Infrastructures of the future

Symposium Proceedings

26th April 2017, Brussels

E3PO
EUROPEAN PPP OPERATING COMPANIES IN INFRASTRUCTURE AND SERVICES

ASECAP
Association Européenne des Concessionnaires d'Autoroutes et d'Ouvrages à Péage

EFGC EUROPEAN FORUM of GENERAL CONTRACTORS

LTI/A Long-term Infrastructure Investors Association

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Infrastructures of the future

What are the needs?

What public-private financing schemes?

How can they contribute to economic growth in Europe?

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Preface

Philippe Duron

French MP, Chairman of AFITF (Agence de Financement des Infrastructures de Transport de France)

Access to mobility determines the extent to which our fellow citizens feel they belong in society, can reach employment, education, healthcare and entertainment or, to the contrary, feel "a long way from everything." An Ipsos and Boston Consulting Group study found that a significant portion of European Union citizens feel this way. The same study, which will be presented in the introduction to this symposium, shows that private cars still play a prominent role in everyday travel and that a large majority of Europeans have high expectations when it comes to infrastructure quality and innovative transport services.

This is very much at the centre of the expectations that our fellow citizens are voicing before public institutions in the various Member States. So the European construction process needs to contribute to providing tangible answers to these tangible needs, and do so fast.

Building that infrastructure, however, will take substantial funding and public authorities cannot provide it by themselves. Governments need to apply fiscal discipline, because that is one of the conditions for economic growth to resume, so there are tough choices to make. The AFITF, which I chair, has a large number of transport infrastructure projects to fund – principally railways – over the coming years. But other projects, which are also very important, will be shelved because there will not be enough funding for them. We identified them in Commission 21 in 2013.

The priority, more than ever before, is to focus on everyday travel. That is what solidifies inclusion in our society. So we need to look at maintaining and modernising existing networks, especially in the fringes of our large cities.

The talks at this symposium are providing important leads to develop new types of mobility and harness the innovation in the pipeline. Innovation will be packed with the best new technology can provide, and there is plenty of innovation revolving around mobility today. The people in the EU see these changes as steps in the right direction and are expecting them. The only way to gather the resources to make those changes happen, however, is to rally public and private stakeholders around them. The legal and contractual framework is there. The 2014 Directive on the award of concessions contracts improved that framework. These partnerships, which combine the best of the public and private sectors, are bringing about new momentum to develop investment in infrastructure that will benefit Europeans.

I would like to thank the organisers, which include all the stakeholders involved in infrastructure, E3PO (European PPP Operating Companies in Infrastructure and Services), ASECAP (European Association of Operators of Toll Road Infrastructures), EFGC (European Forum of General Contractors), LTI/A (Long-term Infrastructure Investors Association) and ASFA (Association des Sociétés Françaises d'Autoroutes) for this initiative.

Opening

Alex Taylor

Journalist, conference host

Ladies and gentlemen, thank you very much for being here with us this afternoon.

First of all, I would like to thank the people who organised this conference, and in particular E3PO (European PPP Operating Companies in Infrastructure and Services) ASECAP (European Association of Operators of Toll Road Infrastructures), EFGC (European Forum of General Contractors) and LTI/A (Long-term Infrastructure Investors Association).

Let's start with a preview of the findings from a study by Ipsos and The Boston Consulting Group on Europeans' perceptions of mobility.

The expectations of Europeans in terms of mobility. Infrastructure, an overview.

