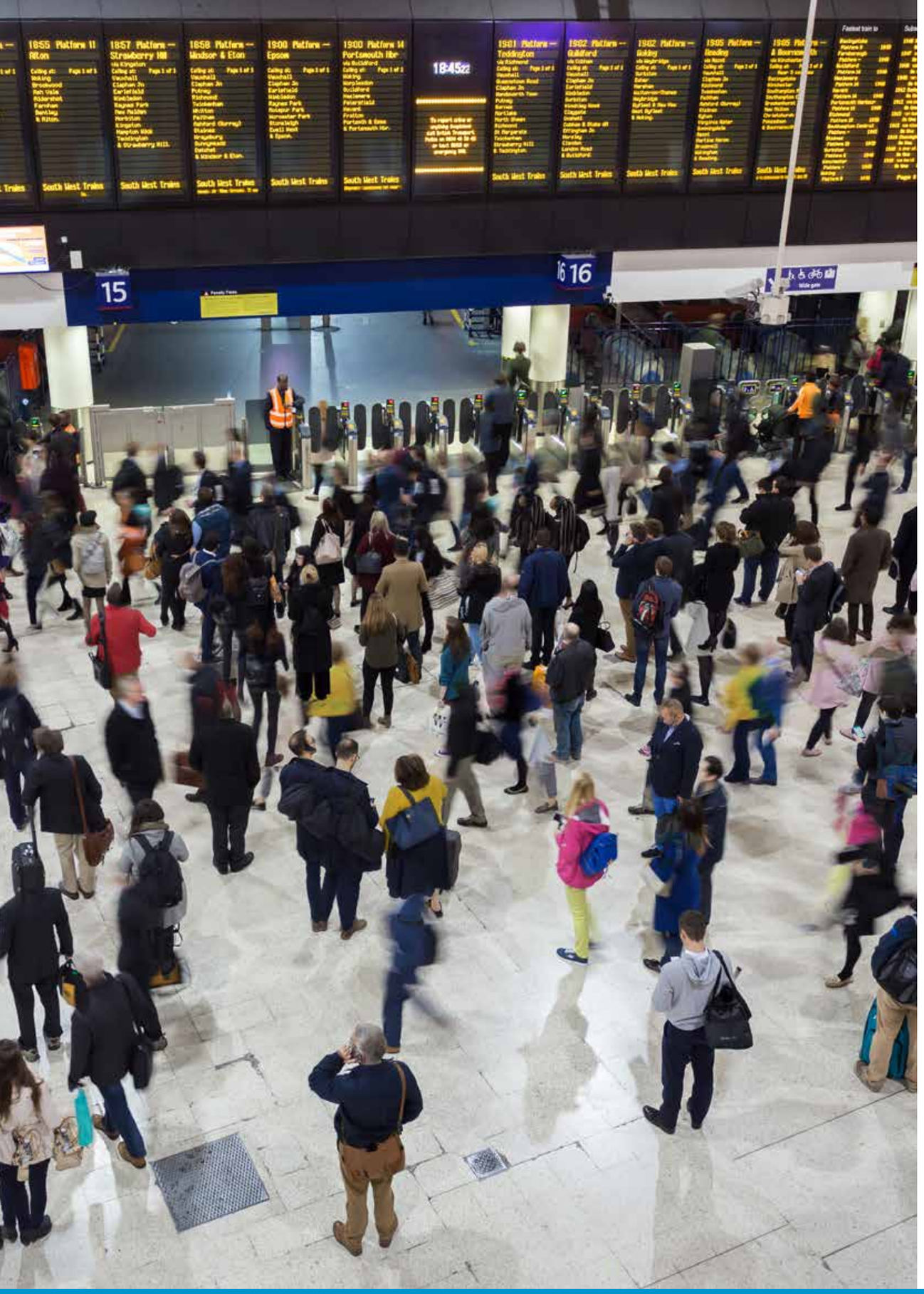
An higher level of incentives could be given to the railway sector to have an higher modal shift.

It will be important to have an higher level of incentives due to the fact that it is not existing a single European market in the rail freight.

At the same time, vertical separation between infrastructure managers that could continue to be State Owned, and Railway Undertakings has to be taken into account by the policy makers.

Privatization of rail freight undertakings could drive to a more competitive and innovative sector.

Innovation is coming from the ideas of private companies and the public monopolists are blocking many times the new entrants and the start ups in the railway sector.



4

UNBLOCKING THE BENEFIT OF RAIL PASSENGER COMPETITION

4.1 The Europe of the national incumbents

In January 2013, the European Union presented the fourth railway package: a set of six legislative texts, divided in technical and market “pillars”, designed to complete the single railway market (called “Single European Railway Area”). The proposed measures, with which the Commission intends to provide a solution to the problems described above, are divided into four areas of intervention:

- ensuring the efficiency and standardization of the rules in order to reduce the technical and administrative burdens for railway companies and favouring the entry of new operators in the market. The implementation of these measures should result in 20% reduction both in terms of access to the market for new operators, and the cost and duration of the procedures for authorizing rolling stock, with an overall savings for companies estimated at around 500 million euros by 2025;

- improving the quality and diversify the service offer thanks to the entry of new operators in the management of national rail passenger transport from December 2019. The implementation of these measures, associated with structural reforms, should ensure, by 2035, more than 40 billion Euro of financial benefits to citizens and businesses;

- avoiding conflicts of interest and to guarantee non-discriminatory access to the market to all companies, guarantee a more equitable and efficient management of the network, strengthening the role of infrastructure managers with regard to the control of all functions the rail network and establishing the operational and financial independence of the infrastructure managers from all operators providing rail transport services;

- ensuring the presence of qualified and motivated personnel to operate in an innovative and competitive context deriving from the greater opening of the railway markets.

This is the last package to try to open to the competition the railway passenger market. The sector is still dominated by the national incumbents that are in general State Owned Enterprises.

In some cases, we can have competition for the market, as the model in United Kingdom and in some regions for the commuter services.

The European Union will open completely the regional market in 2033, but every Country could decide to open to the competition in advance.

That was the case in several countries for the long distance market.

4.2 The long railroad to a competitive market

After several directives between the 1980s and the 1990s, the most important of which was the Directive 440/91/EC, several positive changes occurred in Europe.

Between 2001 and 2016, the European Union approved four legislative packages aiming at gradually opening up the rail transport service market to competition, defining passengers' rights about minimum quality standards, making national railway systems interoperable and defining appropriate framework conditions for the development of a single European railway area.

The Italian transposing legislation was not easy to implement, just like in other European countries, but Italy was the first member state that opened the HSR market to competition.

The competition system officially began in April 2012, when the private company, Italo (managed by Nuovo Trasporto Viaggiatori), entered into the market.

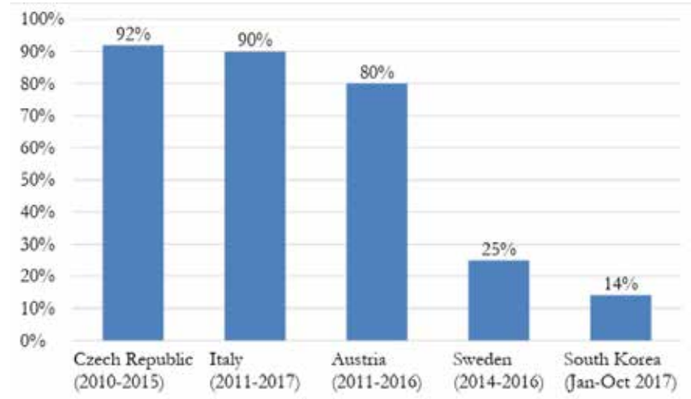
The existing rail incumbent at that time was the service Frecciarossa, managed by Trenitalia, an enterprise owned 100% by the national railway company Ferrovie dello Stato Italiane, currently a holding of the different divisions (service, infrastructure, transportation of goods, etc.) of the railway sector, as provided for by the European legislation concerning the separation between the infrastructure manager and the service operator.

