

Perspectives for infrastructural investments in the Three Seas region

A Special Report



Report by

SPOTDATA

Partner



Selected Results from this Report

35%

the forecasted GDP growth in the Three Seas region for the years up to 2030

€1.1 trillion

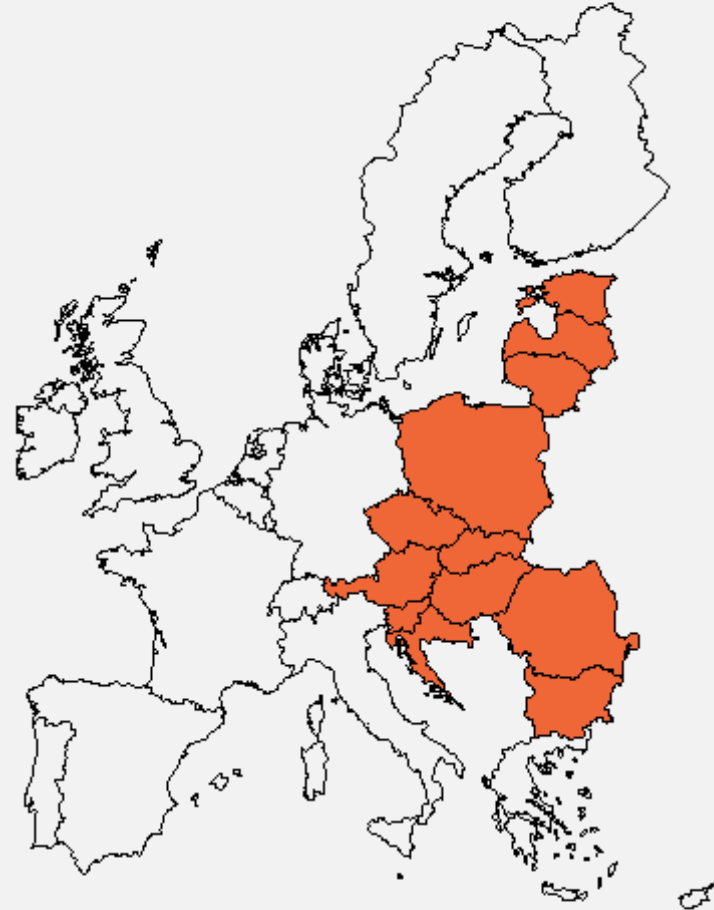
the infrastructure investments needed in the Three Seas region by 2030

60%

the share of corporate funding in infrastructure investments that Three Seas countries should aim for

3 days

a duration of railway travel from Tallin to Constanza - fostering the development of North-South routes is one of the key goals of the Three Seas Initiative




“The Three Seas Initiative will transform and rebuild the entire region and ensure that your infrastructure, like your commitment to freedom and rule of law, **binds you to all of Europe and, indeed, to the West**”

Donald Trump, President of the United States of America

“An initiative which delivers key projects in energy, transport, digital interconnections. The Three Seas Initiative is **a catalyst for the cohesion and convergence** of the EU and for the strengthening of the transatlantic link”

Jean Claude Juncker, President of the European Commission

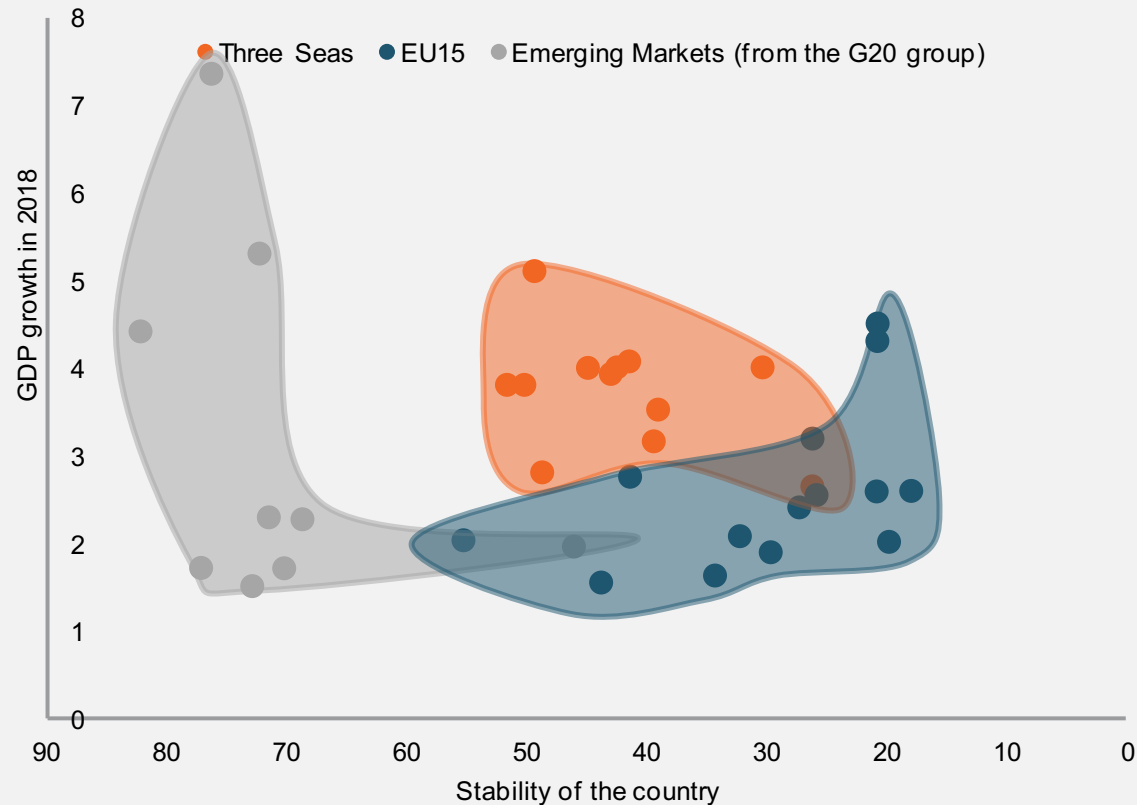
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1. Economic potential and development models
 2. Infrastructure investments – needs and financing
 3. Transport investments
 4. Energy investments
 5. Digital investments
 6. Supplement - Three Seas Initiative



◀  1. ECONOMIC POTENTIAL



Institutional stability and economic growth – the Three Seas region compared to the 'EU 15' and large emerging markets



* Fragile States Index (assumes a value from 0 to 120) based on the Fund for Peace foundation; economic growth based on the forecasts of the International Monetary Fund

** Emerging Markets: Saudi Arabia, Argentina, China, Brazil, India, Indonesia, Mexico, Russia and South Africa

Source: SpotData, IMF, Fund for Peace

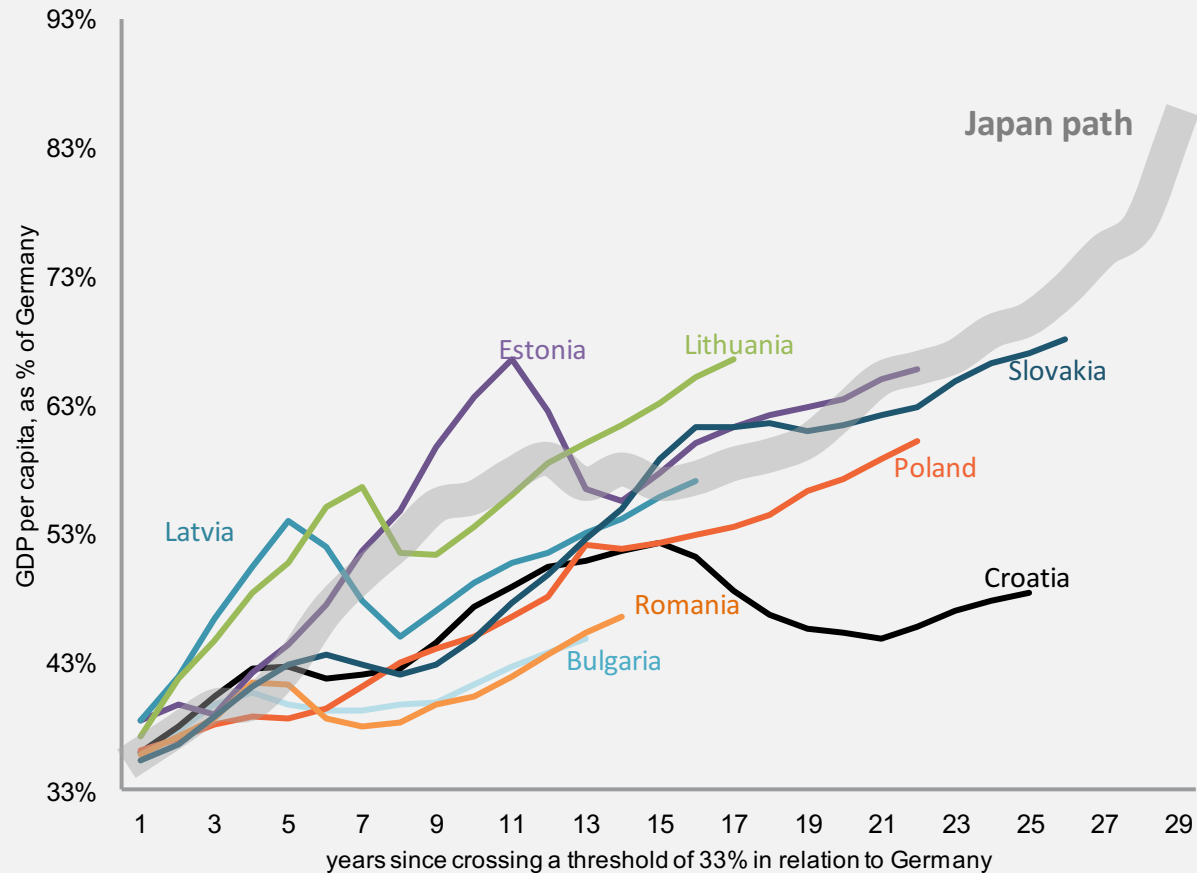
The Three Seas region combines stability and dynamism

The Three Seas (the TS) region is a border region, both geographically and economically, between East and West and between emerging and developed markets.

By combining characteristics of emerging and developed markets, the TS region has become a unique and attractive investment location. **TS countries boast higher GDP growth than developed markets, and, at the same time, have much higher stability indicators than the average emerging market nation.** One can see that by looking at various indices, such as the Fragile State Index, World Bank Doing Business results, or Global Competitiveness Indicators. TS countries combine relatively high growth with relatively high stability. Therefore investors can achieve relatively high yet safe rates of return from their assets.

Some of the countries in the Three Seas region have already been classified as developed. Austria is undoubtedly in that group. According to the International Monetary Fund, the Czech Republic, Slovakia, Slovenia and the Baltic States can also be described as developed. The World Bank also puts Poland, Hungary and Croatia into this category. On the other hand, financial investors usually classify the Three Seas countries (other than Austria) as emerging markets.

Growth of GDP per capita in relation to Germany from the moment of exceeding 33% (in relation to Germany)



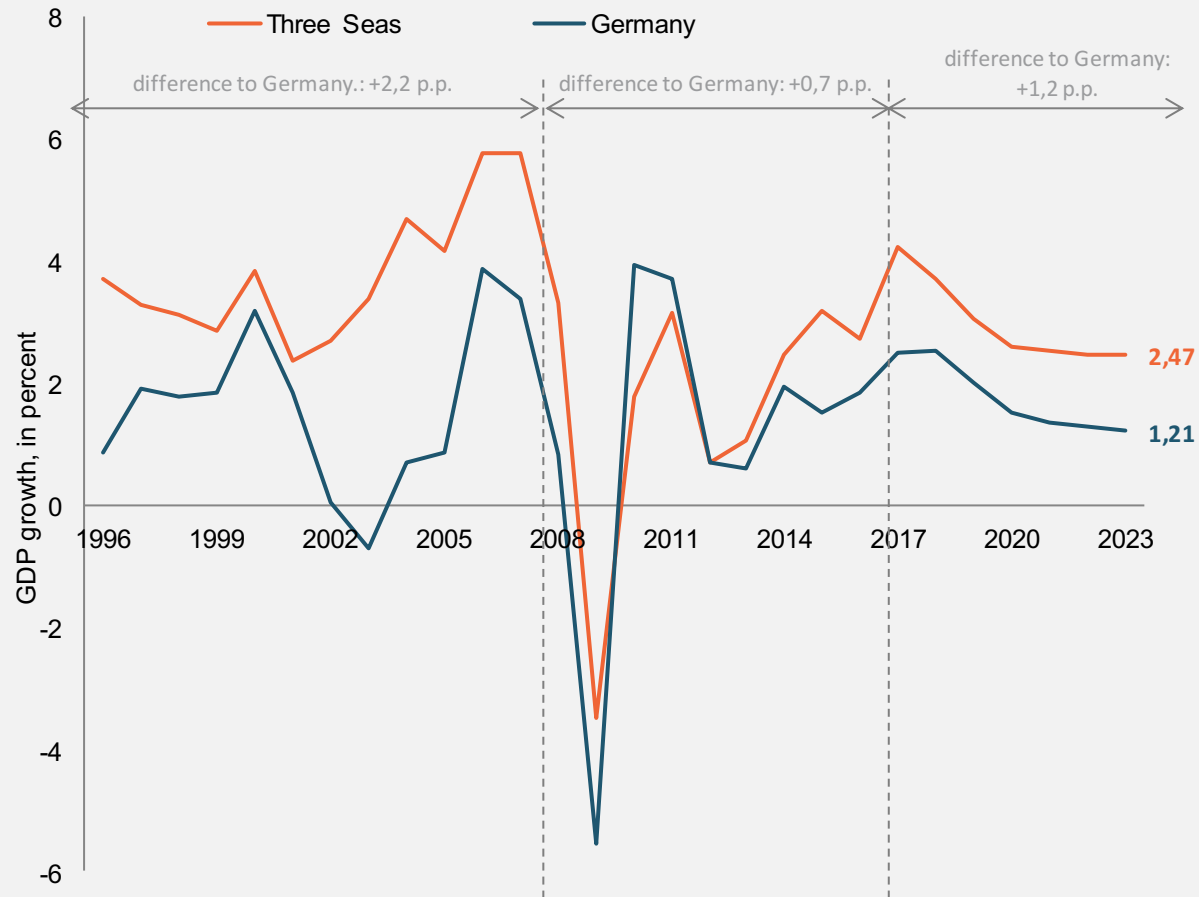
Source: SpotData, GGDC

Growth path is similar to Asian tigers

It is not a well-known fact that the TS region is one of the fastest growing regions in the world, taking into account the initial level of income. **GDP per capita in TS countries has trodden a similar path to the Asian tigers when the latter were at the comparable level of development.** A few TS countries have managed to achieve the same convergence rates as Japan between 1970 and 1980, with those including the Baltic States, Slovakia and – to some extent – Poland. Other TS countries, such as Romania and Croatia, have grown at slower rates, although growth in these countries accelerated after accession to the European Union.