I) The Ipsos-BCG survey on Europeans' perceptions of mobility

Dominique Levy

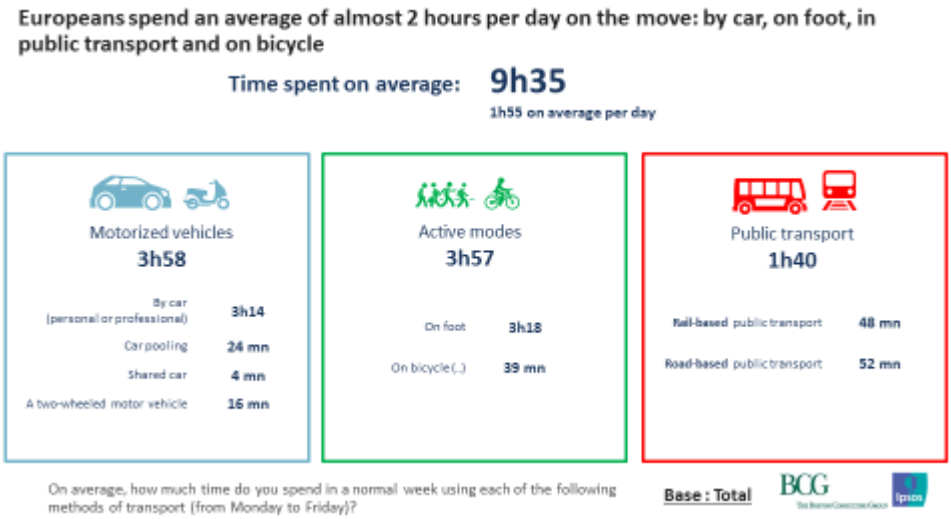
General Manager of Ipsos

We're going to be talking about mobility from the user's viewpoint. To find out about that, we asked thousands of people in various European countries about their views on infrastructure and mobility, with questions about their daily lives.

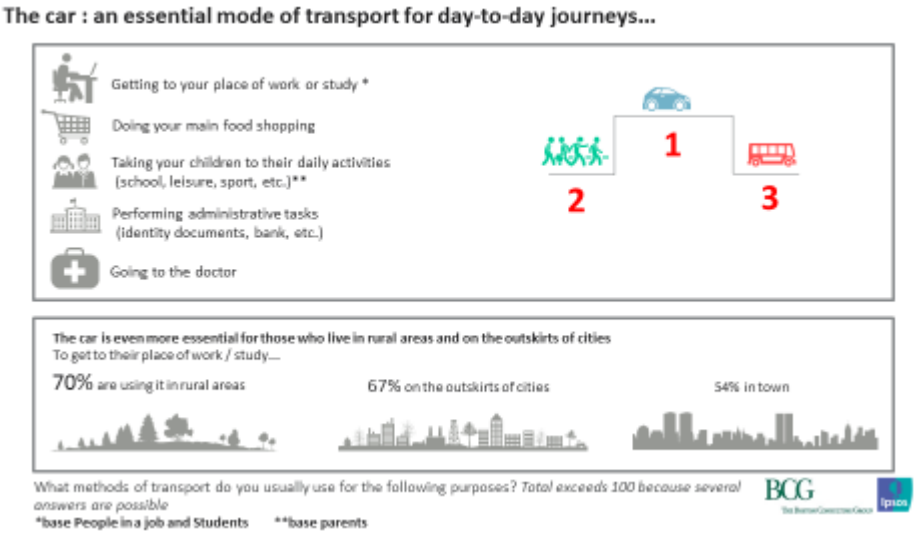
Countries surveyed

Total	10 018
Belgium	1 003
France	1 000
Germany	1 003
Greece	1 000
Ireland	1 000
Italy	1 000
Poland	1 001
Portugal	1 001
Slovakia	1 000
Spain	1 010

One of the interesting findings was that mobility **is very much at the top of Europeans' minds. It's actually a major daily concern**. It's also a key aspect of well-being over the medium and long term.