A part the Italian case, that we will analyze further, we will discuss other countries that decided to open their markets to competition. In particular:

- South Korea was the second country in the world (and the last one) where the government decided to open up competition in the HSR; SRT entered into the market in December 2016;
- Westbahn entered into the market one year before Italo, in 2011, starting the long-distance passenger rail service between Vienna and Salzburg;
- In the same year, the market in the Czech Republic, the Prague-Ostrava corridor, was opened to the competition and there are actually two operators in addition to the incumbent on the same line, Leo Express, and Regio Jet;
- In Sweden, open access competition was introduced by the entrance in the market of MTR express in early 2015 between Stockholm-Goteborg.

One of the main factors affected by the competition system is the demand level, as shown in the graph below that represents the growth between a pre-competition market and the last data or estimation for every market.

Graph 20: Increase of demand in passenger rail market



Sources: Elaboration and estimation of TRA Consulting (2018)

Open access permits the railway companies to reduce the prices of the tickets being able to attract more and more customers.

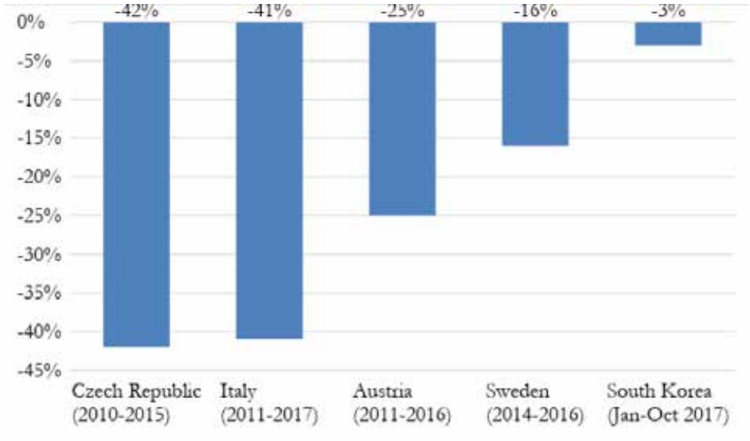
In the graph below, we calculated the yield difference in the rail passenger open-access markets before the opening of the market compared with the last available data after market competition.

It is important to underline that the ticket price in South Korea is controlled by the state but it is possible for the railway companies to make some discounts. In all the other countries that we analyzed, it is possible for the train operators to implement their price strategies.

It is possible to link the demand and the price to find the demand elasticity, considering that if the value of this is higher than 1, it means that the total value of the rail market is increasing thanks to the competition.

The higher level of elasticity in South Korea is due to the fact that SRT is using a new line of HSR for 60 kilometers, while in all the other countries the increase of the demand was entirely due to the competition.

Graph 21: Price decrease in rail passenger market



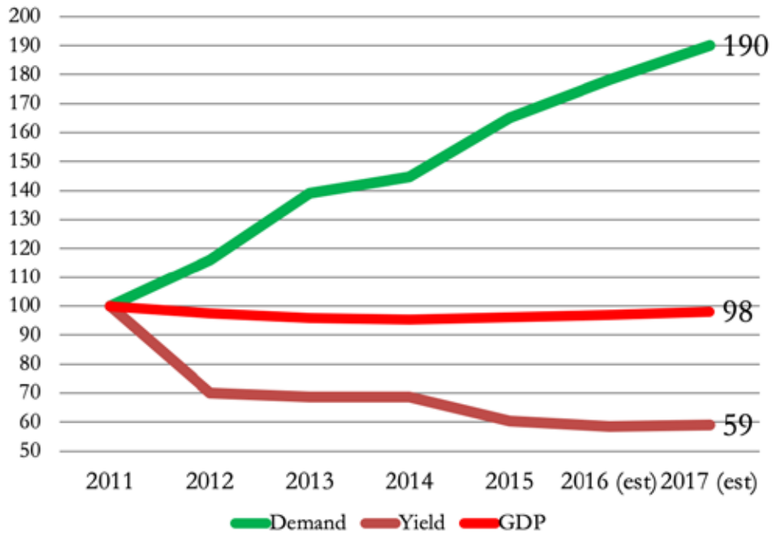
Sources: Elaboration and estimation of TRA Consulting (2018)

4.3 High Speed Rail competition

Historically, competition can improve the service, not just in terms of quality, but also in terms of reduction of ticket's prices, in case there is an efficient and effective regulation by the State, and that is the principle of the EU liberalization process. Thanks to the Italo entry in the Italian HSR market, the average price of the tickets, considering the length of the trip, is decreased around 41% between 2011 (the year before its entry in the market) and 2016.

The chart shows the decrease of prices and the evolution of the demand in the HSR market in competition and the Gross Domestic Product (GDP) in Italy between 2011 and 2017.

Graph 22: Demand and price in the HSR market and GDP evolution (2011=100)



Source: TRA consulting elaboration

It is also possible to underline the strong increase of the demand. The estimation of the number of the passenger kilometers (it considers the length of the trip) between 2011 and 2017 shows an increase around 90% of the demand, although there was a strong recession of the Italian economy in the same period, considering the GDP decreased in that period.

The remarkable growth of the demand was not even registered in the aviation sector after the European Union liberalization in the '90s. The strong increase of the number of the passengers shows the potential of the HSR market liberalization.

Italo has increased every year the number of carried passengers and the last year it reached 11 million of passengers. At the same time, Trenitalia not only has not decreased the number of passengers, but it has continued to have a remarkable growth.

The decrease of the average price of the tickets permits to make some further analysis: it is possible to estimate the savings of the consumers thanks to the lower prices of Italo.

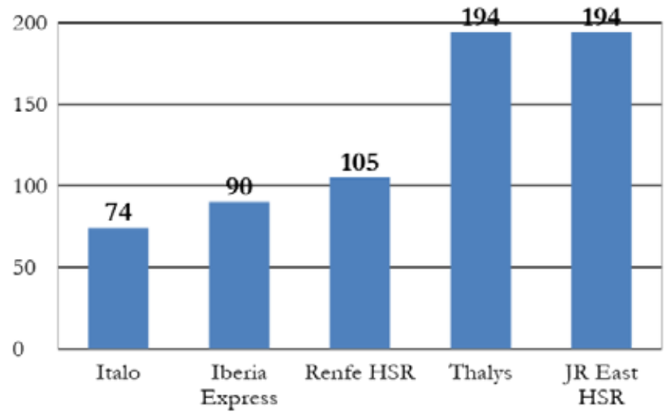
The saving is increasing in the last years because of two primary factors:

- the prices of tickets are decreasing;
- the number of the passengers continues to increase.

4.4 Benefits of competition

As shown in the Chart below, the price is much lower than in monopolist markets such as Spain, France or Japan. In particular, the case of vertically integrated businesses, like in Japan, shows that the price is nearly three times higher than in Italy.

Graph 23: Average price of ticket per 1000 KM in HSR



Source: TRA consulting elaboration

A similar price level could be found also for the Thalys (international high speed services between France, Belgium, Netherlands and Germany), where even if in theory the market is open, it is impossible for competitors to find a way to enter in the market.

Fare integration due to the seat inventory system and the revenue management system was put into operation in 2015 to have a seamless integration between two transport modes.