The growth record of TS countries is staggering in the light of the fact that only a few countries in the world have managed to converge with Western standards in terms of labour productivity and GDP per capita. The general conclusion of economic research on growth is that in the long term convergence is very rare. The few exceptions include the Asian Tigers (Japan, Korea, Taiwan, Singapore and Hong Kong), which in the decades after the Second World War achieved very high growth rates and almost closed the productivity gap with Western Europe and the United States. There are also a few examples of successful convergence in Europe, including Spain, Ireland and Finland.

Rate of economic growth (in percent per year) and the difference between the Three Seas region and Germany (in percentage points)



Source: SpotData, IMF

How the golden rule of convergence works

The growth performance of the TS can be viewed through the prism of the golden rule of convergence. This rule has worked perfectly in the region and nothing suggests that this may change in the foreseeable future.

The golden rule of convergence was coined by the American economist Robert Barro. It states that among countries or regions which share similar institutional or economic characteristics the poorer ones should close the productivity gap with richer ones at a rate near to 2% per year. In the case of the level of income in the TS region, GDP growth rates should be 1.5 to 2 percentage points higher than GDP growth rates of the richer countries in Europe.

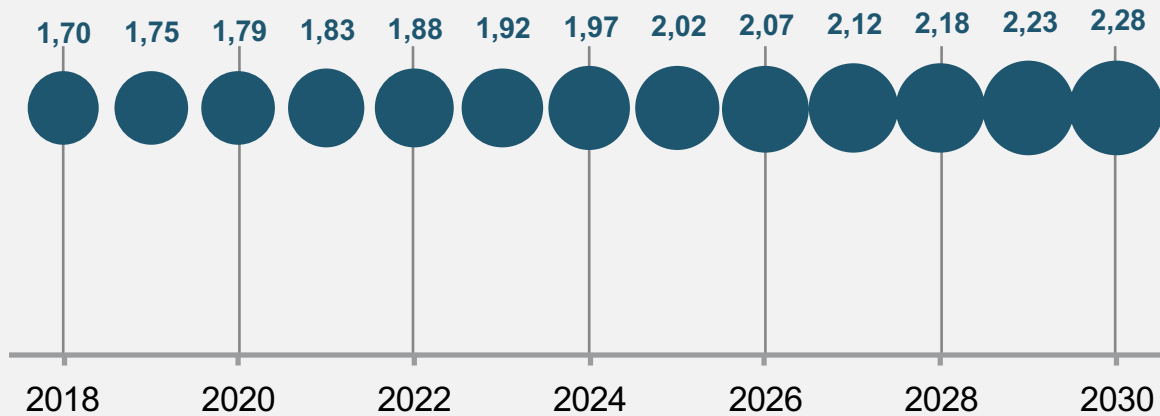
The growth of GDP in the Three Seas region fits perfectly with the golden rule. Since early 1990 growth in Three Seas region has been approximately 1.5 p.p. higher than in Germany and most forecasts indicate that the relevant advantage in growth rates should be maintained in the foreseeable future. For example, according to IMF forecasts, the premium will equal an average of 1.2 p.p. until 2023. The gradual decline of this premium stems from the fact that rising productivity levels lead to a lower absolute convergence path.

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Most forecasts indicate that the appropriate premium in growth rates should be maintained in the foreseeable future

GDP forecast for the Three Seas region, in trillion euro, at 2017 prices

eur trillion, constant 2017 prices



Source: SpotData

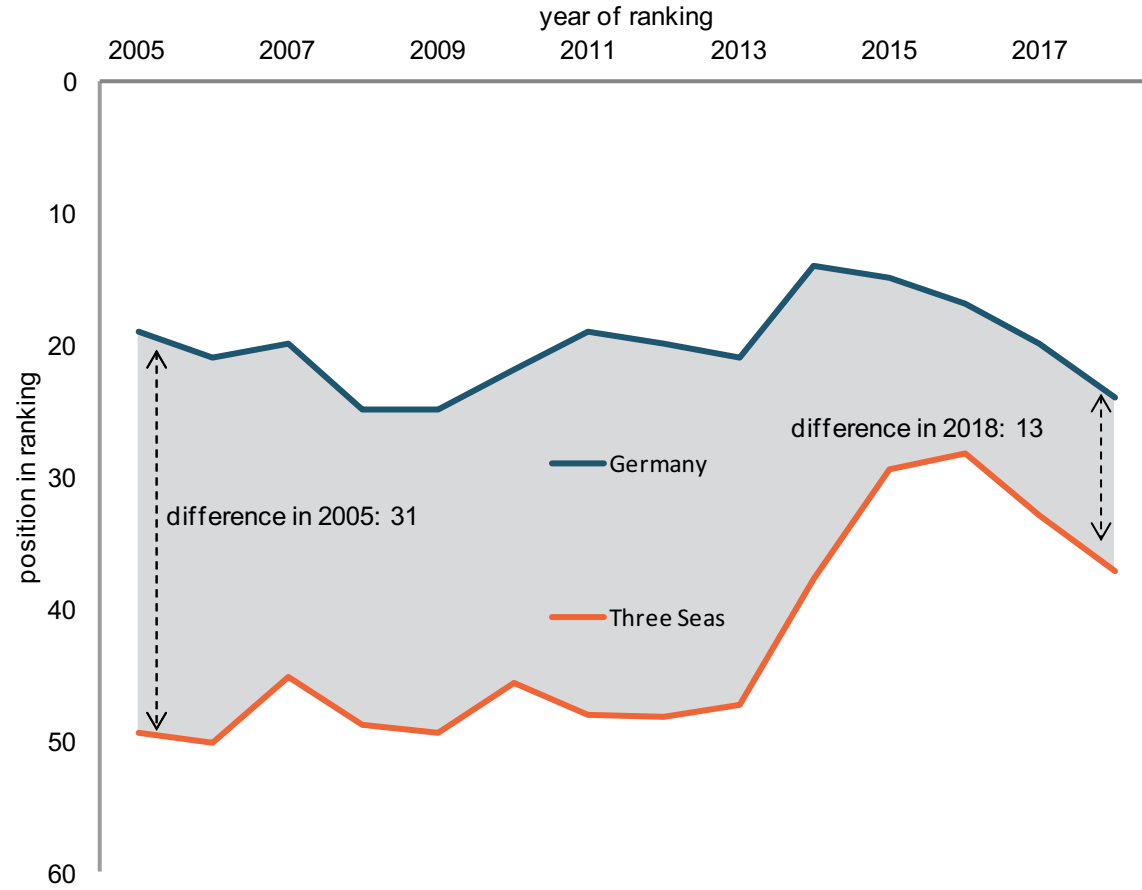
GDP forecasts

Estimating infrastructure investment needs requires assumptions about future GDP levels to be made. We set up a simple forecasting model, which is based on long-term productivity trends, convergence processes and UN demographic projections, and then compared the results of our model with OECD projections.

In 2017 the aggregate GDP of the Three Seas region was €1.7 trillion. According to our forecasts, the average GDP growth rate until 2030 will be close to 2.4% and GDP in 2030 (in 2017 constant prices) will be €2.3 trillion. This is the central path of our forecast. One can identify two important risk factors which can lead to different scenarios. On the one hand, with higher productivity in the Three Seas region convergence rates may slow quicker than predicted in our model. On the other hand, demographic projections may underestimate the immigration potential of the Three Seas – Poland has already opened its borders to more than one million immigrants and other countries are likely to follow suit. We assume that the two factors mentioned above will balance each other.

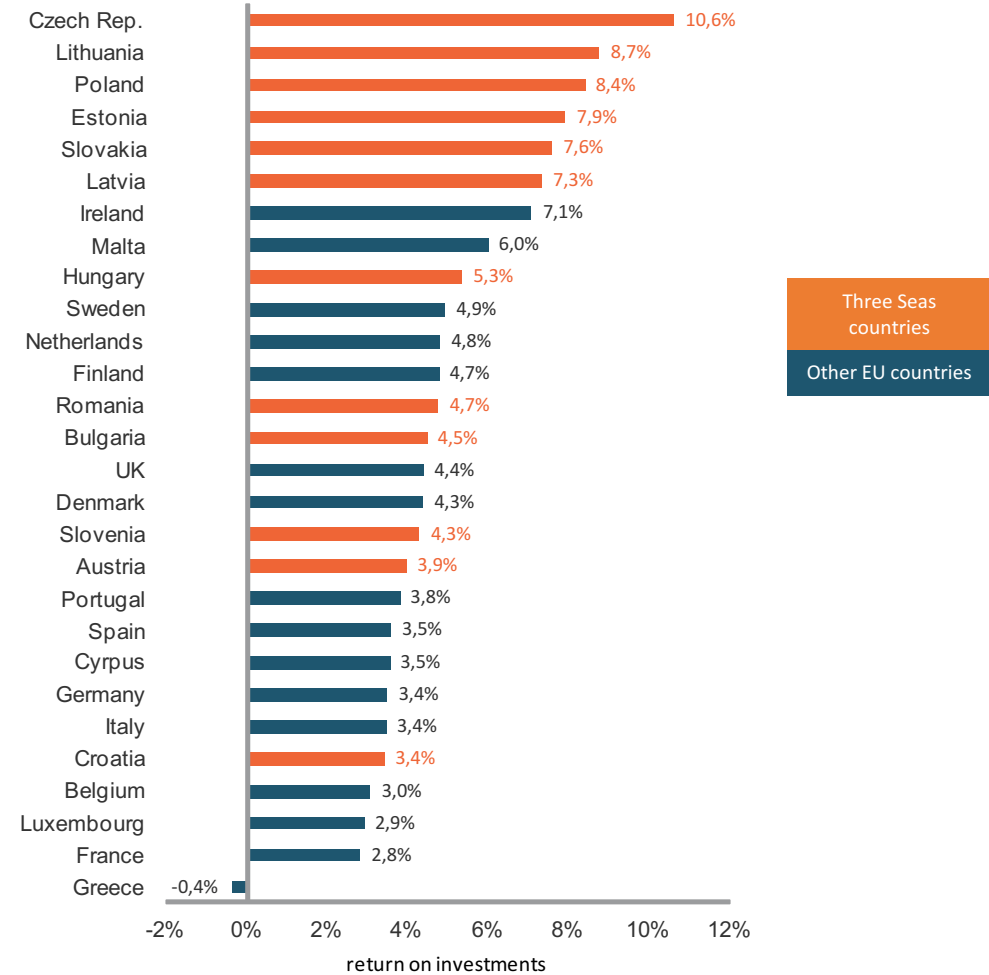
OECD forecasts predict slightly slower GDP growth in Three Seas region until 2030: 2% per year. However, the organisation does not publish its forecasts for some countries which currently grow faster than average, such as Romania. OECD forecasts by country are very close to ours.

Ranking - Doing Business of The World Bank Three Seas region versus Germany



Source: SpotData, The World Bank

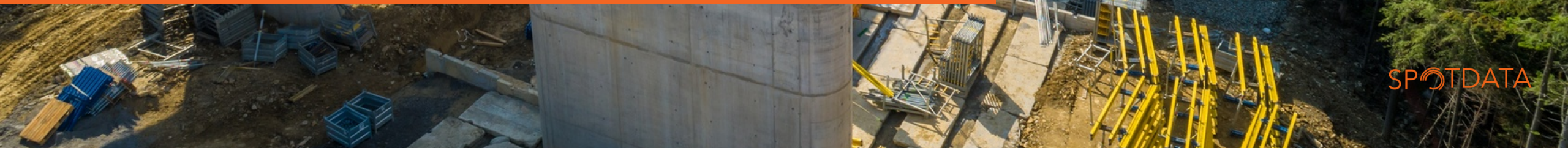
Return on assets from Foreign Direct Investments (FDI income/FDI asset value, average for 2010-2017)