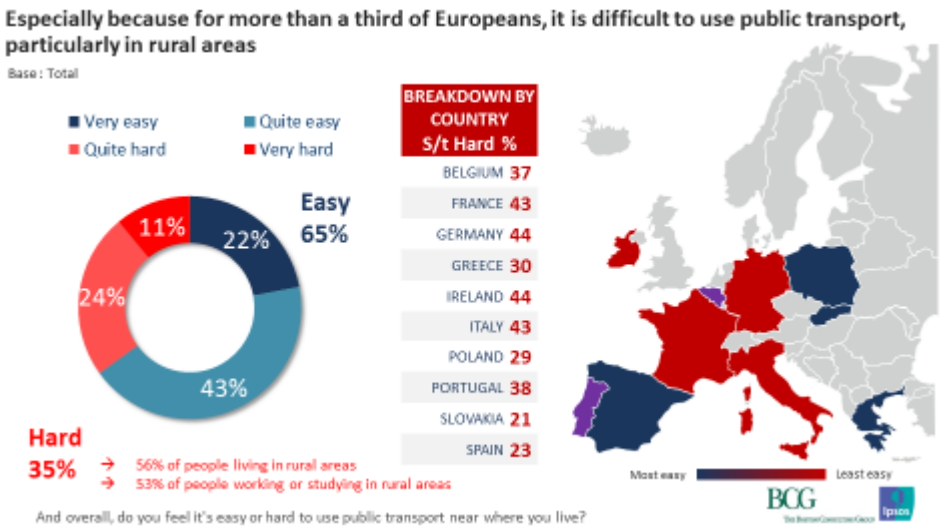


On average, Europeans spend about 10 hours a week moving, including four hours in cars or on motorised two-wheelers. Cars are clearly predominant. Europeans also spend about four hours walking or cycling, and 1 hour and 40 minutes on public transport. That may not seem much but remember that only a fraction of the people we interviewed have access to a public transport system. Private cars, in other words, are essential to mobility.



Most people get to work by car. Europeans also use their cars to go shopping, drive their children around, deal with formalities and access healthcare services, and for cultural and other free-time pursuits. These figures encompass driving cars and travelling in them as passengers (in carsharing and carpooling arrangements).

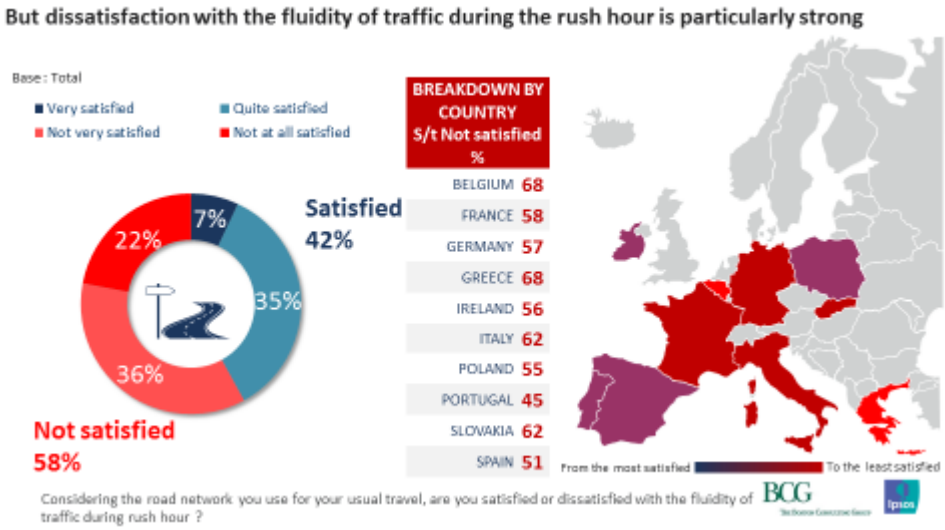
There is a difference between rural areas, where cars are practically vital, and city centres. That said, 54% of people living in urban areas still use their vehicles as their main mobility option.



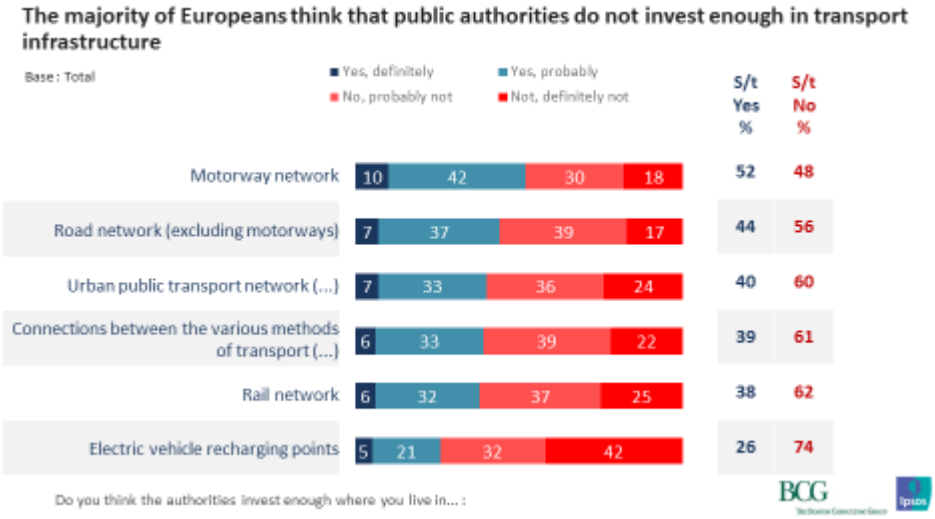
Using public transport is not always as easy as people would hope. This confirms that people do not always use their cars because they want to, but rather because they need to: overall, 35% of the people we interviewed consider that reaching public transport is difficult, and that figure is 44% in Germany and Ireland, and 43% in France and Italy. This concern is all the more central as mobility has a significant bearing on the extent to which people feel included in society.