Italo Bus allows the company to enlarge the catchment area of the high-speed stations with a lower risk for the passengers (integration of the schedule and single operation responsibility for the connection).

Flexibility is the other key factor of this innovation. The asset of a rail company is fixed in the short period. The train cars are very expensive and must be purchased and maintained via strategic decisions for long periods.

In terms of innovation, the seat inventory system and revenue management introduced a quick-decision system to control the price of tickets. A short command and control chain and the capability of the systems to be flexible yielded the possibility to adjust prices in just a few hours in order to match the price point of the competitor.

The service-oriented architecture gives the possibility, therefore, to link all the sub-systems from Revenue Management to the reservations system.

It is one of the reasons why around 80 percent of the tickets are now sold online and via app stores. More and more customers require digitalization and using an app is the best way to catch the demand for a railway company, along with adequate social media marketing.

Both of these results in greater convenience in the use of the train and the simultaneous increase in the quality of service of railway operators.

EUROPEAN UNION POLICY

European Union has no clear policy about liberalization of railway market for passengers. Regulation is giving the possibility to open the market, but in the 4th railway package there are some missing elements.

First, the possibility to maintain vertical integrated incumbents and second, the technical and operational barriers to enter into the market are not eliminated.

The history from the first railway package of liberalization in 1991 is a sort of missing opportunity to oblige Member States to go in a clear direction of competition.

From the end of 2020 there will be the liberalization of the long distance passenger markets, while the competition in the regional market will arrive after 2030.

At the end, also the liberalization of 2020 is missing some points and the effects of open access competition will not be evident in many member States.

A SOLUTION FOR THE RAIL PASSENGER MARKETS

Liberalization is a key element to unblock benefits in the railway market.

European Union made investments of billions of euro for new core infrastructure network but the lack of competition is giving the result of underutilization of the infrastructure.

A real opening of the market, eliminating the technical and operational barriers is needed.

Access facilities have to be opened completely to new entrants and a rolling stock companies market has to be created at European level.

High speed railway is exactly in the same position of the traditional long distance rail market, but the capital needed to start a new business is much higher.

Private investors could arrive only when the regulation is clear and fair and the role of infrastructure managers is independent from the incumbents railway undertakings.

The increase of the responsibilities of EU Railway Agency, due to the fourth railway package, is a good starting point, but the Agency need to have more resources to have a real possibility to create a single railway market.

5

AIR TRANSPORT:BIG PLAYER IN A COMPETITIVE MARKET

5.1 Global competition

The air transport market is probably the best example of the positive effects of the competition.

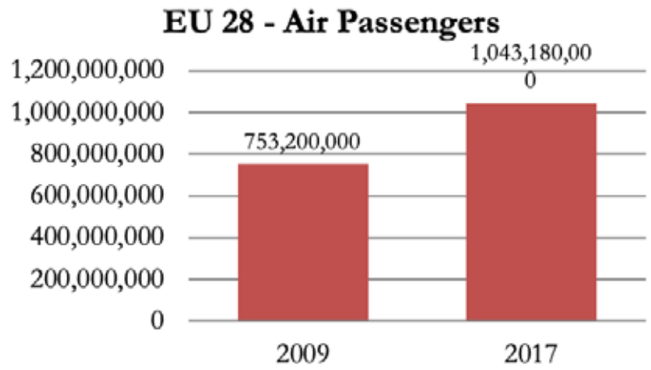
European union decided to liberalize the market more than 20 years ago, when with the third package became effective.

This liberalization follows the deregulation made by the President Carter in USA in 1978. US market was the first to be open to the competition and the effect is that the market has more than 40 years of experience of liberalization.

The growth of the market was very important and the effect of competition has been clear for the consumers that saw the price of the tickets decreasing significantly.

In the last 10 years, after the economic crises, the European air transport market continued to grow and in 2017 more than 1 billion of passengers travelled from and to Europe.

Graph 24: Air passengers in Europe



Source: Eurostat

The effects of competition were clear also in term of structure of the market: the weakest players went out the market and big groups of companies are consolidating.

European airlines still are quite small if we compare with the United States and there are limits in terms of the control for the extra EU shareholders.

This limit came from the past when the aviation was a closed market, but in the modern aviation it could be possible to think to create a single market not only for the freedom to fly, but also for the ownership between Europe and US.

Liberalization of the ownership between the two Atlantic partners could be the next step for a major development of the airlines in consideration of the growth of the middle-east and Chinese players.

When we compare the number of passengers carried by the top carriers in the world, it is possible to see the growth of the Chinese operators.

Table 3: Ranking airlines in 2017

AIRLINES	YEAR 2017
American Airlines	199,6
Delta	186,4
Southwest	157,8
United	148,1
Lufthansa	130
Ryanair	129,8
China Southern	126,2
China Eastern Airlines	110,8
IAG	104,8
AirChina	101,5

Source: TRA consulting on Airlines data

The first biggest players are from US, three legacy carriers and one low cost carrier (Southwest).

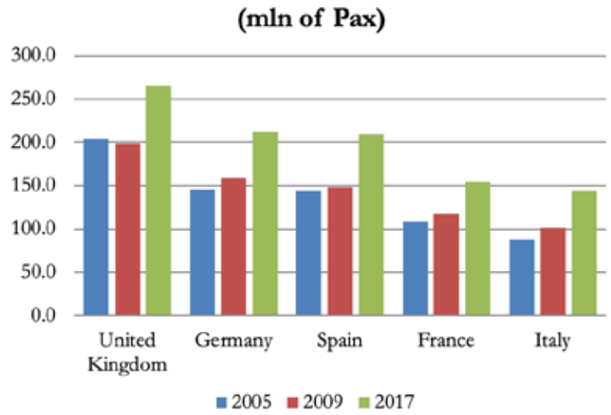
In US the market is very concentrated: 75 per cent of the market is in the hands of these four players, while in Europe, the biggest airline is Lufthansa with less than 15 per cent of the market.

The competition is more and more global and this is the reason why European carriers are merging to find the way to be competitive.

5.2 Big player in a growing market

The European market has experimented a very strong growth in the last 20 years thanks to liberalization.

Graph 25: Air Transport market



Source: Eurostat

United Kingdom is by far the biggest market with more than 250 million passengers per year.

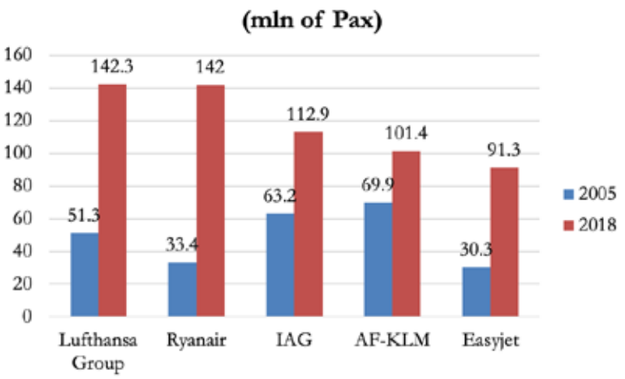
Germany and Spain have more than 200 million passengers, while two other markets have around 150 million passenger, France and Italy.

The growth of the market was strong in the last decade, also after the economic recession that several Countries experimented. In Italy, even if there were a triple dip recession (in Spain was a double dip recession), the market continues to grow and in 2018 overpasses 150 million passengers.

The market of airlines is not concentrated as in US; but more and more few players have a biggest part of the demand.

In Europe, legacy carriers continue to merger between them, while low carriers as Ryanair or Easyjet developed thank to the internal growth.