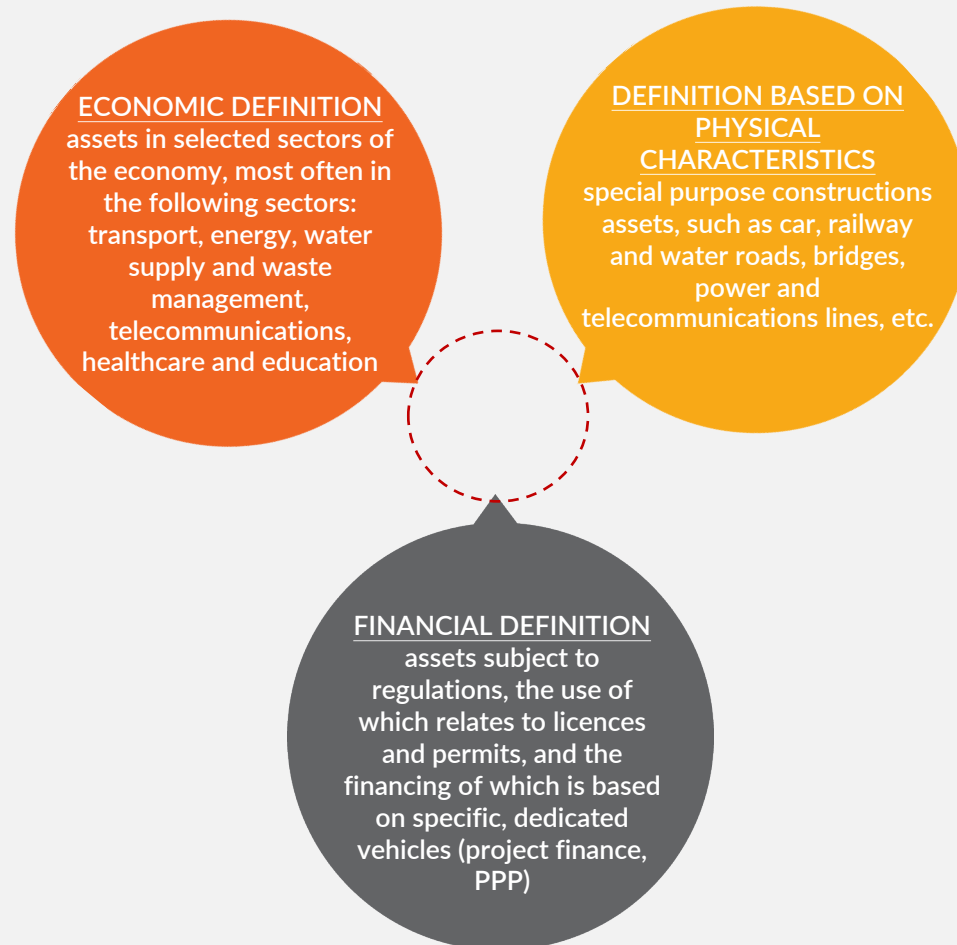
Source: SpotData, Eurostat



2. INFRASTRUCTURE INVESTMENTS – DEMAND AND FINANCING



Definitions of infrastructure



Source: SpotData

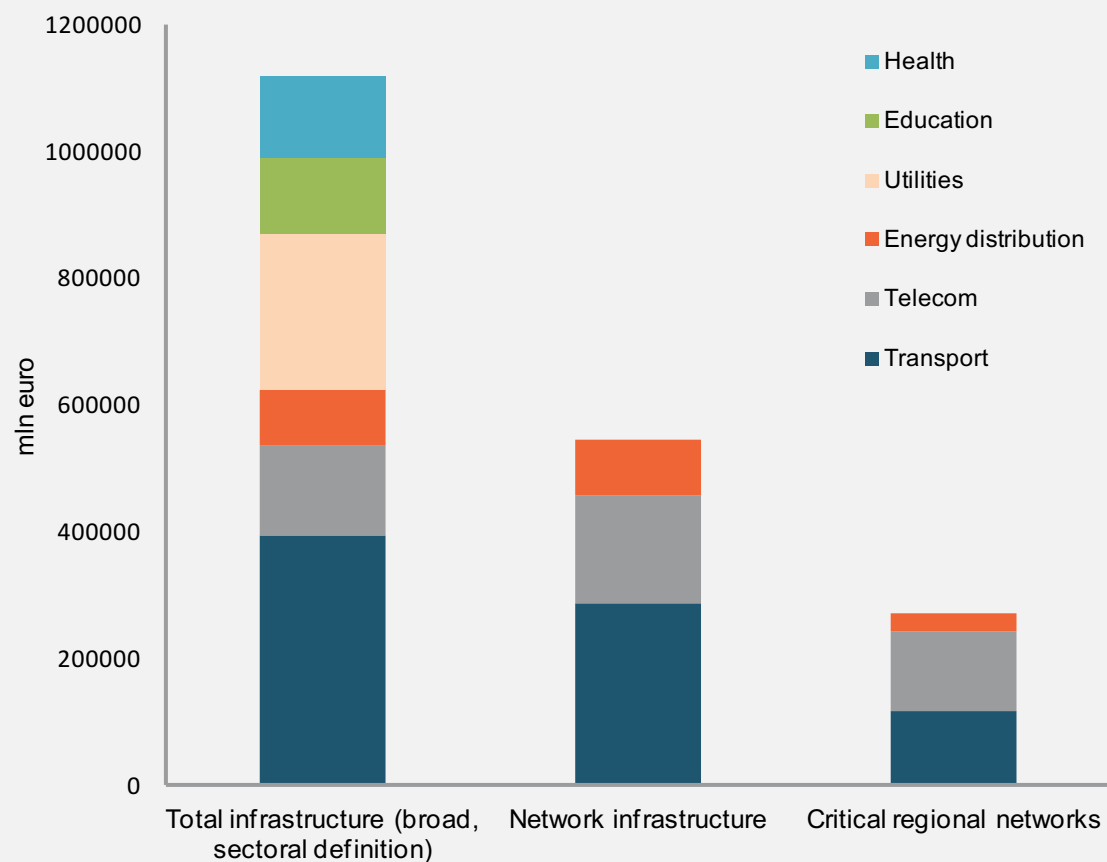
How to define infrastructure

In recent years there has been a wave of research publications estimating infrastructure investment needs. **The main reason for the increased attention paid to this problem is that after the financial crisis of 2008 many governments resorted to cutting investments as a key tool for rebalancing budgets.** Investment is the most elastic element of every fiscal plan: it is relatively easy to cut. Therefore economists in various institutions started to calculate what the costs of reduced investments are and what amount of new financing would be needed to return investments to pre-crisis levels.

In order to properly define the problem a good definition of infrastructure was required. **A variety of definitions are available. The most popular approaches include the sector approach and the assets approach.** In the former infrastructure is defined as gross fixed assets in certain sectors: transport; energy and other utilities; telecommunications; health; and education. In the later approach infrastructure is defined as specific constructions, such as roads, railroads, regulated rivers, bridges, ports, airports, energy transmission and distribution lines, telecommunications lines etc.

There are also other approaches to defining infrastructure, pointing to specific investment risks, regulatory regimes, and economic features (e.g. monopolies).

Demand for infrastructure investments in the Three Seas countries in the years until 2030, using various definitions of infrastructure



Source: SpotData

What will the investment needs in the Three Seas region be

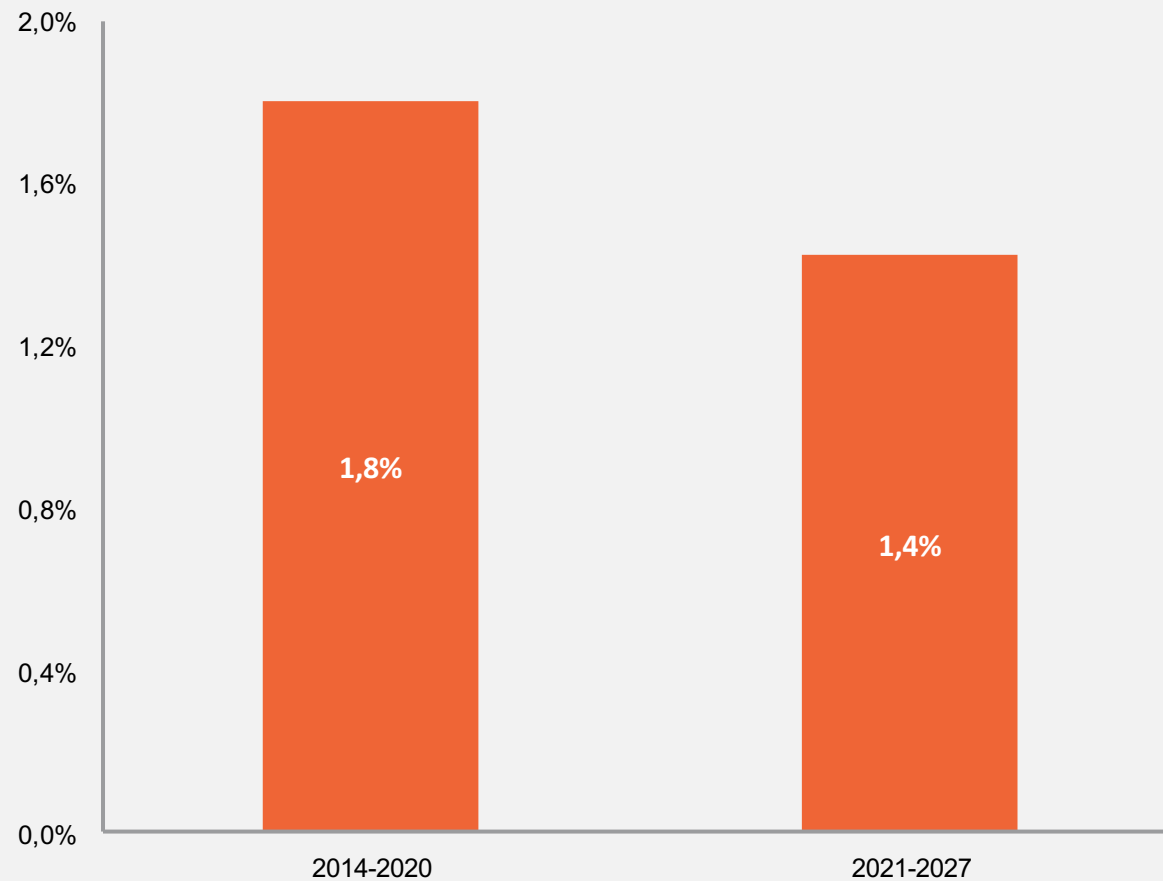
We have made three types of estimates for the infrastructure investment needs in the Three Seas region over the years until 2030. In the first two we used our own calculations, based on methodology used by McKinsey (2013) and Bchattacharya et al. (2016). In the third instance we used estimates from the European Commission, made for the European Union, and adjusted them to the Three Seas region.

In the first estimate we have used the broadest, sector definition of infrastructure. **This estimate can be treated as the upper limit of possible investment needs. In this approach the total investment needs will be €1.15 trillion for the years until 2030.**

In the second estimate we used the asset definition of infrastructure and included expenditure on roads, railroads, inland waterways, ports, airports, energy lines and telecommunication lines. We also included expenditures for digitalisation of those assets, because fostering digitalisation is one of the key policy pillars of the Three Seas Initiative. **In this approach the total investment needs will be €530 billion for the years until 2030.**

In the third estimate we calculated the investment needs regarding infrastructure networks with transnational significance. We assumed that the Three Seas region will need to maintain an investment rate 1.4 times the investment rate for Western Europe. As a point of reference, we used the estimates of the European Commission concerning the investment needs of the European Union in transnational European networks until 2030. **According to this approach, the total investment needs for the years until 2030 will be €270 billion.**

The inflow of EU structural funds to the Three Seas countries in relation to GDP



Source: SpotData

Why investing in infrastructure will require a new approach

In order to finance large infrastructure projects the Three Seas countries will have to utilise private funds to a greater extent than in recent years. **This is due to the fact that European Union structural funds, which are the main source of infrastructure financing, will flow at a decreased rate over the coming years.**

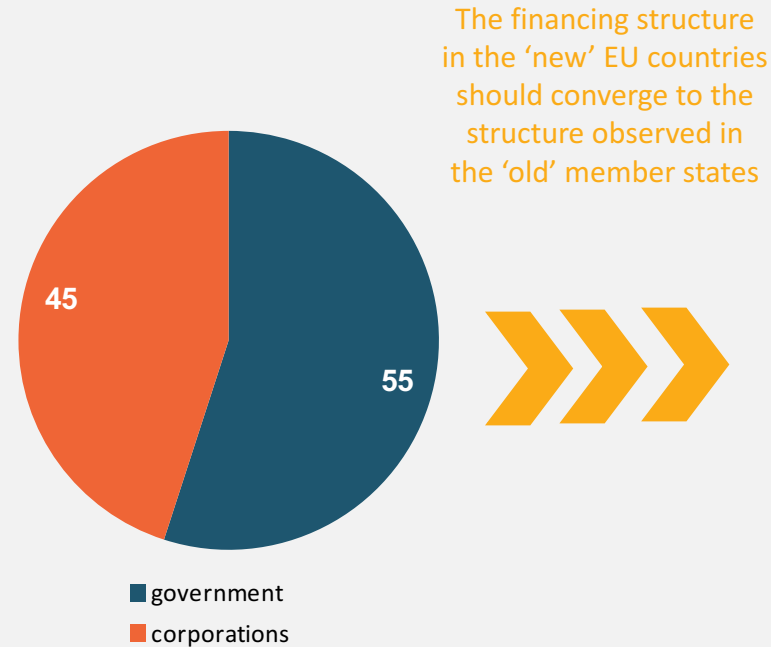
The inflow of the EU structural funds in the last decade totalled almost 2% of GDP in the TS countries. These funds financed almost half of all infrastructure investments, and in the case of core infrastructure, such as roads, their share was even higher. For countries such as Poland, Romania and Bulgaria the EU funds started a new era for infrastructure development.

However, the inflow of those funds will decrease substantially, from almost 2% of GDP to approximately 1.5% of GDP. Using 2018 prices, that means €80 billion less in funds over the years from 2021 to 2027.

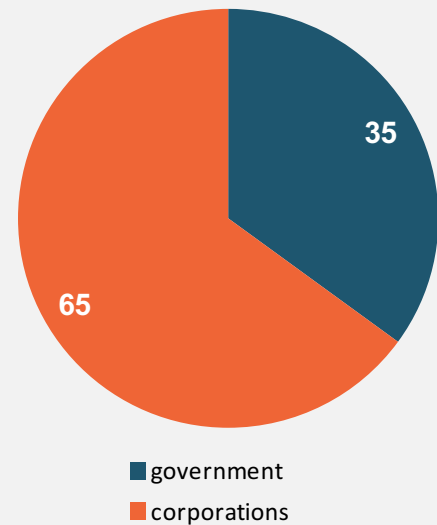
There are three reasons why the stream of EU funds will start to dry up. Firstly, the growing GDP per capita in the Three Seas countries results in a lower number of regions that can apply for these funds (EU funds are allocated based on two thresholds: 75% and 90% of the EU average GDP per capita). Secondly, the regions which were hit hardest by the financial crisis are located in Southern Europe: Greece, Italy, Spain and Portugal. The EU wants to support them more in order to preserve social cohesion. Third, the United Kingdom leaving the EU will reduce the total budget by about 10%.