Mobility is more than a "physical" experience. Of course, it gets people to work or to free-time activities. But it also helps people feel they belong in society and are being treated as well as any other fellow citizen. People who struggle to reach public transport feel left out of the places where things are happening. Several papers have been published recently about these areas – in many cases rural areas – where this feeling is rife and populism is thriving.

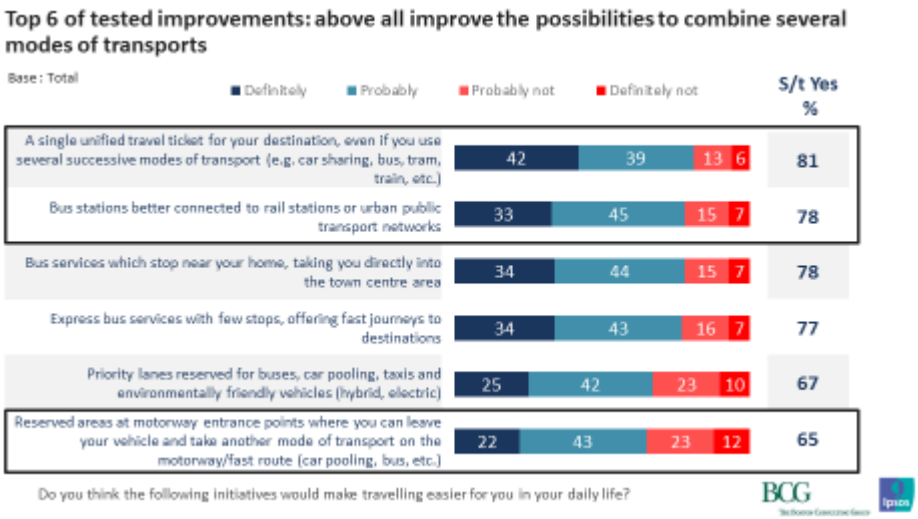
Mobility also touches on people's ability to find a job and keep it. Being cut off from the places where companies are hiring makes it harder to find a job. And, for many people living in areas where jobs are scarce, this disconnection can lead to tragic situations.



58% of Europeans find the traffic conditions they have to deal with unsatisfactory. But, as they have no other option, they will continue to use their cars.

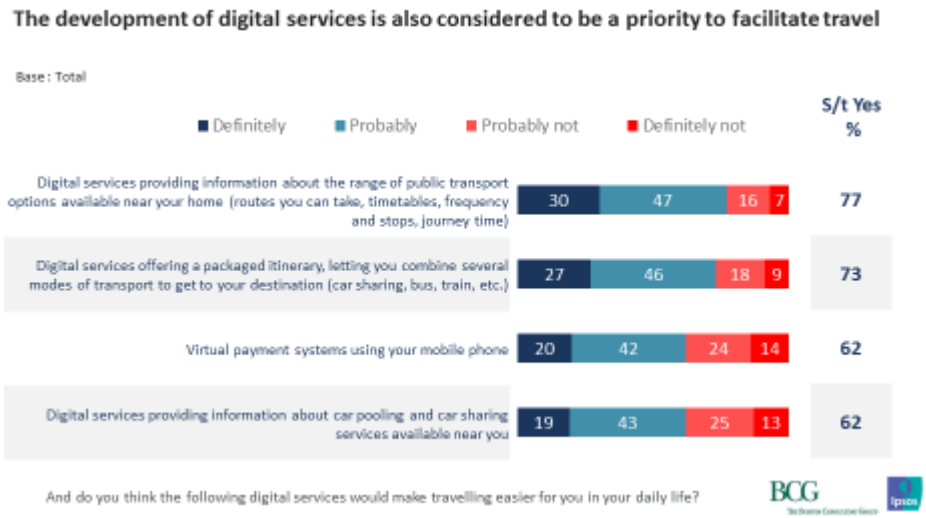


It isn't just a question of keeping the situation stable: infrastructure needs to be improved: **61% of Europeans consider that investment in intermodal mobility is inadequate** and 44% of them also believe that the public or private sector should invest more in terminals to charge electric vehicles.