Graph 26: Airlines passengers



Source: Airlines annual account

Last year Lufthansa group and Ryanair transported more than 140 million passengers, a strong increase if we compare with the number of passengers in 2005: the German carrier had just 51 million passengers, while Ryanair had just 33 million passengers.

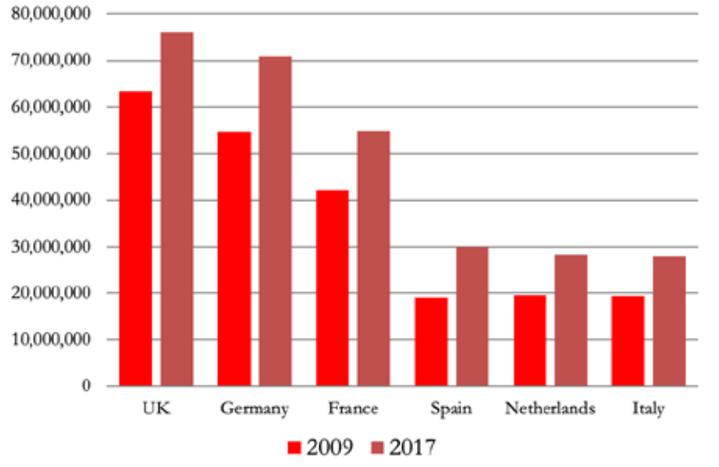
Lufthansa was able to buy during the years Swiss, Austrian Airlines and Brussels Airlines to create the first group in Europe.

IAG also have a similar strategy and the group is now made by four airlines: British Airways, Iberia, Vueling and AerLingus.

The market is still competitive, but in some cases the concentration could create some question marks.

It is important to remember that the competition is not only at European level, but at global level with the rise of Emirates, Qatar Airways and Turkish Airlines.

Graph 27: Extra UE passengers



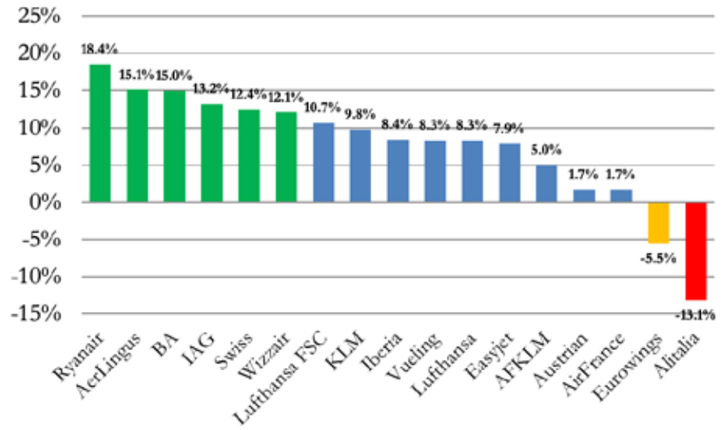
Source: Eurostat

Some carriers as Lufthansa of Air France-KLM are stronger in the long haul market and some routes are in the hands of few alliances. Especially the North America – Europe routes are controlled 75 per cent by the three big alliance: One World, SkyTeam and Star Alliance.

Airlines are able to face a global competition of players from USA and Middle East and they continue to be profitable.

The margin of main carriers were positive in 2018, except for some regional players as Alitalia.

Graph 28: EBIT Margin of airlines in Europe

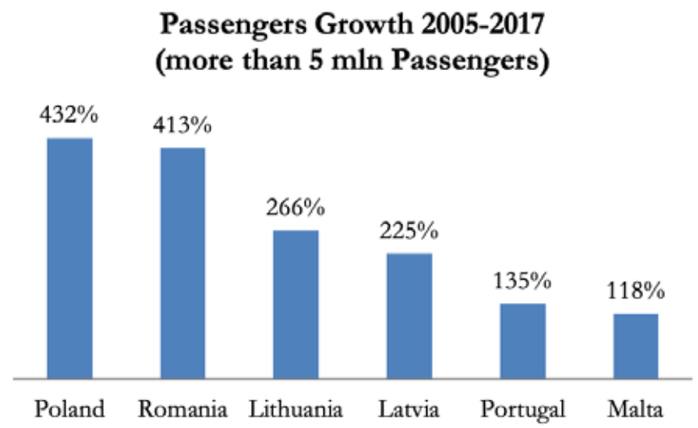


Source: annual account airlines

The growth of the market was stronger in the Countries of East Europe, especially Poland that experimented a growth higher than 400 per cent.

In general in the last decade, the liberalization of the air transport market and the stronger economic growth made possible a boom of the Eastern Countries markets.

Graph 29: Air Passenger growth



Source: Eurostat

EUROPEAN UNION POLICY

European Union was able to create one single market for airlines in Europe.

The three packages of liberalization from 1987 to 1997 gave the opportunity to private operators to take a bigger part of the market. At the same time, the total number of passengers doubled in just 10 years thanks to more efficient airline companies.

The low cost carriers had the possibility to grow in secondary airports, increasing the attractiveness of regional airports.

European airlines have been able to increase competitiveness in front of the major airlines, but it is important not to introduce new legislation, linked to the environment policy, that could lead to a competitive disadvantage.

A SOLUTION FOR AIRLINES

Legislation of European Union was able to introduce a single market in the air transport in Europe.

It was one of the best example of creation of a single market with European players able to fight the global competition.

Mergers allowed to European airlines to be competitive, but the Commissioner for Competition has now to pay attention to the creation of oligopolies that could lead to consumer losses.

Airlines are facing a stricter regulation about environment externalities, but it is important that European Commission will not penalize the European airlines against the other players.

Asymmetric taxation could create to a disadvantage to European airlines.

At the same time, there is some anachronistic legislation about the limitation of foreign investments in the airlines.

Extra-EU investors could have 49 per cent of an European airline, while the market is more and more global and competitive.

This limit has to be cancelled especially with those markets, for example US, that are well integrated with the European Union ones.

5.3 A Single sky is needed

The single sky covers 37 Air navigator providers and has around 17000 air controllers.

They control around 30 thousand flights per day and the fact of not having a single sky costs around 4 billion of euro.

Creation of a single European sky could lead to great benefits: reduction of cost for the airlines and a decrease in the ticket price for the consumer. In fact in a competitive market, reduction of cost could be given to the consumers.

The biggest player has less than 15 per cent of the market share and the market is not concentrate too much.

The air navigation is an important cost for airlines, so a reduction of this voice of cost could be beneficial for the traveler.

At the same time a creation of a single sky could reduce the external cost. Longer routes have impacts on pollution and longer routes also lead to longer time of the flights.

SESAR is the technological pillar for the single sky. We have competition since 1997, but still the single sky is not effective in Europe.

The situation is leading to continuous strikes of the Air Traffic controllers and this has an impact on the airlines.

EUROPEAN UNION POLICY

Council regulation 219/2007 established a joint undertaking to develop the new generation of European air traffic management system.

The implementing regulation 409/2013 and 716/2014 were not able to develop a real single sky in Europe due to the resistances of the air traffic controllers of every single Member States.

In the last years, we saw the damages created by the lack of creation of a single sky and the lack of coordination at European level in the air transport.

A SOLUTION FOR A SINGLE SKY

European Commission, after more than 10 years from the Council Regulation, has to be effective in deploying a single sky in the air traffic management.

The lack of a single sky is creating waste to the airlines and uncertainty for the travelers.

European Union has to be able to implement legislation overcoming the resistances of some of Member States.

5.4 Airport congestion is a problem

In some cases, The growth of the airline system has bottleneck in the airport. It takes many years to develop new runaways, but on the other hand there are limits.