The structure of financing infrastructure investments in the European Union, in percent

'new' EU members*



EU-15



Source: SpotData; *countries that joined the EU in 2004; ** government financing refers to general government expenditure

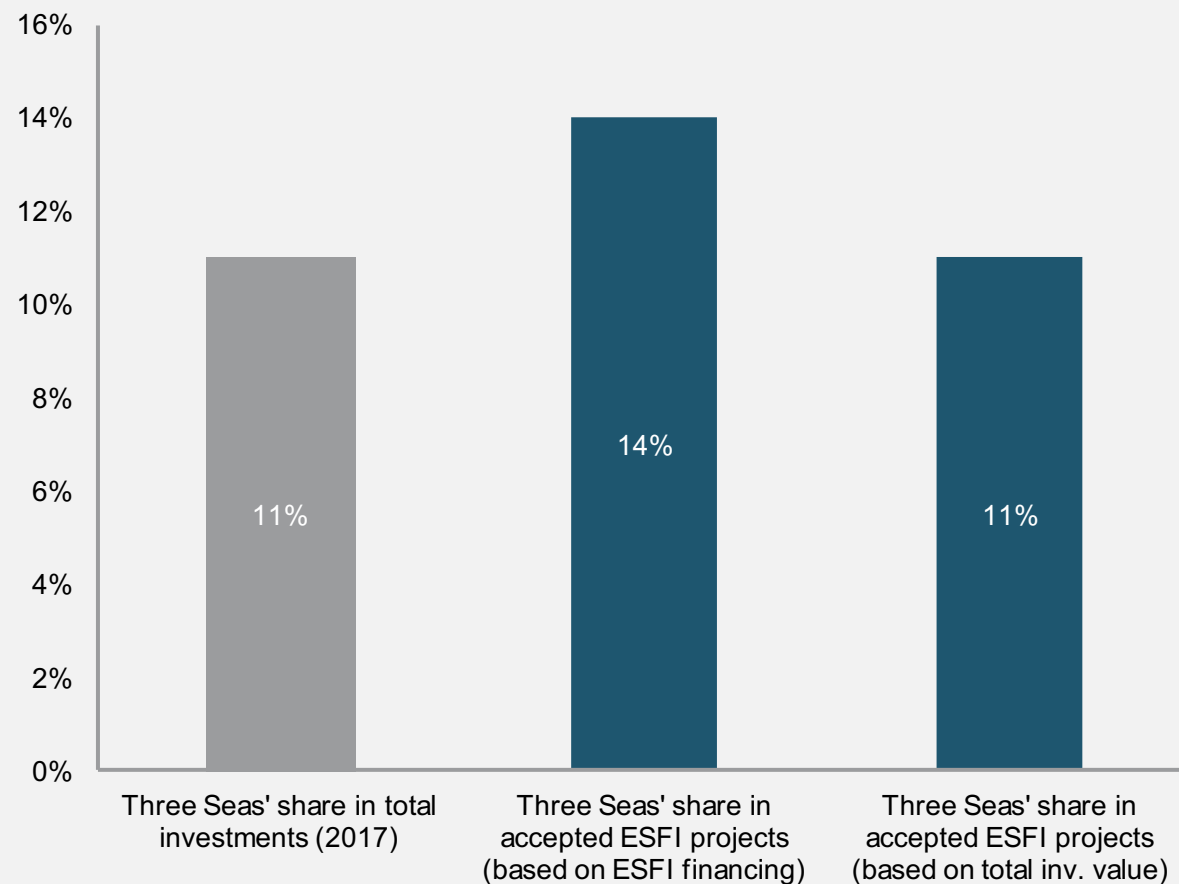
Infrastructure as an investment asset

The Three Seas countries need new sources of investment financing and should aim, in the long run, to achieve a financing structure akin to Western Europe, with a 30%–40% share of government funds and a 60%–70% share of market funds.

Fortunately, the region is not alone in the quest for a new, innovative approach to funding infrastructure projects. Due to budget constraints, resulting from fiscal savings efforts after the financial crisis, searching for new sources of infrastructure financing has become a global challenge. Many international organisations have started to pay more attention to this problem, including the International Monetary Fund, the World Bank, the OECD, and the EU. **At the G20 Summit in Toronto in 2014 a decision was taken to launch the Global Infrastructure Initiative, the aim of which is promoting infrastructure investments based on a combination of public and private financing.**

Since then many organisations have started analytical efforts related to the creation of institutions favouring a new approach to the problem. Supporting the creation of investible assets backed by infrastructure projects is one of the most important goals of these efforts. **There are two pillars on which these activities should be based.** The first is the increased transparency of infrastructure investments, mainly through the creation of new datasets, banks of knowledge and propagation of good practices. The second is the activity of national development banks, the role of which in fostering private investments in infrastructure should increase. It is precisely this pillar on which such initiatives as the European Fund for Strategic Investments (known as the Juncker Fund) and the newly created Three Seas Investment Fund are based.

Participation of Three Seas nations in projects financed by the Juncker Plan



Source: SpotData

The Juncker Plan paves the way

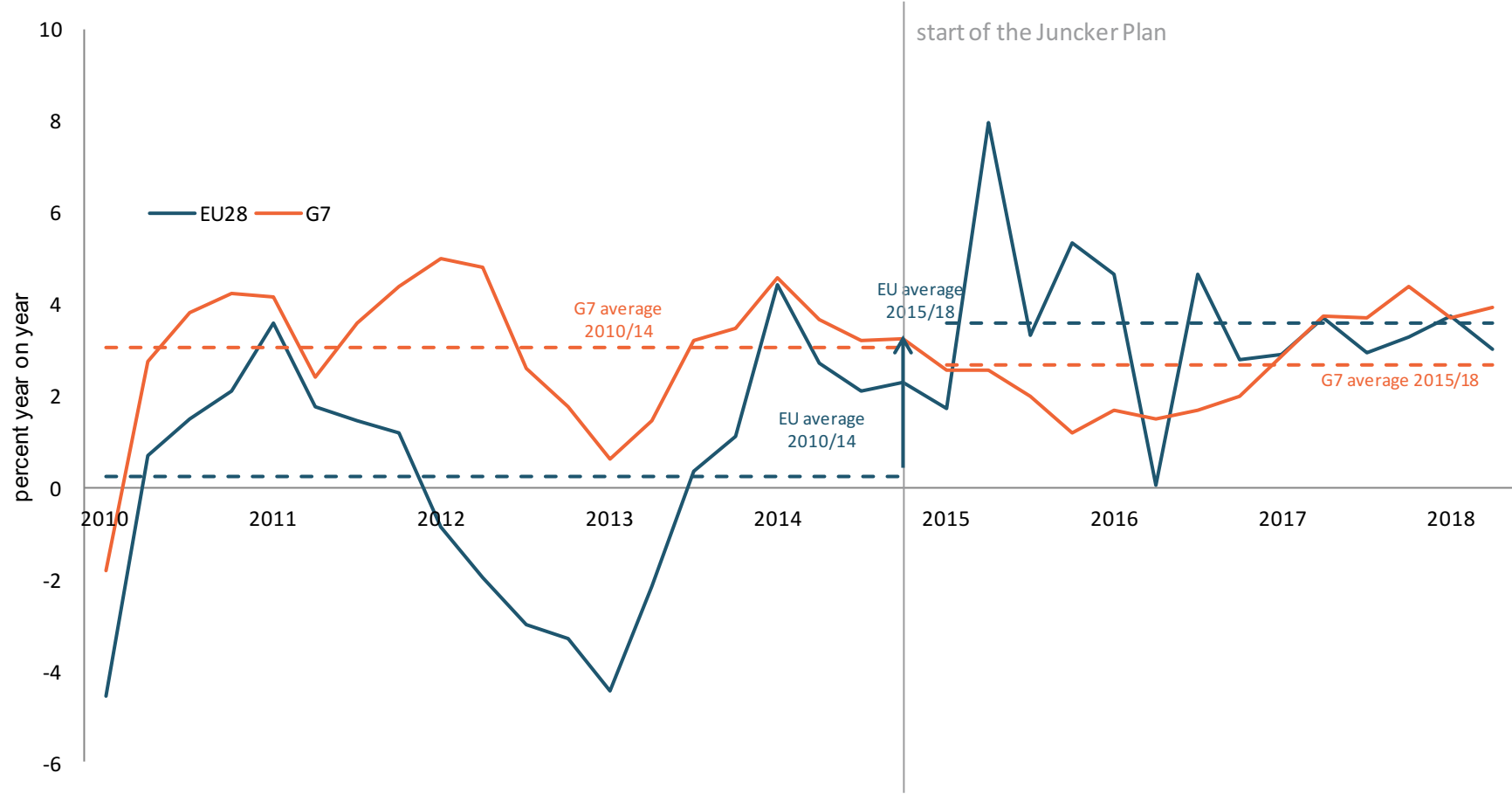
One can see how the new approach to financing infrastructure can work in practice from the activity of the European Fund for Strategic Investments, which has become known as the Juncker Fund, taking the name of the President of the European Commission, Jean-Claude Juncker. Over the three years immediately after its creation in 2015 the fund provided €21 billion to make possible total investments of around €350 billion. It was one of the factors which helped the European economy to recover after the debt crisis in 2012/2013.

Although the early opinions about the impact of the Juncker Plan on the European economy were rather sceptical, today it is regarded as a success. It is no accident that the investment dynamics in the EU have improved substantially since early 2015, despite the fact that the situation has not changed much in other developed countries.

The Three Seas countries use this funding stream extensively: the region's share in projects financed by the EFSI stands at 14% (comparing to the region's 11% share in total investment volume in the EU). The countries leading in terms of EFSI usage are the Baltic States and Bulgaria.

Another example of a similar project which aims to foster private investments in key infrastructural assets is the Connecting Europe Facility, a fund which focuses on funding trans-European networks for transport, energy and telecommunication. The profile of this fund resembles the Three Seas Fund, although the CEF uses grants instead of market instruments.

The Juncker Plan could play a role in lifting investment in the European Union out of the post-crisis malaise

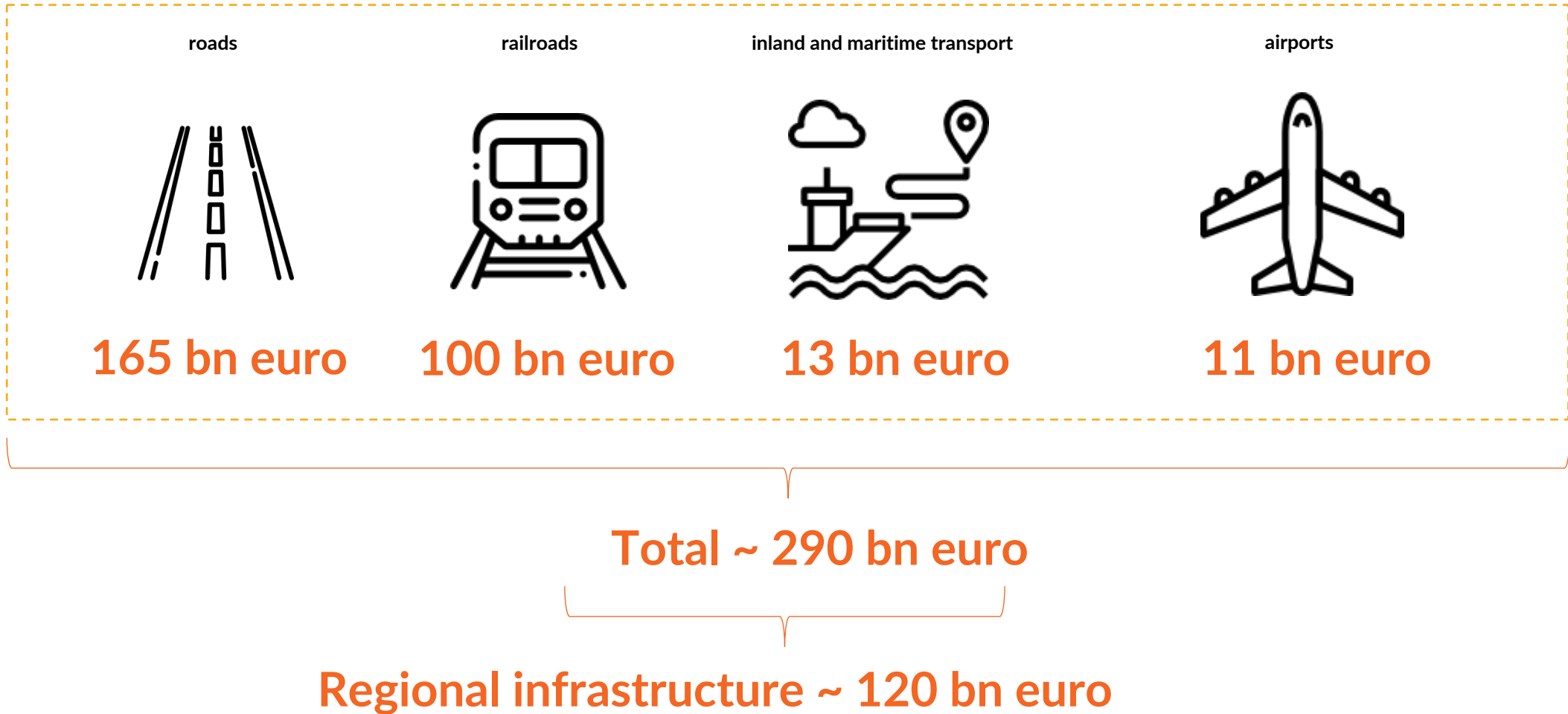


Source: SpotData, Eurostat

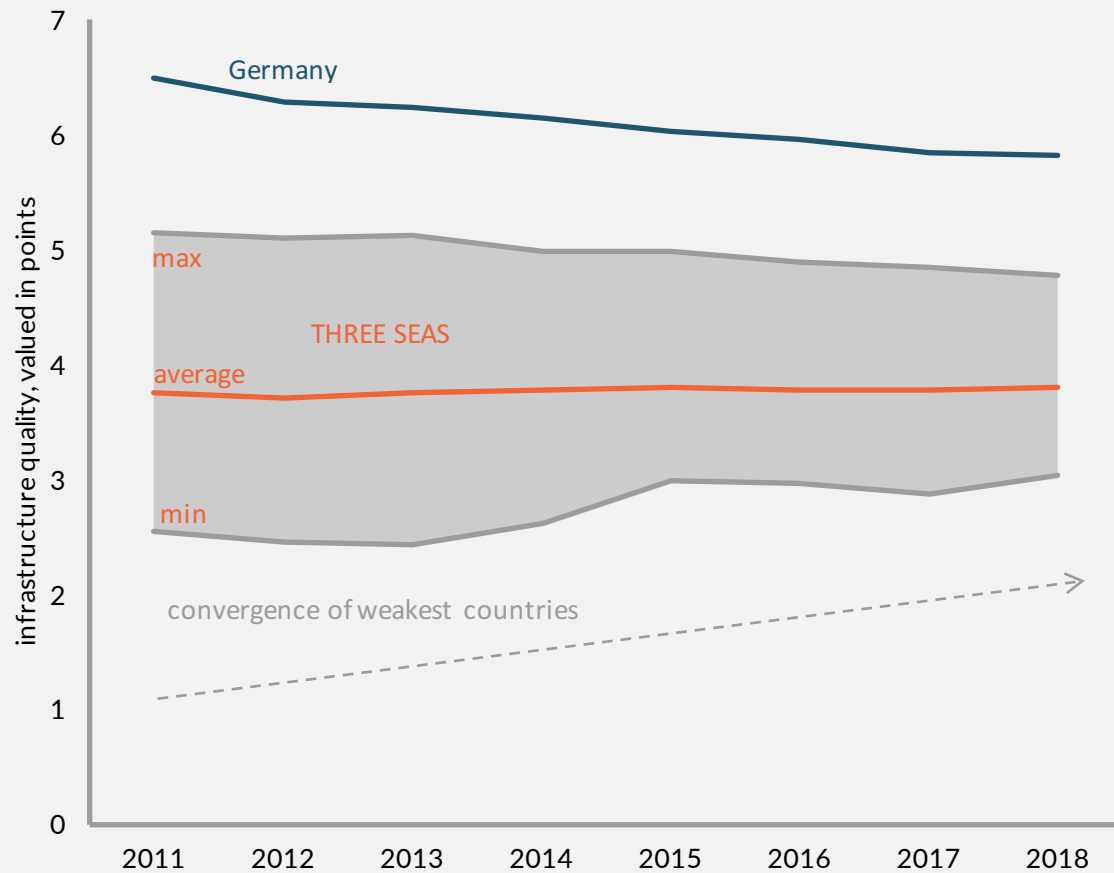


3. TRANSPORT INFRASTRUCTURE INVESTMENTS

Estimated demand for transport investments in the Three Seas countries in the decade until 2030