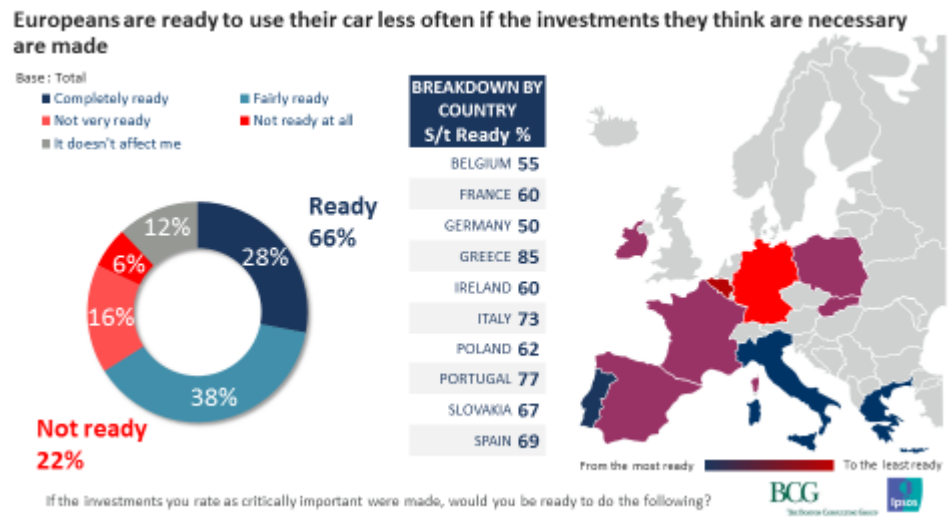


Interestingly, mobility is also one of the few areas where the prospects are moderately bright: there is clearly room for improvement and people are quite certain that progress in this area will make a difference in their daily lives. I can tell you that we run quite a few surveys and that we don't often find that people generally agree that things will be heading mostly in the right direction. I think that's a key takeaway for public- and private-sector decision-makers.

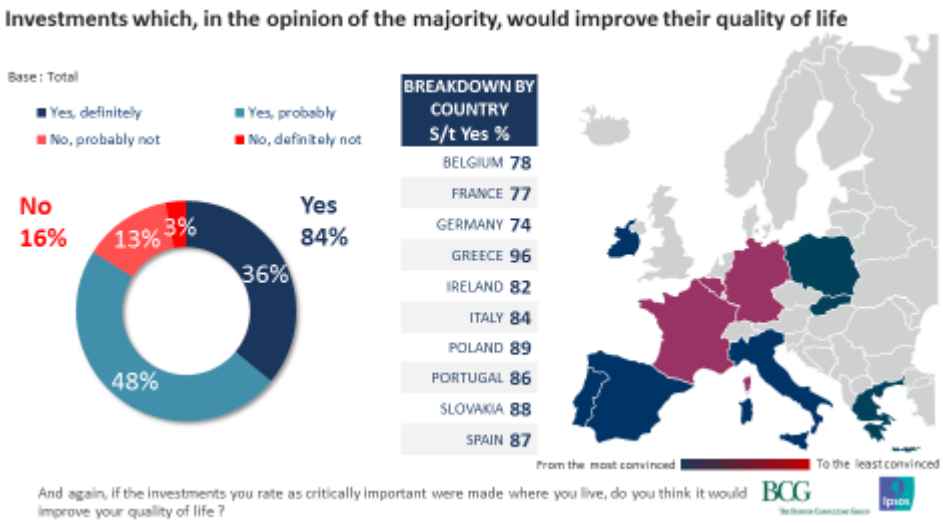
We asked people about six possible improvements and the one that met the most enthusiastic response was a single ticket for all modes of transport. Users are ready for intermodal mobility but want to transfer from one mode to another more smoothly, especially when it comes to paying for the service.