Airports are key element to sustain the growth of the business and of the logistic sector not only for air passengers, but also for the freight market.

In the last years, European airports registered a strong growth, but it is in the east part of the world where the air transport has had the biggest growth.

In particular new players entered in the top ten, as Dubai or Beijing airports, while there are just 4 big airports in the top twenty ranking.

Table 4: Airport ranking in millions of passengers

AIRPORT	2006	AIRPORT	2017
ATLANTA	85,9	ATLANTA	103,9
CHICAGO	76,5	BEIJING	95,8
LONDON LHR	67,9	DUBAI	88,2
TOKYO	63,3	LOS ANGELES	79,8
LOS ANGELES	61,5	CHICAGO	79,8
DALLAS	59,2	LONDON LHR	78
PARIS CDG	53,8	TOKYO	76,5
FRANKFURT	52,2	HONG KONG	72,7
AMSTERDAM	44,2	SHANGHAI	70
LAS VEGAS	44	PARIS CDG	69,5
DENVER	43,9	AMSTERDAM	68,5
MADRID	41,9	DALLAS	67,1
NEW YORK	41,9	GUANGZHOU	65,9
PHOENIX	41,2	FRANKFURT	64,5
BEIJING	41	ISTANBUL	63,9
HONG KONG	40,3	NEW DELHI	63,4
HOUSTON	39,7	JAKARTA	63
BANGKOK	39	SINGAPORE	62,2
MINNEAPOLIS	37,6	SEOUL	62,2
DETROIT	36,4	DENVER	58,3

Source: TRA consulting on Airport Council International

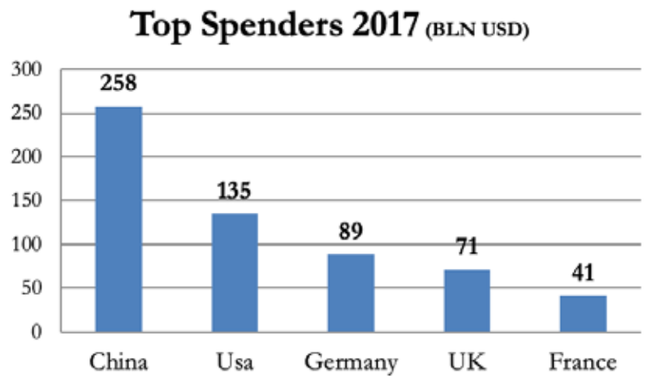
The east shift of the traffic is clear front, as represented in the chart above, where in yellow are underlined the airports of Asia and Middle East.

The same shift is clear from the tourism expenditure.

Europe has to be able to increase airport's capacity and attraction to increase the leisure and business from big top spenders as China.

China tourists spent in 2017 quite the double of expenditure of the second Country, united States. For example, France outgoing market is one sixth of the Chinese market.

Graph 30: Outbound tourism



Source: UNWTO

5.5 Mergers and oligopoly

The European full service airlines were able to be more and more competitive against the rise of low cost carriers.

The upcoming of low cost carriers started to decrease the profitability in the short medium haul market of the traditional carriers.

Only the biggest airlines were able to compete against new players that were more efficient in terms of costs.

During the last 15 years, big groups have been raising in the European air transport market: Lufthansa, IAG or Air France- KLM are able to be competitive with Ryanair or Easyjet, the biggest European low costs.

At the same time, the competition from global players coming from Middle East and US was decreasing the marginality of the long haul flights.

This decrease of marginality was limited for some big players that, in order to be more competitive, decided to go in the direction of mergers and acquisitions.

Full service carriers had also another competitive advantage, linked to the legislation of grandfathers' rights of the slots.

The use of the slots in the airports is given to the company that is able to use at least 85% of the time in the previous season and it is not possible to sell them in a secondary market (except in London).

Historical incumbent could continue to use the slots and "hold an attractive market position in their hubs" as it is shown in the Lufthansa group presentation.

Figure 10: Lufthansa group slot in its hub

Source: Lufthansa group analyst presentation 2019

Runway capacity constrains are the other difficult aspect in the aviation system.

These two elements are blocking a real competition in main hubs and the growth of the air traffic will be limited in the future if the European Union will not take action against this monopolistic positioning.

EUROPEAN UNION POLICY

Many airports are facing a restriction of capacity.

In many cases, this situation is well accepted by the Full Service Carriers because they can maintain a sort of monopoly of the slots.

European Union has not been able to change the grandfathers' rights that are blocking the creation of a market for the slots. It is possible to have a secondary market of slot only in the London area.

This is a monopoly that is blocking the development of the market of air transport.

A SOLUTION FOR AIRPORTS

European Union decided to invest billions of euro in new infrastructure, but it was not able to develop a strategy for new airport capacity.

The constraint in the airports could limit the growth of the air transport market in the next decade.

It is needed a revision of the grandfathers' rights, as it is done in London, and the control of the European Union on new investments in airport infrastructures has to be strict, especially where EU funds are used.

Monopolistic situations in some hub have to be eliminated by the Competition Commissioner.

6

TRANSPORT AND POLLUTION

6.1 A global problem;

The transport sector is one of the most important in terms of greenhouse gases emissions and this is the reason why the European Union is trying to have a clear modal shift to cleaner modes of transport.

The problem is rising because air transport is more and more important and the part of pollution from this transport mode is growing quite fast.

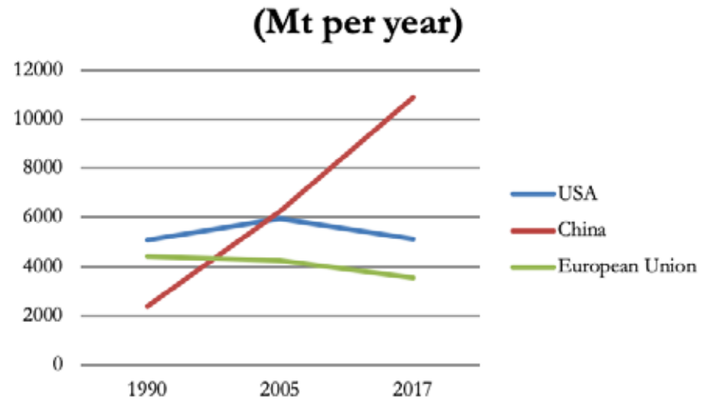
It is important to remember that taking actions against the rising pollution is a key element for European Union, but there are other Countries in the World that are increasing in the emission of CO2 and it is not possible to have a stand alone strategy in fighting pollution.

China is right now polluting more than USA and European Union together, while until 1990 was a relatively small polluter Country.

The growth of the economy and the population are key elements to take into consideration when we are speaking about emissions.

European Union in the last three decades was able to reduce 20 per cent the CO2 emissions, while US was flat.

Graph 31: CO2 emissions 1990-2017

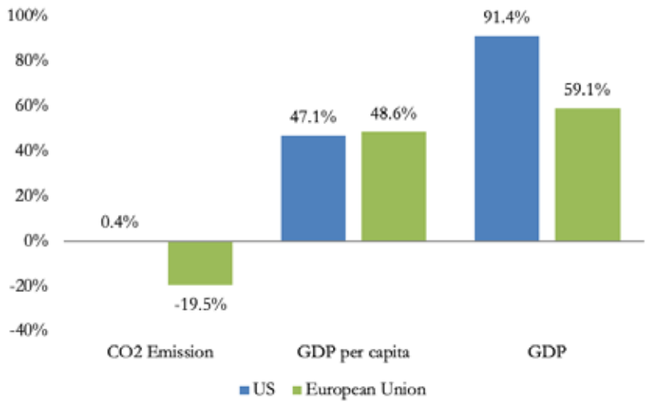


Source: EEA, UN and the World Bank

In the same period, the gross domestic product per capita of EU and US increased around 50 per cent, while the total GDP quite doubled in US.