Quality index of transport infrastructure, according to the World Competitiveness Report



Source: SpotData, Global Competitiveness Report (2018)

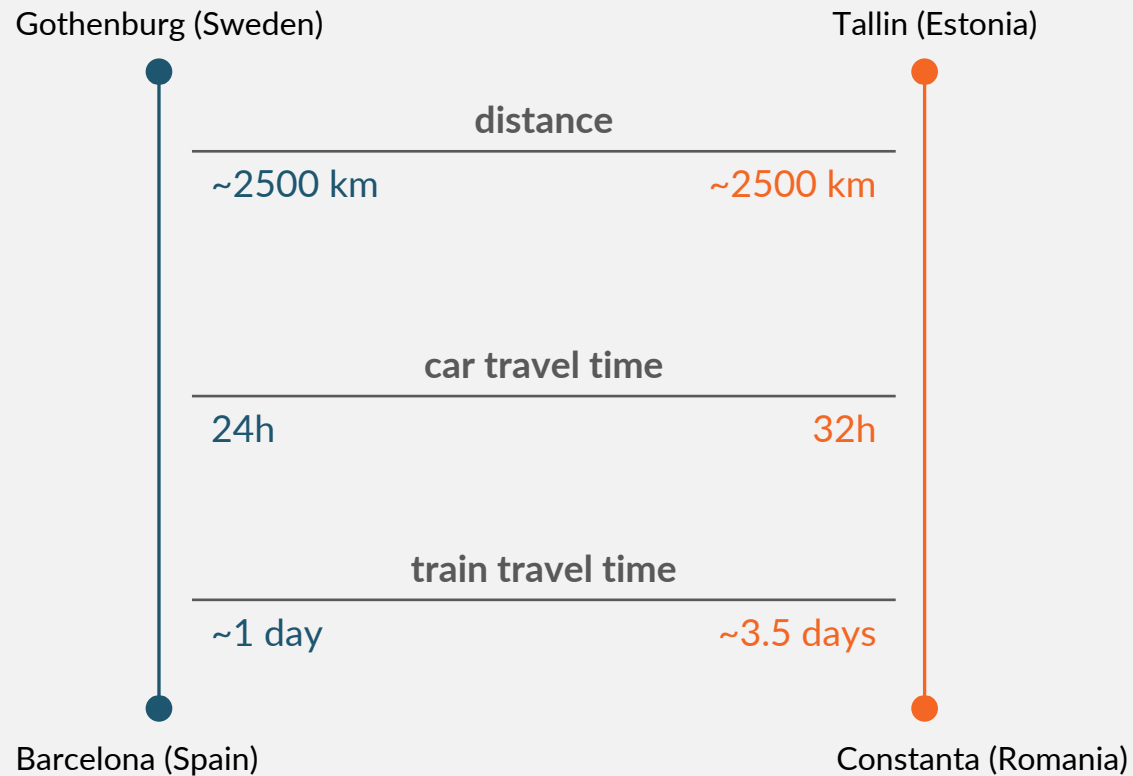
The quality gap in infrastructure still wide open

Transport infrastructure is the most important element of infrastructure network in every country. It is responsible for 30%–40% of global infrastructure investment volume. The European Investment Bank estimates that the optimal transport infrastructure investment rate in the EU should be 1% of GDP, but in the Three Seas region the rate should certainly be much higher, around 1.4%–1.5%.

The quality of the transport network in the Three Seas region has been gradually improving, but convergence with Western standards is a long-term process that will not be completed anytime soon. Over the last decade, a few countries in the Three Seas region, mainly Poland, Romania and Bulgaria, have made significant improvements in terms of transport infrastructure quality. But progress in other countries has been minimal at best. The average quality of transportation networks in the TS region, as measured by the Global Competitiveness Report, has approached the German level, but only because of underinvestment in infrastructure in Germany.

Over the last decade, a few countries in the Three Seas region, mainly Poland, Romania and Bulgaria, have made significant improvements in transport infrastructure quality. But progress in other countries has been minimal at best.

Travel times between selected large northern and southern ports in the 'EU 15' and in the Three Seas region



Source: SpotData, based on Google Maps

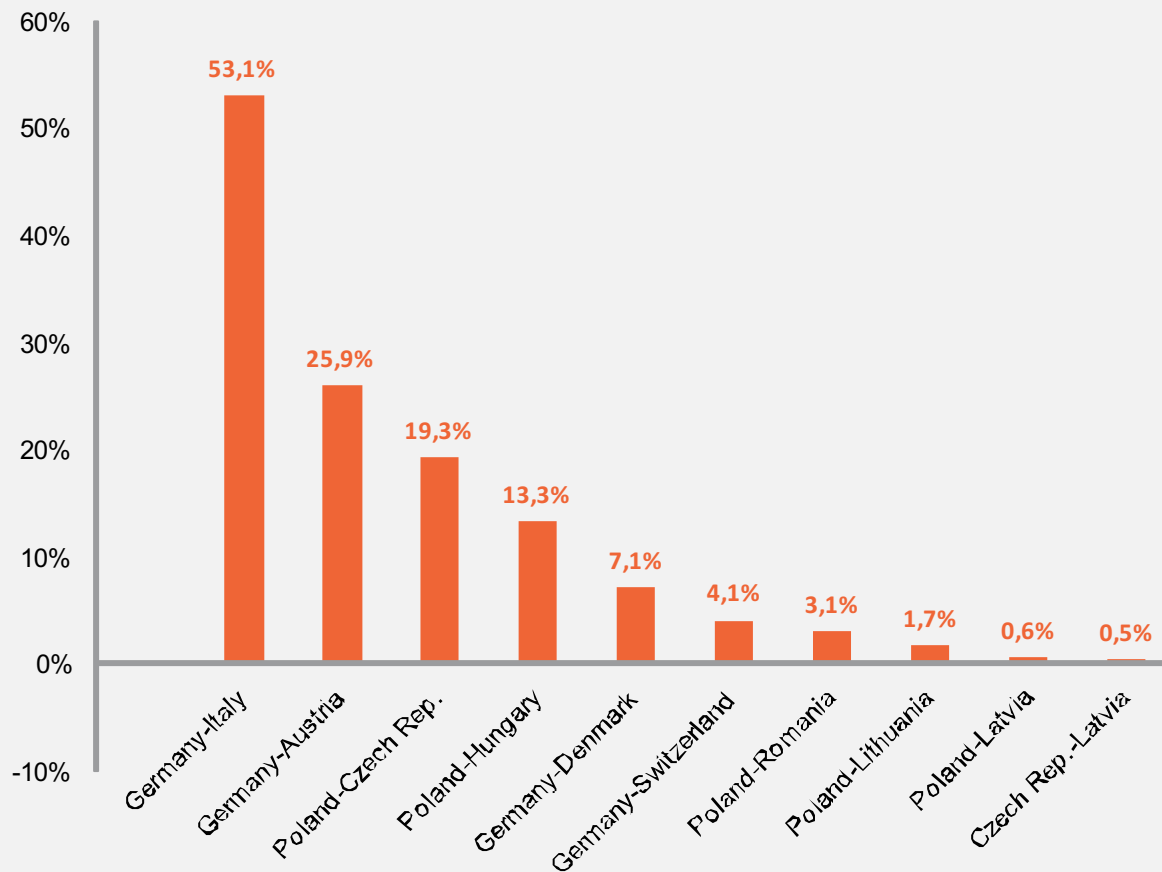
North-South routes need expansion

One of the crucial strategic goals of the Three Seas Initiative is fostering the development of the North-South infrastructure routes. The argument that these routes are seriously underinvested in had been advanced before the initiative started and has become one of the pillars of its investment strategy.

In 2015 an American think-tank, the Atlantic Council, published an analysis in which it argued that intensified integration along North-South lines in Central Europe is a necessary condition for developing an effective internal market in the EU and providing the union with energy security. **The argument was based on the observation that North-South routes in the region were underdeveloped, due to a deliberate policy of the Soviet Union between 1945 and 1989, which had favoured the integration of the Soviet bloc with its centre and prevented the development of regional ties. After the transformation in 1989 East-West networks have served the new integration efforts well with Western Europe and with new supply chains, which were concentrated around German producers. Due to fiscal constraints, however, North-South routes remained underinvested. The Three Seas initiative aims to change that.**

To demonstrate the practical aspect of this problem we compared the travel time on routes of comparable distance in Western and Eastern Europe: Gothenburg to Barcelona and Tallin to Constanza. Both routes connect important northern and southern ports. Whereas one needs 24 hours by car and slightly more than one day by train to get from Gothenburg to Barcelona, it takes 32 hours by car and 3.5 days by train to get from Tallin to Constanza.

Rail cargo transport in relation to total trade in goods between selected countries, in percent



Source: SpotData, based on Eurostat and own calculations

Rail should come out of the shadow

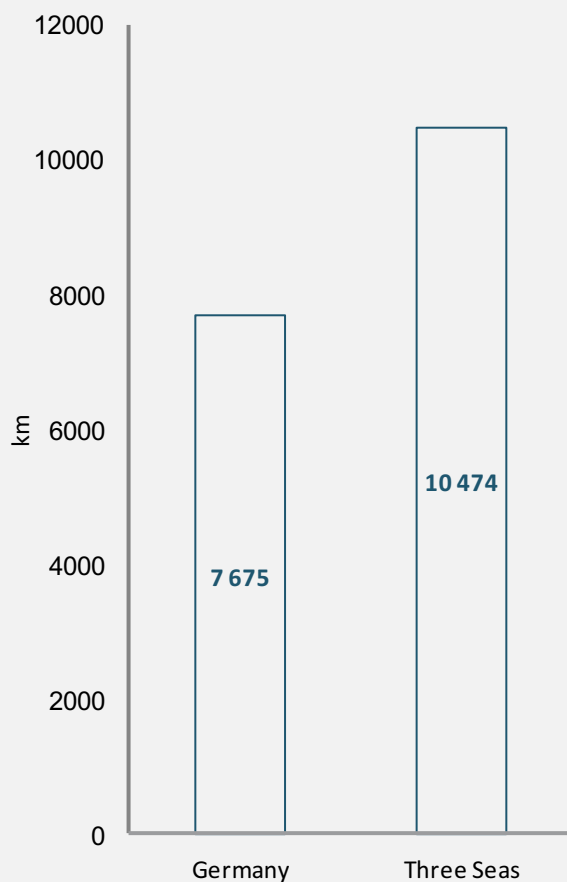
Another important challenge in the area of transport for the Three Seas region is rebalancing the investment proportions between road and rail. Compared to Western Europe, railroads in the Three Seas region are underinvested in compared to roads. **The average investment ratio between rail and road in Western Europe in the two decades since 2000 has been 1:1, whereas in the TS region it has been 1:2.** For this reason some countries in the TS region plan to increase the share of rail investments in the total infrastructure investment pot.

Increased rail investments should be particularly directed towards international connections in the Baltic States, Poland and South-Eastern Europe (Romania and Bulgaria). Those countries are poorly connected with each other, and the amount of goods transported by rail is very low.

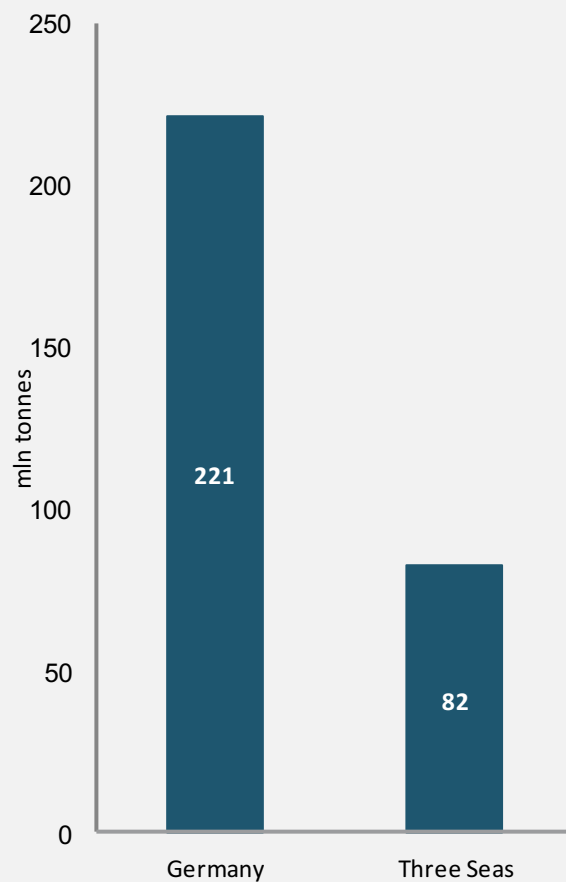
Expansion of rail networks will also play an important role in the electrification of transport services, which means replacing fossil fuels with electricity coming from renewable sources. Although electric cars are becoming much cheaper, and they will certainly be used in the transportation sector on a large scale, trains are a more natural way to increase electricity use in transport.

Length of waterways and volume of goods transported by inland waterways, the Three Seas region compared to Germany

The length of inland waterways



The volume of transport of goods by inland waterways



Source: SpotData, Eurostat

The hidden potential of inland waterways

The previous section underlined that rail investments can support the change towards a zero-emissions economy. However, the most efficient way to support climate policy would be to use the most underinvested transport network in the Three Seas region: inland waterways. The length of this network in the TS region is 30% higher than in Germany, but the volume of goods transported by river is 63% lower than in Germany. This reflects the hidden potential inland waterways offer.