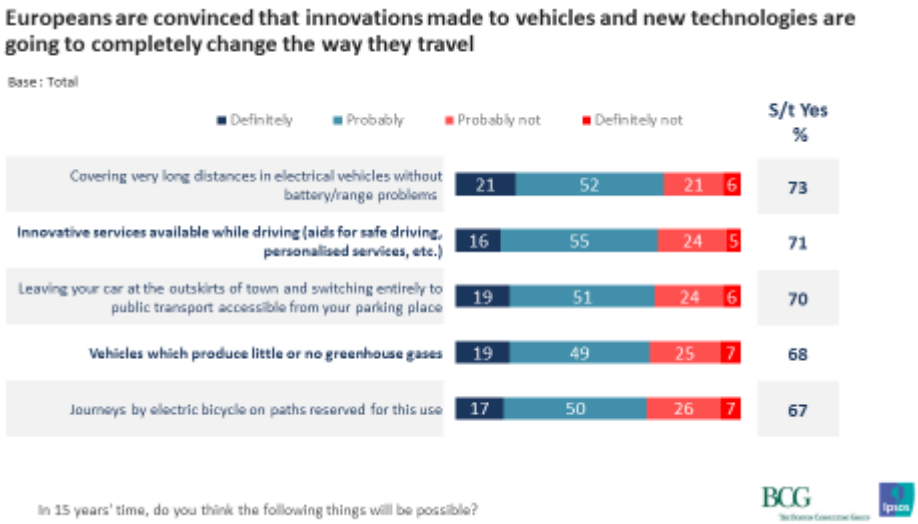
That's why it's important to improve connections and services. It's also important to develop new services and solutions around digital tools. When we asked people about this, they told us they want these new services to make their everyday travel more efficient, for example by providing easier access to information, itineraries and travel times. Digital services could include an itinerary "package" whereby people could buy a single ticket to travel from any point in the network to any other, regardless of the mode of transport they choose to take. And those services could include digital payment systems, which are already available in cities (on taxis for example). Digital services could also make carsharing and carpooling more convenient.



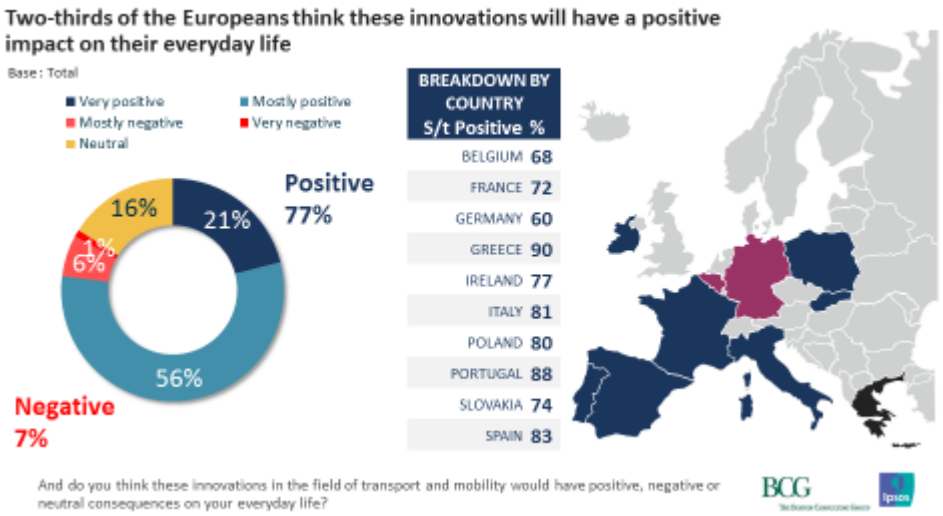
These improvements would likely encourage people to use their private cars less often, and that would in turn improve the environment and quality of life in urban centres.



These are services that people expect will improve their quality of life:



We also noticed a sense that technology will bring about significant changes in mobility. A large majority of the people we interviewed are expecting to see developments such as long-range electric vehicles, innovative services, or, in urban areas, opportunities to combine driving and public transport. These are down-to-earth ways of changing people's everyday lives, and they feel that these breakthroughs are within reach.