So there is more and more efficiency in US and Europe and the decrease of pollution is clear in this two main economic areas.

Graph 32: CO2 emissions and GDP 1990-2017



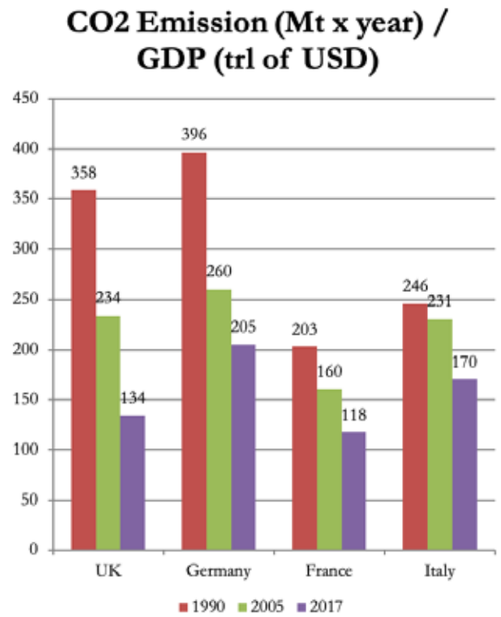
Source: EEA, UN and the World Bank

The efficiency of the European economies is also clear when we compare the CO2 emissions with the total Gross Domestic Product.

In all European economies, especially in the Eastern Countries, the efficiency in terms of environment in generating an additional euro of GDP is higher and higher.

In UK, the efficiency in 2017 is almost three times higher than in 1990, while in many of the biggest economies of the European Union, the efficiency is almost doubled.

Graph 33: CO2 emissions and GDP 1990-2017



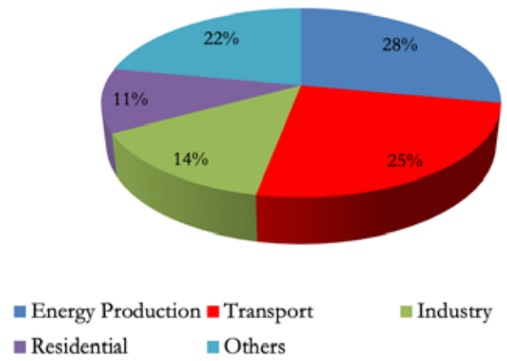
Source: EEA, UN and the World Bank

6.2 A transport problem

In general at European Union level, transport is second in terms of emission of CO2 after energy production, as shown in the graph below.

The total emissions for transport has already reached the first position in the ranking of pollution in some Member States.

Graph 34: CO2 emissions in Europe



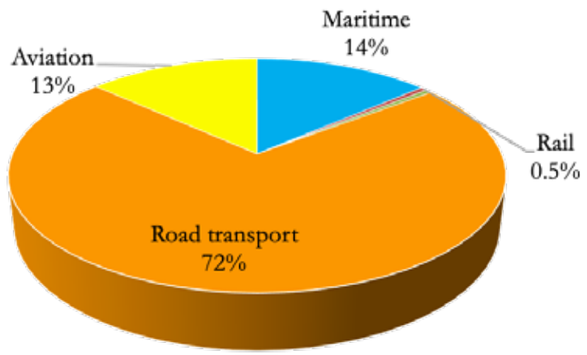
Source: EEA

Railway is accounting for 0,5 per cent of emissions, because it is the most efficient transport mode in terms of reduction of pollution.

Air transport is already 13 per cent of total emissions, even if the efficiency in the air transport is better and better.

Road transport is leader in the ranking due to the fact that it is the most used mode of transport.

Graph 35: GHG emissions in transport in Europe



Source: EEA

As showed in the graph above, rail transport represents the best option in terms of CO2, it is in fact the most environmental friendly mode of transport.

Therefore investments to achieve modal shift from road to rail is also linked to the possibility to decarbonize the European economy, but in this moment, railway is not able to increase the market share.

EUROPEAN UNION POLICY

European Union invested billions of euro to have a modal shift from road to rail in order to reduce the impact of CO2 emissions on the environment.

There was not capability for railways to increase the modal shares due to the fact that it is not existing a single railway market.

In the air transport, the European Union took actions against European airlines by introducing in 2012 the EU emissions trading scheme.

Directive 101/2008 was adopted to cut emissions from flights from, to and within the European Economic Area, having an higher impact on competiveness of the European airlines.

A SOLUTION FOR THE ENVIRONMENT

Pollution could be decreased thanks to the environment efficiency of the railway industry.

A real competition in the railway market and the creation of a single area are key element to have a modal shift from road to rail.

Investments from European Union are not sufficient to tackle actions against rising pollution in the transport sector.

Legislation as emission trading scheme, has to be adopted at global level and not at just at European level, otherwise the problem of pollution of air transport will not be solved and we will just reduce the competitiveness of the European airlines.

7

AUTOMOTIVE INDUSTRY AND ROAD TRANSPORT

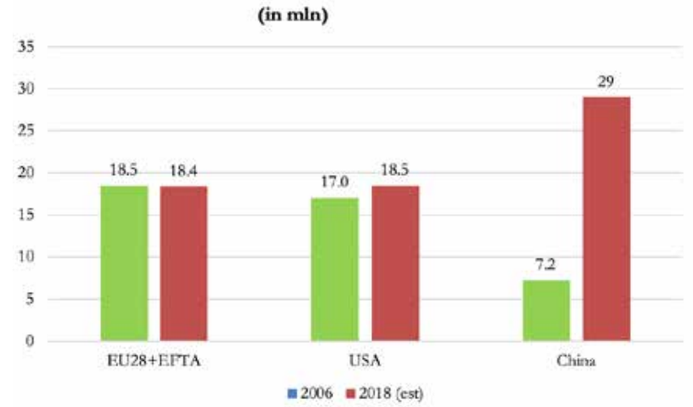
7.1 Global market competition

The automotive industry is a key element for the European Continent. Anyway, also in this sector Chinese market is more and more important and in 2018, the number of vehicles sold was quite the double than in Europe.

The market is quite stable in terms of sales from 2006 to 2018, because the European market is quite mature.

In China the number of vehicles sold increased from 7 million to around 29 million in 2018.

Graph 36: Vehicles Sales



Source: OICA

The economy of scales are very important in this sector and this is the reason why is so strategic to maintain a strong industry around Europe.

The automotive industry sees a double trend quite clear:

- autonomous vehicles
- E-vehicles

7.2 E-vehicles and the economy of scale

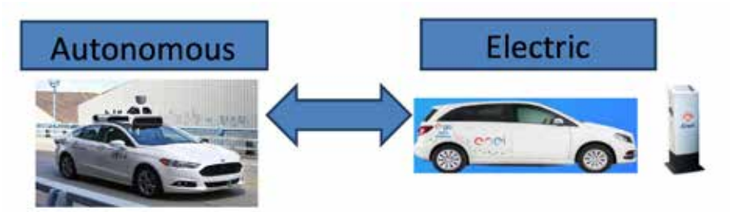
The e-vehicles are growing in the European market, not only thanks to economic incentives, but also because big players are investing tens of billions of euro on this technology.

E-vehicles could have important economy of scale and China is really the leader about this sector, especially in the battery production.

China sold last year more than 1.3 million of e-vehicles, by far the largest market in the World.

The arrival of e-vehicles has an impact on the production of cars and trucks and there will be a change of technology also in the production phase.