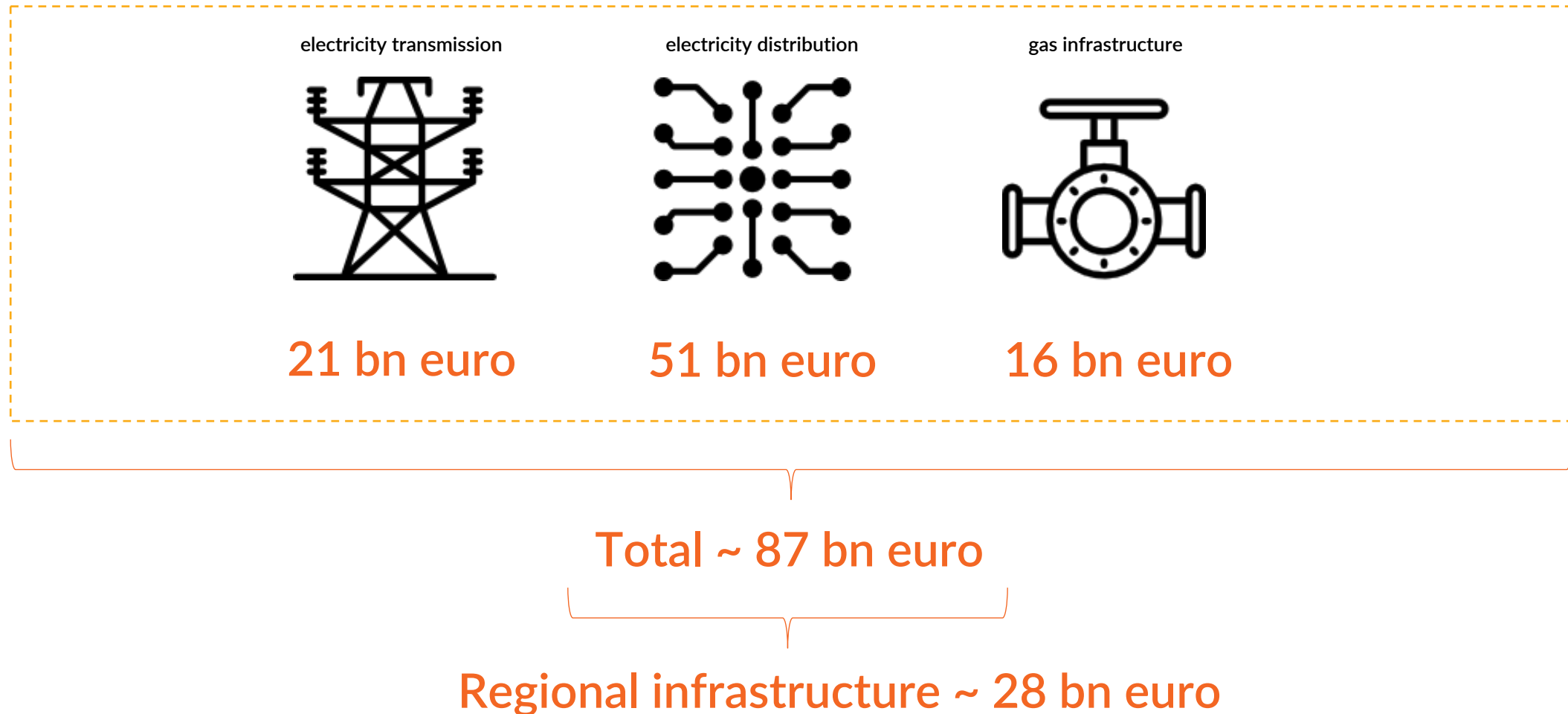
Inland waterway transport plays an important role in EU transport policy, which promotes multi-modal transport. In a white paper published in 2011, which set out the pillars of EU transport policy, the goal was set to move 30% of road transport to other modes of transport, especially rail and inland waterways, by 2030 and 50% by 2050. This policy aims at reducing congestion and eliminating some emissions.

It is worth mentioning that inland waterways transport makes possible an effective movement of goods per litre of fuel (volume multiplied by distance) which is 130% higher than road transport. This should be an important factor for countries which have higher than average emission indices.

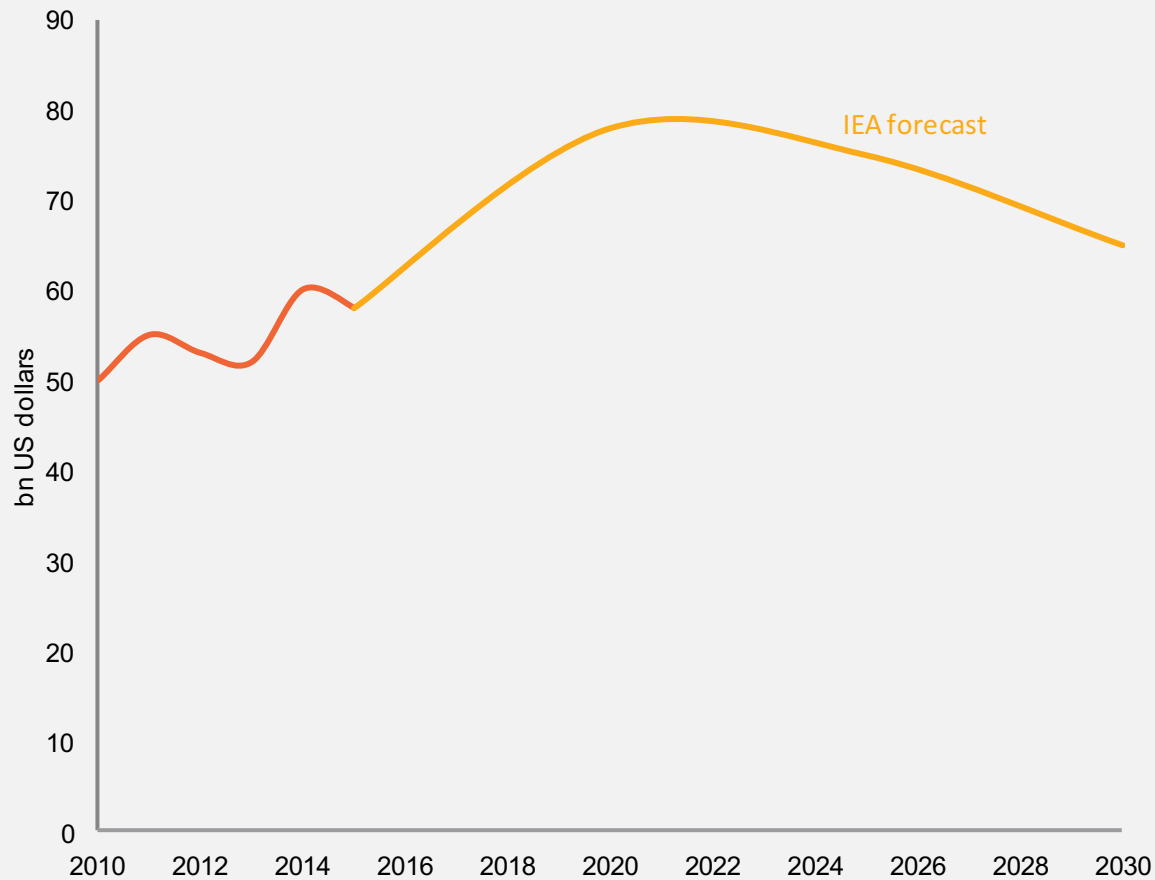


4. ENERGY INFRASTRUCTURE INVESTMENTS

Estimated demand for investments in energy networks in the Three Seas countries
in the decade until 2030



Investments in transmission lines (high voltage) in the world; data from the International Energy Agency (IEA)



Source: SpotData, IEA

Energy transformation will need longer transmission lines

Although transport is the most important infrastructure area in terms of investment volume, energy may be the most important in terms of speed of transformation. The pressure for the adoption of green technologies is rising and will require countries in the Three Seas region, as well as in the entire European Union, to intensify investment efforts. With regard to regional network infrastructure a very important role will be played by transmission lines.

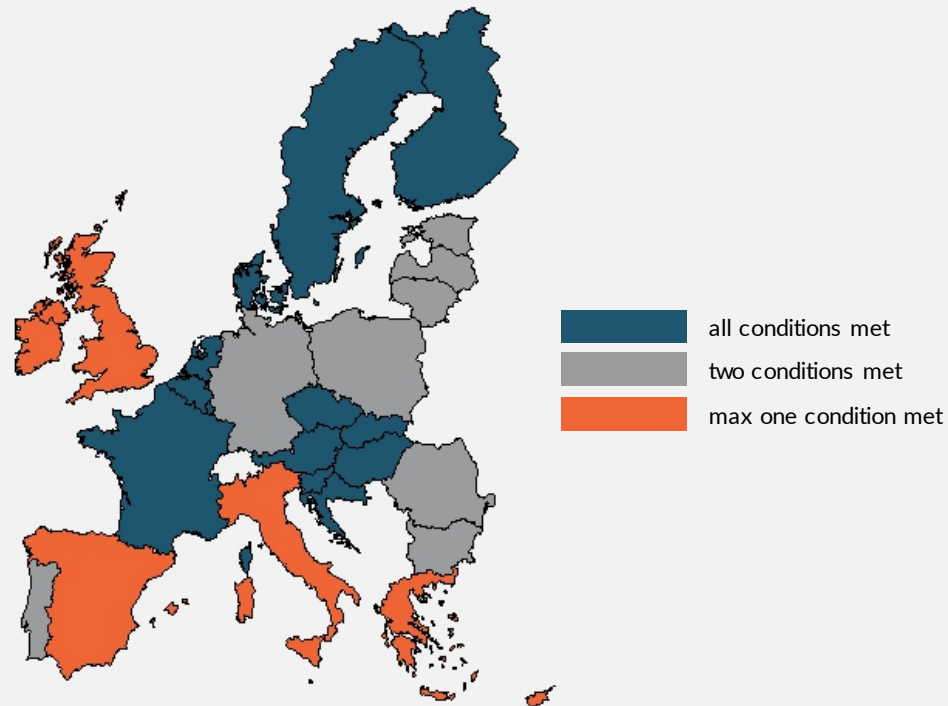
Energy infrastructure is at the core of the interest of the European Union for at least two reasons.

Firstly, meeting the EU's ambitious climate policy targets (such as achieving a share of renewable sources of energy in energy consumption of 40% by 2030) will require the creating of a large, integrated European energy market, with substantial trading potential.

In decentralised energy systems, where numerous small facilities produce energy, the scale of the market is crucial for maintaining stability of energy supplies. That is why the role of transmission lines which transmit energy over long distances will grow. The International Energy Agency estimates that average investments in transmission lines will rise by 50% by 2030 as compared with 2010–2015.

Secondly, a well-functioning energy grid, linking all EU markets, is believed to be one of the pillars of energy security. In the past European energy markets were isolated from each other, because energy production and distribution were deemed too important politically to let the sector be governed by free market mechanisms. Today, as the structure of energy markets evolves, and the scale becomes much more important for providing stability, security will require connecting national grids to each other.

How the EU countries meet the three conditions for the harmonisation of the electricity market



Source: SpotData, European Commission

Integrated markets will require more connections

Despite substantial financial effort over recent years, the interconnectedness of the European electricity markets has still not reached satisfactory levels. The European Union aims to achieve an interconnectedness capacity for each country of 15% of production capacity, and member countries are very close to hitting that target. But there are other operational targets, set in 2017 by a special working group of the European Commission, which are further away from being met (although they are not binding, they indicate the milestones for market integration).

These targets are:

- Minimising differences in wholesale market prices. Additional interconnections should be prioritised if the price differential exceeds an indicative threshold of €2/MWh between Member States, regions or bidding zones to ensure that all consumers benefit from the internal market in a comparable manner. The higher the price differential, the greater the need for urgent action.

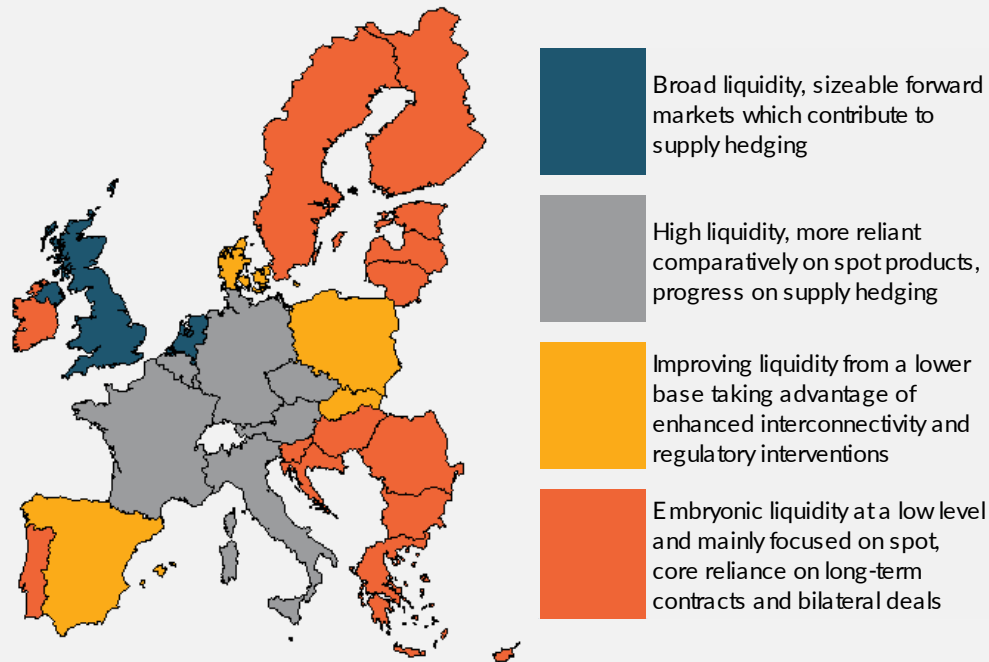
- Ensuring that peak demand can be met in all conditions through a combination of domestic capacity and imports.

Therefore countries where the nominal transmission capacity of interconnectors is below 30% of their peak load should urgently investigate options for further interconnectors.

- Countries where the nominal transmission capacity of interconnectors is below 30% of installed renewable generation capacity should urgently investigate options for further interconnectors.

Part of the Three Seas region has already achieved good integration levels in the electricity market, but some countries, notably the Baltic States, Poland, Romania and Bulgaria, need further investments.