They don't just believe that these developments are feasible: they also want them to happen. As many as 77% of Europeans – and 90% of Greeks – are certain that these changes will happen and that they will make a positive difference in their everyday lives.

To round up, again, mobility is one of the very few topics in the public debate that is seen as important, and likely to make a positive and tangible difference in the quality of people's lives.

II) Infrastructures, an overview

Sylvain Duranton

Senior Partner & Managing Director of The Boston Consulting Group

As Dominique Levy showed in her presentation, Europeans are expecting a lot from transport infrastructure. My message is simple: it's time to do something about it. And to do it on a big scale. We're seeing a considerable amount of investment flowing into this sector, but private and public stakeholders need to cooperate more closely if they want to channel that investment into the projects that will make the most sense.

TRAFFIC SHALL INCREASE… SO MUCH FOR DECLINISTS

Sustained traffic growth in the past...

+1.5% more km/yr on US roads (1990-2015)
US Bureau of Transportation Statistics

+1.2% more km / yr on EU roads (2005-2015)
European Road Foundation

... Expected to continue on the long run

~+3% global road and rail passenger travel to 2050
OECD ITF Transport Outlook 2015

~+5% air passenger traffic globally (2015-2040)
Airports Council International

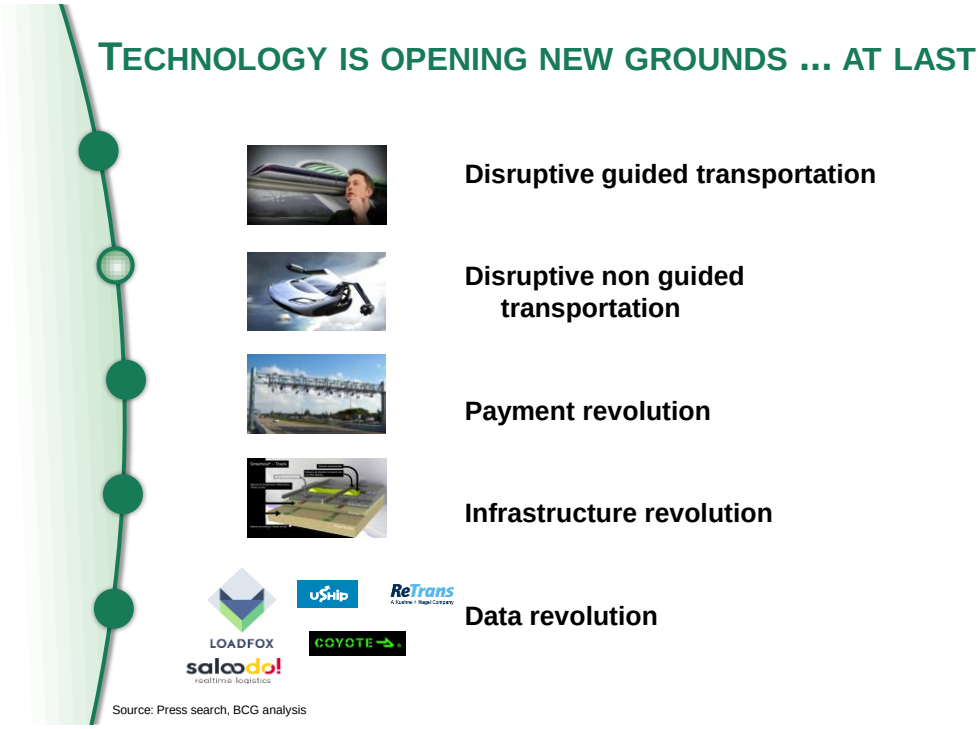
Every study shows that demand for mobility will increase, even in the world's more mature areas (Europe and the United States), especially during periods of growth. Other sectors – energy for example – are seeing consumption decline. Demand for mobility services is heading in the opposite direction: road transport is expected to grow by 3%, and air travel and freight by 5%. There are different scenarios on how this might play out, depending on the evolution of fuel prices, but demand for mobility will continue to increase in any case.