Figure 11: Autonomous and electric vehicles revolution

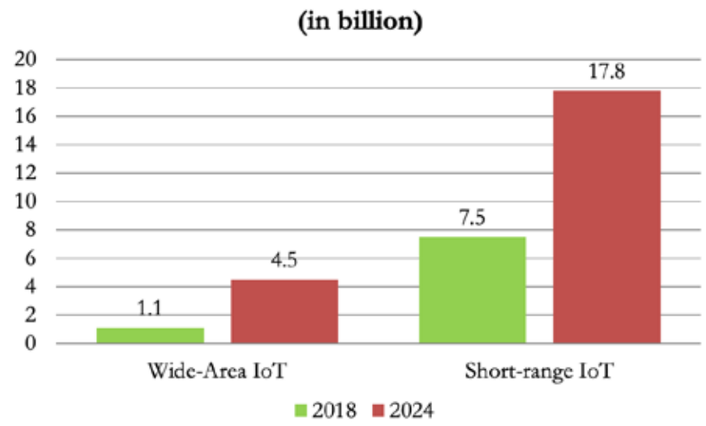


Source: TRA consulting elaboration

The other big change comes from technology and development of 5G. In fact, the autonomous vehicle will be helped by the deployment of the 5G technology thanks to a lower cost in the transmission of data, a smaller latency and faster connections.

The machine to machine connection will increase in the next five years by factor 4 and that will be especially true for the vehicles.

Graph 37: IoT devices



Source: Ericcson reports

7.3 Autonomous vehicles and new players

The reduction of the prediction cost is linked to the reduction of semiconductors. The autonomous vehicles are already a reality, because technology is already deployed.

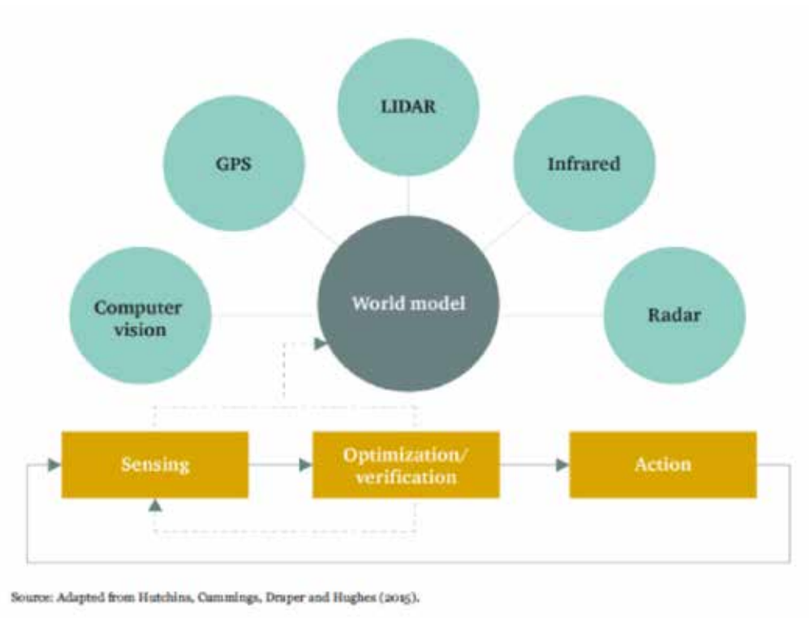
It will be interesting to imagine a different regulation when the autonomous trucks or cars level 5 will be on our roads.

Big players are not coming just from the automotive industry, but we are seeing more and more technological companies in the business.

Agreement like that between Waymo and FCA are effective since many years, while big Technological companies, like Tencent from China are investing billions of dollars in the autonomous vehicles.

The concept of the autonomous vehicles is quite clear because sensors took many data from the “external world” and 5G connections will permit to send data from a car to another car.

Figure 12: Autonomous systems



Source: Adapted from Hutchins, Cummings, Draper and Hughes (2015).

The optimization and the verification of the data is more and more complex, but thanks to the increase of capability will be more and more cheaper and faster to elaborate the data.

EUROPEAN UNION POLICY

Road transport is the major source of greenhouse gas emissions and this is one of the reason why the regulation is going in the direction of stricter emissions limits.

Commission Regulation 2017/1151 on type-approval of motor vehicles, together with limit of Euro 5 and Euro 6, are regulations that are pushing indirectly the industry to the electric revolution.

Europe is not a leader in this technology even if big automotive players are investing in this direction.

China is leader in the e-vehicles, while US companies are leader in the technology of autonomous vehicles.

The lack of integration in digital and technological market in the European Union is provoking a delay in the implementation of these technologies in the automotive industry in Europe.

Development of the e-vehicles and autonomous vehicles is coming also from big tech companies that in Europe are not able to grow due to the fragmentation of the digital market.

A SOLUTION FOR AUTOMOTIVE

Regulations about CO2 emissions for automotive industry are now the only strong legislation that European Commission has been able to do, but these are not solving the delays in investment in new technologies.

Development of new technology in the automotive industry could be implemented with the creation of a digital single market.

At the same time, the intervention of some Member State to defend some position of some car producers is non sense as the market is more and more competitive and global.

The rising of European global players is more and more important with regards to Chinese and other global automotive producers.

Incentives for the creation of a network of chargers for e-vehicles could be better coordinate because at European level there are some Countries that are lagged behind.

7.4 Public Transport in Europe

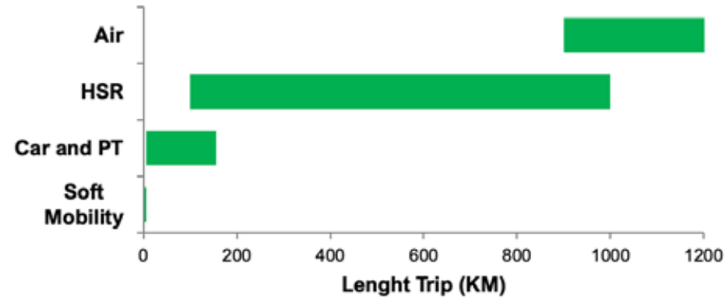
In many cases the public transport companies in Europe are local monopolists controlled by some level of Government.

Public transport is a key element for a better mobility in the cities, where the majority of the businesses are developed in the European economies.

European Union accepted not to liberalize the sector and to continue to subsidize for billions of euro per year local operators without any procedure of tender.

Mobility is a key concept and public transport has a key role in the efficiency of the sector.

Graph 38: Mobility in 2020



Source: TRA consulting elaboration

At the same time, many of the Member States in the European Union in many cases were against innovation in the short distance travel, as for example car sharing.

The revolution of autonomous public transport will change the cost efficiency in the public transport.

Right now more than 50 per cent of the total cost of a public transport company is linked to the cost of human resources.

The high cost of production in the public transport has a direct effect on the cost for the subsidies.

In cities like Paris, the s subsidies are higher than 2 billion per year, while in Rome, where the service is limited, the cost for the taxpayers is around 700 million per year.

In general the total subsidies in the public transport sector in Europe is higher than 30 billion per year.

Due to the reduction of the numbers of drivers, linked to the introduction of autonomous buses (metro is more efficient) there will be an higher efficiency of the public transportation.

Public transport has to be integrated with other transport modes as it is indicated in the next figure.

Figure 13: Seamless Urban mobility

Source: TRA consulting elaboration

EUROPEAN UNION POLICY

European Union is not opening the competition in the public transport. This is the cause of high inefficiencies in the sector which highly subsidized.

Regulation 1370/2007 was not able to have a clear market opening in the public transport and many Member States preferred to continue to have local companies controlled by the political levels.