Indicators of liquidity development on the European gas markets according to the AGTM model used by the Agency for the Co-operation of Energy Regulators



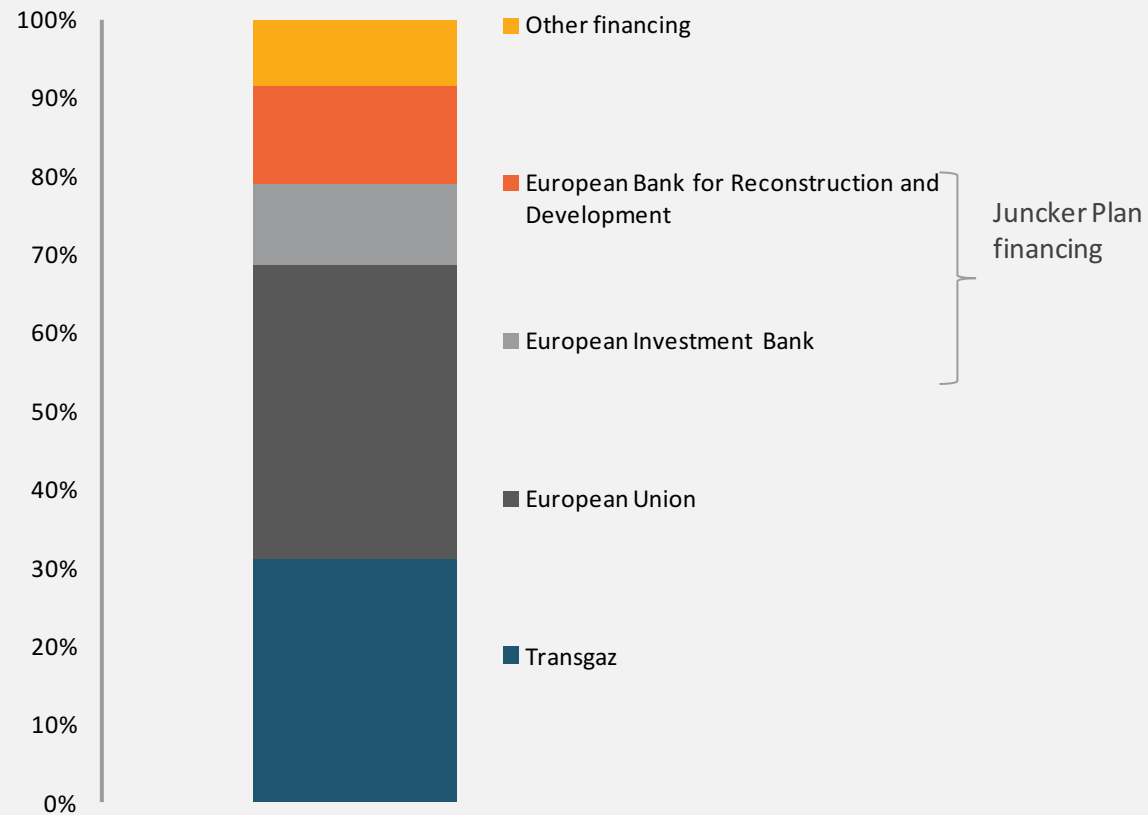
The gas market in Europe should be more liquid

The European Union is the second largest consumer of gas in the world, behind only the USA, but it has a relatively low domestic production capacity. More than 75% of the gas consumed in the EU is imported, mainly from Russia, Norway and Algeria. **The key aim of the gas market policy of the European Union is to create a single, large, integrated market in which trading hubs with high liquidity, spot contracting and market prices will replace long-term quasi-fixed-price (adjusted only based on the oil-price benchmark) bilateral contracts with strategic suppliers.** Building efficient interconnectors is a necessary step in creating such a market.

Whereas Western European markets are close to meeting the diversity and liquidity targets, the Three Seas region performs much worse with regard to most benchmarks and requires intensified investments in interconnecting pipelines and new sources of supply. Some countries, such as Poland, the Czech Republic and Austria, have advanced in terms of diversification of supplies and market liquidity, but even those countries rely too much on long-term bilateral contracts. And most other countries in the region are only at the beginning of the journey towards integrated and liquid markets.

Due to slow development of the gas markets the eastern flank of the EU is treated as a region of heightened demand for gas infrastructure. An analysis prepared for the European Commission estimates that half of all strategic investments in gas infrastructure over the next decade should be made in this region.

The financing structure of the BRUA gas corridor, Romanian section



Source: SpotData, EBRD

Projects which pave the way

There are projects which have already successfully paved the way for the future engagement of the private sector in infrastructure investments. In the Three Seas region many projects from the TEN (Trans-European Networks) program are being carried out, and many have the status of common interest projects, i.e. projects which enhance the workings of the single European market. Very often those projects involve both public and private funding.

Two of the four geographic areas identified by the European Commission as crucial for the future investments in energy networks are made up of Three Seas countries: the Baltic region and Southern Europe region.

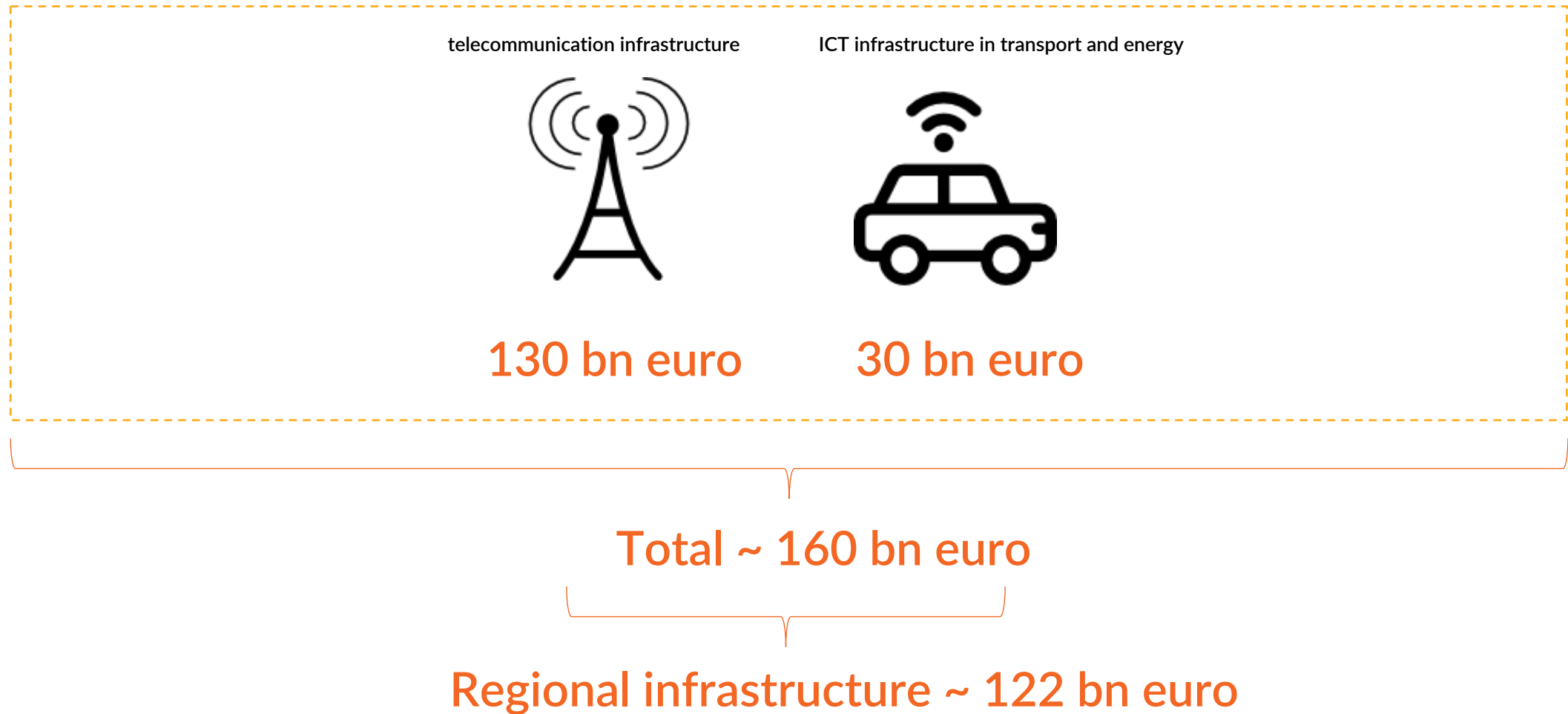
In the first of these regions the main aim is connecting the Baltic states with the rest of Europe through energy bridges between Sweden and Lithuania (Nordbalt) and Poland and Lithuania (the Litpol link), and through gas interconnectors between Poland and Lithuania and Estonia and Finland.

In the later region the key aim is diversifying supplies of gas, mainly through constructing a new gas terminal on Croatia's Krk island and creating various interconnecting lines, such as BRUA (between Bulgaria, Romania, Hungary and Austria). BRUA is a good example of how public and private financing can be combined. The project draws on various sources of funding: local capital, EU funds, Juncker Fund guarantees, EBRD loans and private financing.

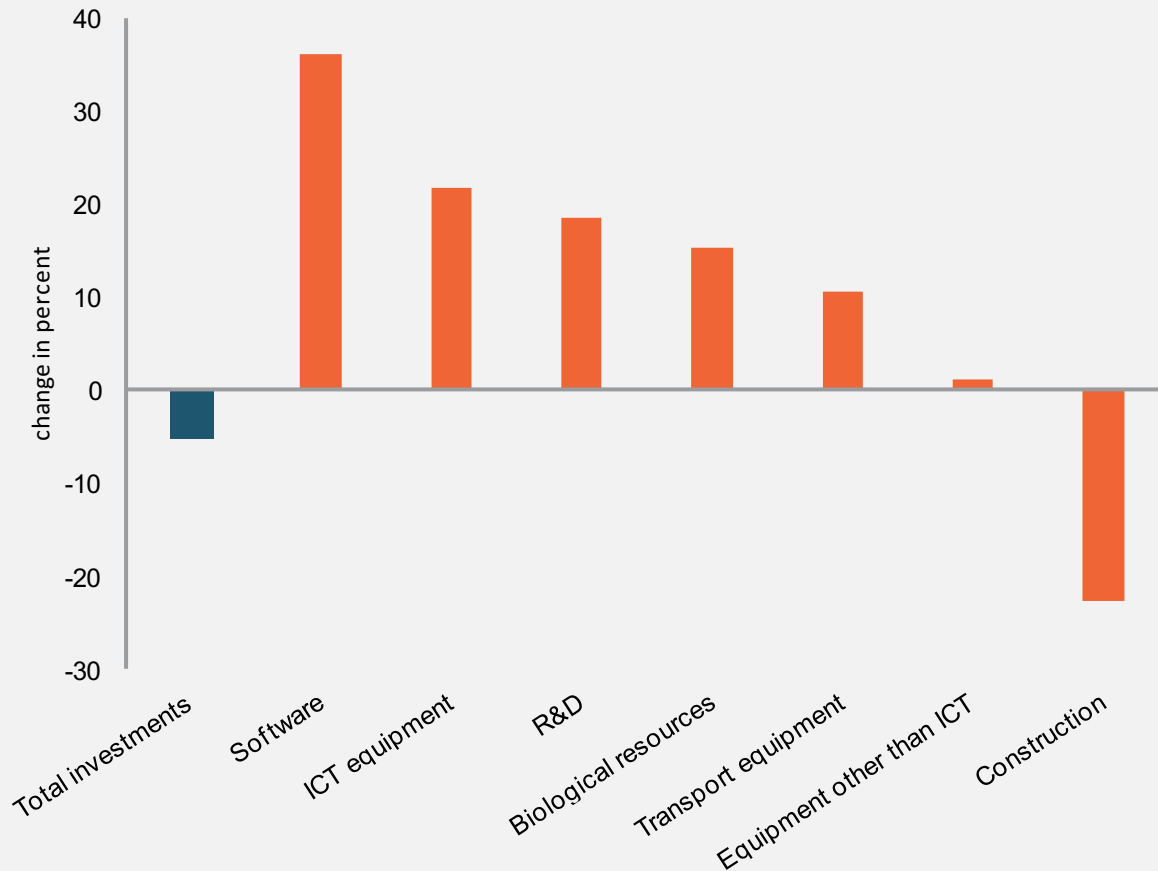


5. ICT INFRASTRUCTURE INVESTMENTS

Estimated demand for investments in ICT infrastructure
in the decade until 2030



Change in investments by asset types in the European Union in 2007-2017, in percent



Source: SpotData, European Commission

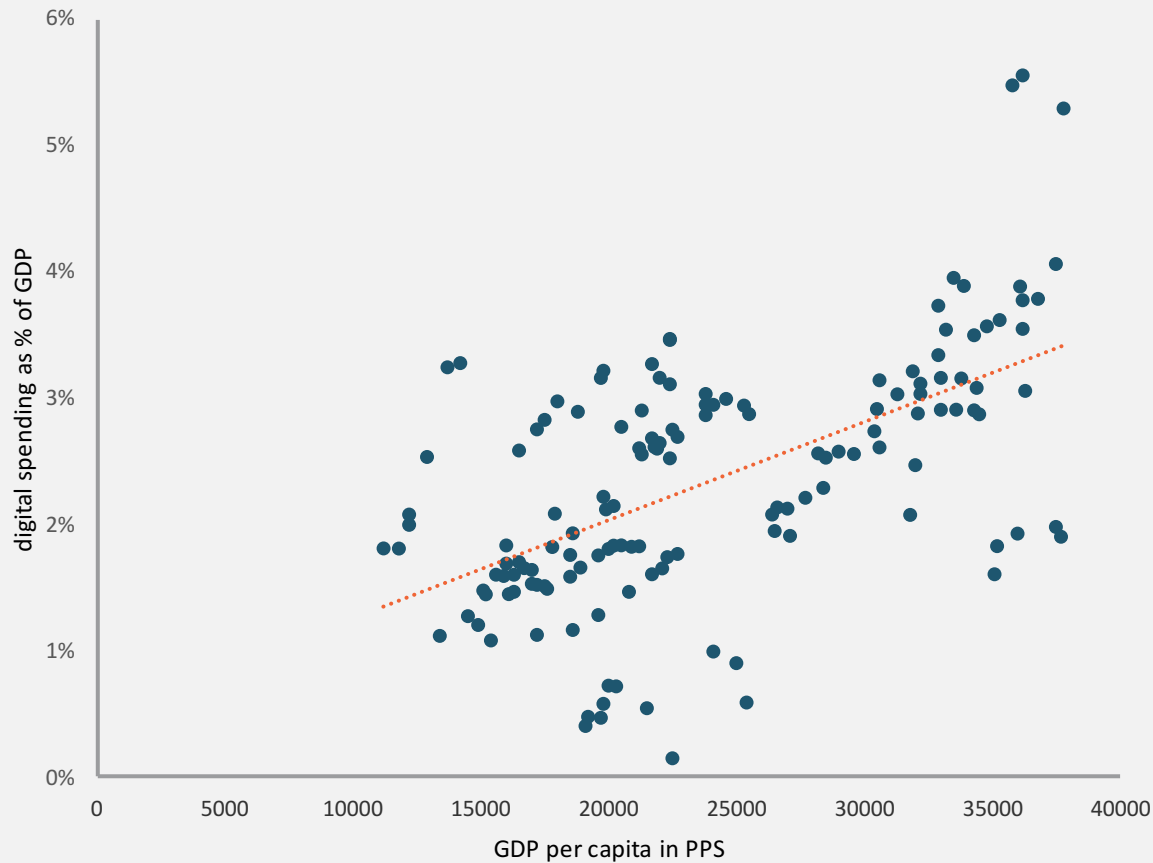
Digitalisation is the future of investments

Digitalisation is one of the most important megatrends in the modern world. Data gathering and analytics in industry and services are increasing their pace. The structure of investment activity in the EU over the last decade is a case in point. **Whereas the total investments level in the EU after the financial crisis has collapsed due to lower demand and the credit crunch, the investments in digital assets have increased – in software by almost 40% and in ICT hardware by more than 20%.**

One of the key areas of future digital investments in Europe will be the creation of 5G network infrastructure. According to Gunther Oettinger, the European Commissioner for budget and human resources, the EU will be a global leader in implementing 5G solutions. Large investments should kick-off at the beginning of the next decade. The total investment demand in telecommunication infrastructure in the EU could be as high as €800 billion.