At the same time, in the short distance travelling, European Union was not able to fix a clear regulation in favor of new technology, blocking new services in many Member States.

A SOLUTION FOR PUBLIC TRANSPORT

A new regulation of European Union has to be implemented to decrease the cost of the public transport for the taxpayer with an increase of the efficiency.

Efficiency could be reached thanks to a process of tendering that could liberalize the market.

It is not acceptable to pay more than 30 billion of euro to local inefficient operators controlled by the political level.

At the same time, European Union has to take actions to permit the innovative service providers of mobility to invest in Europe.

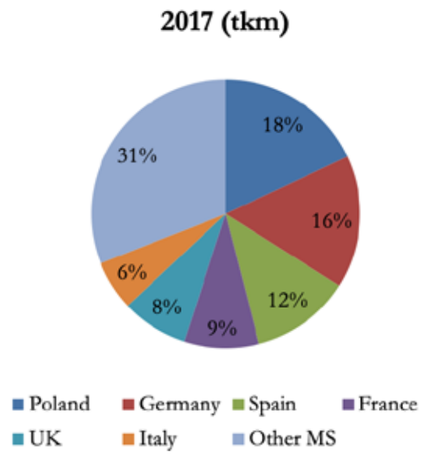
7.5 Liberalization of long distance passengers and freight markets

The road freight market has had a strong increase in the last two years due to the competitiveness of the sector: in 2016-2017 the expansion was around 4.5 per cent while in 2018 nominal growth was around 5.5 per cent.

The most important market is the Polish one with 18 per cent of the market share at European level thanks to the competitiveness of the players of the sector, followed by Germany, 16 per cent and Spain, 12 per cent.

A single area was created in the last years and this is the reason why road freight transport is competitive.

Graph 39: Road freight transport in EU

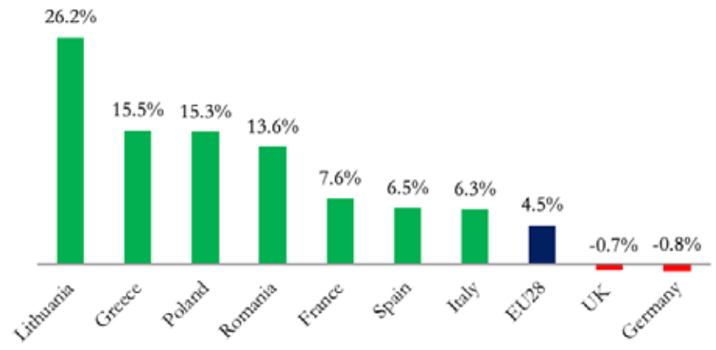


Source: Eurostat

Road freight transport is competitive in Eastern Countries of Europe with an existing legislation that established common rules on access to the market and setting minimal standards for working time and rest periods.

Smart digital tachographs is the last innovation in a competitive sector that put attention to fair regulation among Member States.

Graph 40: Road freight transport in 2016-17



Source: Eurostat

In the long distance buses market, liberalization has permitted a strong push to the sector with innovative business models.

The entry in the market of new players, more focused on the commercial side in general and on revenue management in particular, has allowed the market to be competitive with the railway sector, especially in Germany.

Liberalization of the railway sector could have an impact on the long distance buses, because railway is cost efficient when the transport demand is high.

EUROPEAN UNION POLICY

European Union made different reports on the implementation of Regulation 561/2006 on harmonization of social legislation related to road transport directive 2002/15 and of some provisions of Regulation 1071/2009 on common rules concerning conditions for road transport operators.

Access to the international road haulage market was under consultation too and the market is now competitive and growing.

A SOLUTION FOR BUSES AND FREIGHT ROAD MARKET

Market is now quite competitive and the European Union has to continue to analyze the development of the condition of the market, especially with arrival of innovation in self driving vehicles.

New legislation has to be settled to pay attention to the changes that will be introduced in the next decade and to continue having a long distance road freight and passengers transport market that is fair and competitive.

7.6 A competitive, innovative and private market

Regulation is a key element for the arrival of new technologies. At the same time, Europe regulated in the road transport, both in the freight services and in the passengers market.

Liberalization of the long distance buses has permitted the market to grow exponentially in the last years.

At the same time the opening of the competition in the road freight market permitted a decrease of the cost.

Similar standards are now in operation in Europe without impeding the competition between operators around Europe.

Competition is a keyword in the road transport and it is important for the politicians to keep in mind.

Private investments arrive when the regulation is soft and stable.

The transport market, as it is shown for the autonomous vehicles is not anymore an independent market from technology.

Regulators have to remember this key element, because a competitor in the future could be a car producer from China with Tencent technology.

Transportation is not transportation anymore: it is technology, platform, big data and artificial intelligence.

CONCLUSIONS

The remaining open questions for a new European Union.

- **What is a single market?**

European Union is one of the biggest economies in the world and transport and logistics are key drivers for the development of the whole European economy.

The creation of a single European market is still missing in many sectors, as in transport, whereas in more innovative ones the benefits of a Single European area are evident.

Even if the European Union has put efforts in creating the Trans-European Transport Network (TEN-T), an integrated transport network at European level, we are far from achieving a single European transport area. In fact, a single European market is not just a creation of “core network corridors”, but it is a real single area where all the players are not national, but European.

To connect people and businesses is requested to have economies of scale and networks. The creation of a single market is a key element not only to have more competitive economic environment at European level, but also to create global players able to compete against operators coming from United States, but also new markets as China or South East of Asia.

To do that, it is necessary to rethink the regulation and the competition authorities have to change the mind.

- **Why is not working?**

Liberalization has had a great effect in many European sectors as we saw in the aviation. But competition gave higher benefits when the single market is adopted.

We can find several cases of competition of some market at the Country level, but this is not enough.

Benefits are wider for citizens when a single market is deployed.

In Europe, national States continue to defend their own State Enterprises and to do that, they avoid to create a single European market.

We will see for example how big investments are developed in some corridors, but at the end of the day the different regulations impede to have a real single market.

It is important in the transport and logistics market to have more private investments and Governments have to try not to intervene directly on the businesses, but just setting the legislative framework to create a competitive single transport market.

- **Who are responsible?**

The responsibilities of not having a single market is to ascribe to the European Institutions and National Governments.

While we are trying to prevent competition inside the European Union, Member States have not understood yet that Europe has become the target of many Extra-UE investors awaiting to take advantages of our weaknesses.

European companies have troubles to be competitive at global level because many times the markets are national and not European.

We have very few markets where the competition is at the European level and this situation leads to European players able to be competitive at global level. For example, we will analyze the Automotive industry or the air transport market.

- **Where is it working?**

The automotive and air transport markets are the example that Europe could be competitive at global level, when there is possibility for private players to grow thanks to advantageous business economic environment .

Private players have grown thanks to the liberalization of the market. More competitiveness helps the players to be more flexible and to find solutions to be competitive not just at European level but at World level.

Still a few markets are open and competitive in Europe and the lack of a single market didn’t permit to have more “business champions”.

This is a problem not only for the transport and logistics sectors but also in the digital media market.

- **When EU will implement it**

European Union showed that where there were possibility to compete, new private investments came to the market.

Private players haves the possibility to grow in a single market, but it is not easy to imagine when it will be created in the transport and logistics sectors.

The push to a single competitive market has to arrive from the politics and a clear role could be developed by the conservative tradition.

United Kingdom showed many times the benefits of competition as first mover in the past and this kind of development could be followed by the European Union in the next years.

It is not to make a stronger European Union, but to create a competitive single market where private operators could finally deploy all the benefits for the consumers.