In addition to the high-tech mobile network, there are other areas of common European interest which will require digitalisation, such as transport, energy, trade, and government services. These investments may play a particularly important role in the eastern peripheries of the EU, where digital assets per capita are much lower than in Western Europe. McKinsey (2018) points out that in an optimistic scenario intensive digitalisation could raise GDP growth in the region by up to one percentage point a year. This is a very optimistic assessment, but it might reflect the chances related to digital catching-up.

Digital expenditures in relation to GDP in EU countries, panel data from 2008-2016



Source: SpotData, European Commission

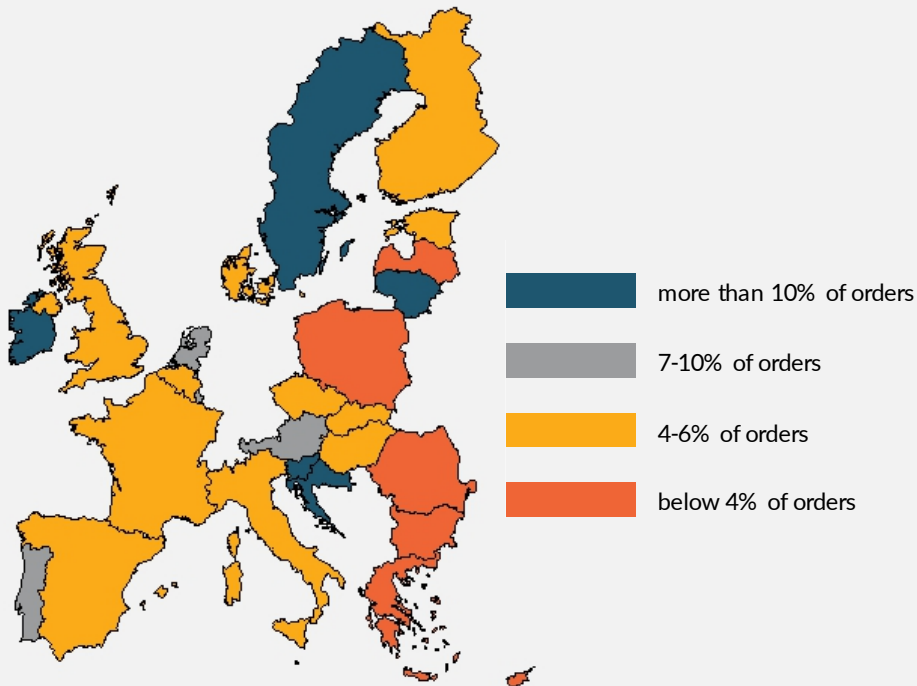
The challenge for the TS region is to kick-off digital convergence

Digital investments have some different characteristics than traditional infrastructure investments. **For that reason this area may require the most innovative approach to financing.** Unlike transport and energy infrastructure, the paths are not paved and there are few examples of large-scale international projects in the region from which lessons can be learned.

What differentiates digital investments from energy or transport investments is that they are primarily financed by the private sector. Moreover, the rate of digital investments, which is their relation to GDP, is positively correlated with GDP per capita, which means that richer countries spend relatively more on digital projects. This can be explained in various ways. Richer countries compete by developing frontier technologies and have to take risks to develop these. Also, richer countries' societies tend to have higher digital competences and thus create more demand for digital services than societies in emerging markets.

The features of digital investments make the need for public support for these investments in the Three Seas region urgent. McKinsey (2018) recommends that intensified digitalisation requires regional co-operation to support the private sector, especially with regard to setting up regional infrastructure, such as fibre-optic networks, 5G networks, e-commerce logistics hubs, and digital transformation in the energy sector.

Percentage of orders which transport and logistics companies receive from abroad through the Internet or apps, as a percent of total orders



Source: SpotData, European Commission

The Three Seas region can make better use of its natural comparative advantages

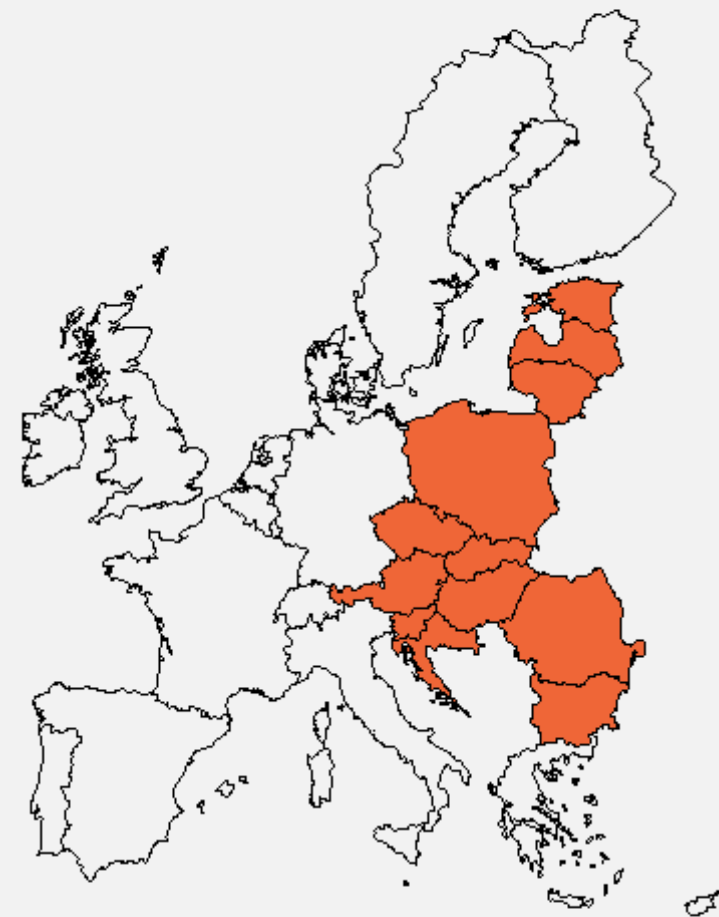
Most countries in the Three Seas region have natural comparative advantages in the services sector, mainly due to low unit labour costs and the high quality of the labour force. Therefore these countries have for a long time been strong advocates of the liberalisation of the services markets in the EU. Now they have a chance to make better use of these comparative advantages, by **digitising services and therefore enabling local companies to have broader reach within the single European market.**

A good example of where the excellent potential to achieve good returns from digitalisation can be found is the logistics sector. This sector has recorded an enormous growth rate in recent years, with logistics employment in all Three Seas countries rising by 25% between 2008 and 2018. Particularly high growth rates were recorded in Poland (employment growth of 100%), the Czech Republic (40%) and Hungary (130%). At the same time, digital services in the logistics sector are still very weak in the region. The share of foreign purchases via the Internet in total purchases is very often no higher than 5%, and in Poland it is only 3%.

Increasing digital investments in this sector can bring important benefits. The leaders of the Three Seas Initiative understand such challenges, which is why they placed creation of digital platforms for logistics in the first place on the list of the critical digital investment projects in the region.



6. SUPPLEMENT | THREE SEAS INITIATIVE





The Three Seas Initiative (the TSI) was founded in 2015 at the presidential level as a **platform for the cooperation of countries located between three seas: the Baltic, the Adriatic and the Black Sea.**



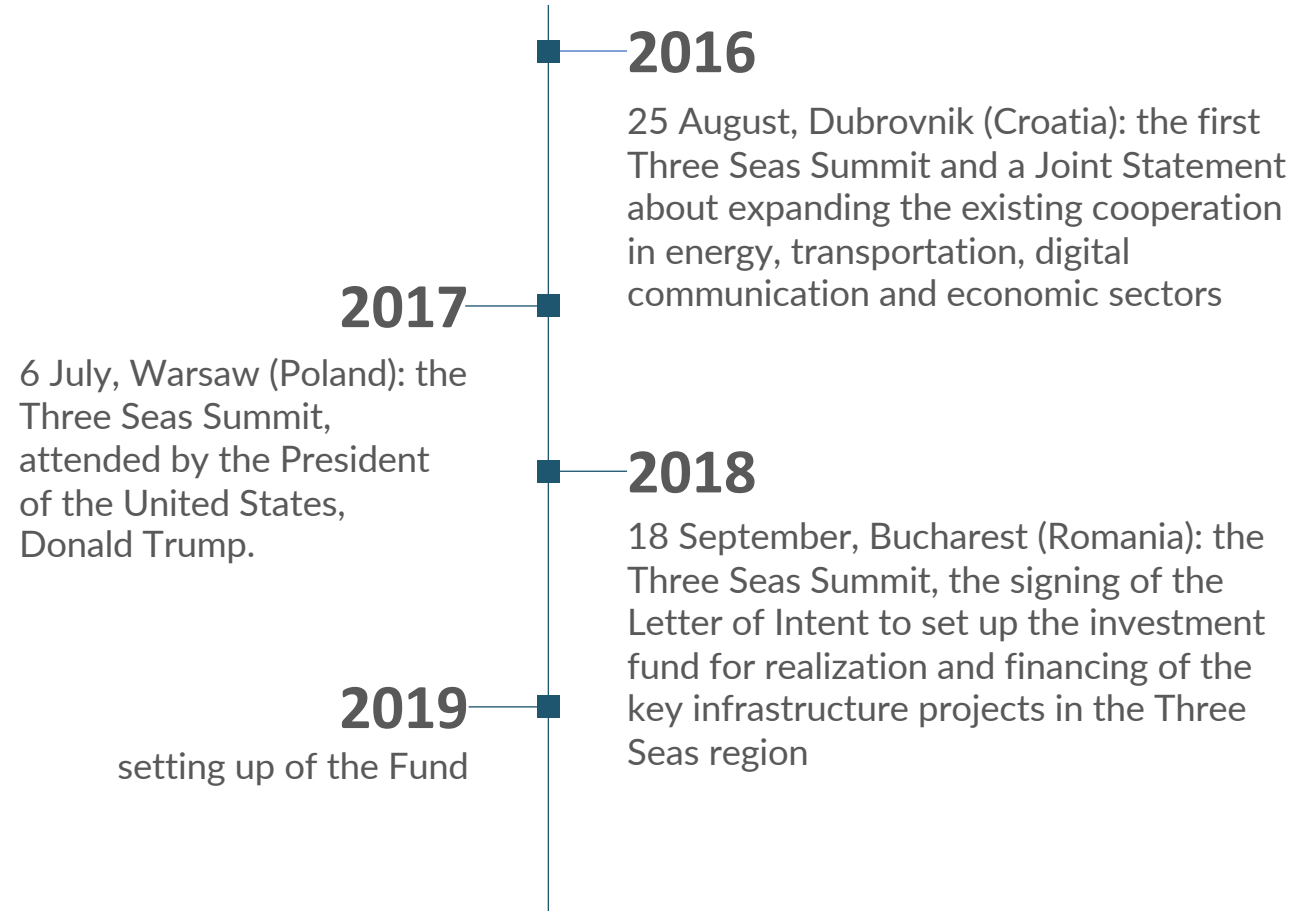
The countries taking part in the TSI are: Austria, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.



The strategic goal of the TSI is fostering economic convergence of the Three Seas region with the western part of the European Union by **development of enhanced infrastructure, economic and social cooperation and interconnectivity of the Three Seas countries**



An important goal of the TSI is the development of infrastructure for transport, energy and digital telecommunication, especially along the North-South axis, **by supporting the development of cross-border and transnational projects.**



1 The Fund

- The Fund is going to be the economic dimension of the Three Seas Initiative and will be an investment vehicle for financing key infrastructure projects in the region.
- The National Promotional Institutions (NPIs) from the Three Seas countries will be co-founders of the Fund.

2 Structure and capacity

- The Fund will be created under Luxembourg law, which is known and accepted by international investors. Luxembourg is the centre of the international investment funds market.
- The co-founders of the Fund will have an impact on the terms of the Fund's operating conditions as stated in the founding documents and will exercise active investor supervision through participation in the Fund's bodies.
- Apart from the NPIs, international institutional investors and international development institutions will be invited to participate in the Fund.
- It is preliminary assumed that the Fund size will amount up to €5 billion and will generate investments with a total value of up to €100 billion.

3 Investments

- There will be a two-step process for selection of investments made by the Fund. A list of projects will be generated by the Three Seas countries. Those projects will be checked and analysed by an independent fund management entity. Investment decisions will be made based on the criterion of convergence with the Fund's strategy, estimates of the expected rate of return, and costs and benefits.
- The list of strategic infrastructure projects was adopted at the third Three Seas Summit in Bucharest and is a starting point in defining the strategic infrastructure of the region. The list is an open catalogue.



Institutions that signed the letter of intent aiming to establish the Three Seas Fund

■ - countries participating in the Three Seas Initiative

Methodology

- We used the Wollfers methodology (2011) to estimate the demand for infrastructure investments according to the sectoral (widest) definition. It uses data on gross fixed capital formation (GFCF) according to the NACE two-digit industries (Nomenclature statistique des Activités économiques dans la Communauté Européenne, statistical classification of economic activities in the European Union), including: 1) transport and storage; 2) energy, water supply and waste management; 3) telecommunications; 4) education; and 5) health. The share of outlays on fixed assets in these sectors in the long-term (most frequently from 2000 onwards) was estimated. The assumption was made that the long-term investment rate should be maintained.
- We used different data sources to estimate the demand for network investments. In the case of transport investments, this was OECD data on investments in car, rail, water and air transport infrastructure. In the case of investments in energy and telecommunications networks, we used data on gross fixed capital formation broken down into four-digit NACE sectors. We did the same for ICT investments.
- To estimate the demand for investments in critical regional infrastructure, we used estimates from the European Commission, made for the purposes of the Connecting Facility Europe program. The total demand for network investments in the European Union in the years until 2030 has been estimated at €1,730 billion. We made the assumption that the 'New' European Union countries should maintain the infrastructure investment rate at 140% of the investment rates for 'Old' members of the European Union.

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