TECHNOLOGY IS OPENING NEW GROUNDS … AT LAST

	From the 1980s ...	... to 2017
TGV		
Boeing 747		

Source: Press search, BCG analysis

As Dominique Levy said, Europeans want better infrastructure. They also want more infrastructure. That of course raises the question of financing these projects. Transport is the only industry where the user experience, in some respects, has not changed since the 1980s. But things are starting to move and several breakthroughs seems to be just around the corner now.



Some people are telling us that we'll soon be travelling at the speed of sound with the Hyperloop. That sounds a bit like sci-fi and I'm not sure it will happen. But there are several companies working on revolutionary projects: Airbus or Uber, for example, are working on designing flying cars.

Europeans want simpler payment systems when they use public transport. They will want the same thing when new mobility services become available. Simple payment is actually one of the main reasons why many Europeans are using Uber's services, for instance. This invariably tops the list in customer surveys.

The infrastructure itself is changing. It has more and more embedded sensors and supervision systems to manage flows more efficiently. Some of the motorways in the UK's network already have up-and-running smart systems.

The revolution in data is speeding up this evolution in infrastructure. Sensors can supply real-time updates on infrastructure's state of repair and on any work it may need. This will optimise maintenance costs and minimise user inconvenience.

GOING GREEN

Emission norms in the EU down from **130gCO2/100km** in 2015 to **95gCO2** in 2020

Commercial aircraft engine fuel consumption reduction by **15%**, and CO2 emission by **60%** in latest generation

Urban collective transports up from **6.4%** (1990) to **18.0%** (2015) of French budget to transport infrastructures

From **5.8**million users of car sharing in 2015 to **~35**million in 2021, 3.5million of which with monthly uses

Source: World Economic Forum, Argus de l'Assurance, AirInsight, Safran and P&W websites, BCG Perspectives, BCG analysis

Lastly, infrastructure will be greener and environmentally-friendlier. It won't be free but this is a shift that people will welcome. More and more people are using public transport, even if they would sometimes rather not, instead of their cars.

The circular economy is also moving deeper into the transport sector. At BCG, we were asked to work on an assignment involving carpooling and learnt that this trend towards sharing vehicles runs deep. It isn't just a passing fad. Our study predicts that the number of carpoolers will grow by 600% worldwide between 2015 and 2021. That's huge.

CAR RELOADED

Today...

3% higher market capitalization for Tesla than GM

44% of US consumers ready to buy an autonomous vehicle

... tomorrow

2020: 10% of electric vehicles

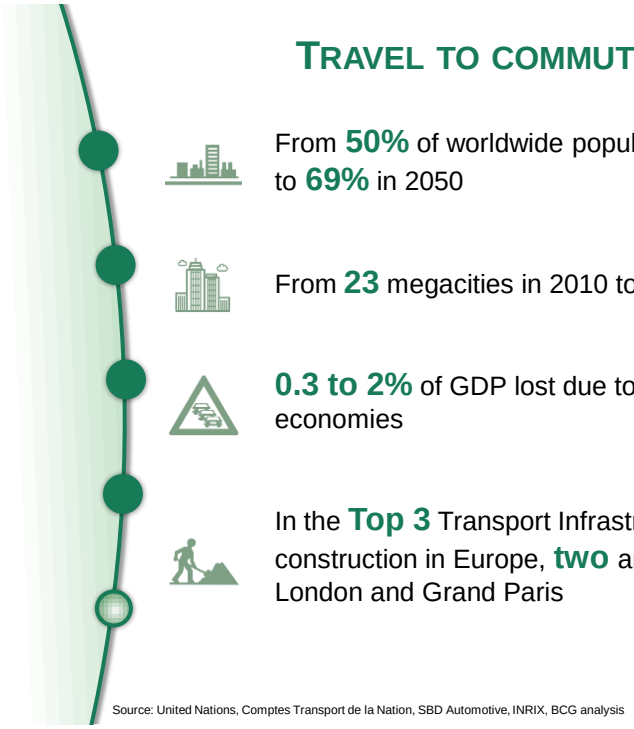
2025: Fully autonomous cars *(announced by Mercedes)*

Source: Annual reports and press announcements, BCG Consumer Survey 2015, BCG analysis

Cars are still an essential mode of transport but they have two big downsides for communities: they pollute the air and kill people on roads every year. We're about to solve both those issues. The industry is ready to start manufacturing "zero-emission" (or very-low-emission) vehicles.

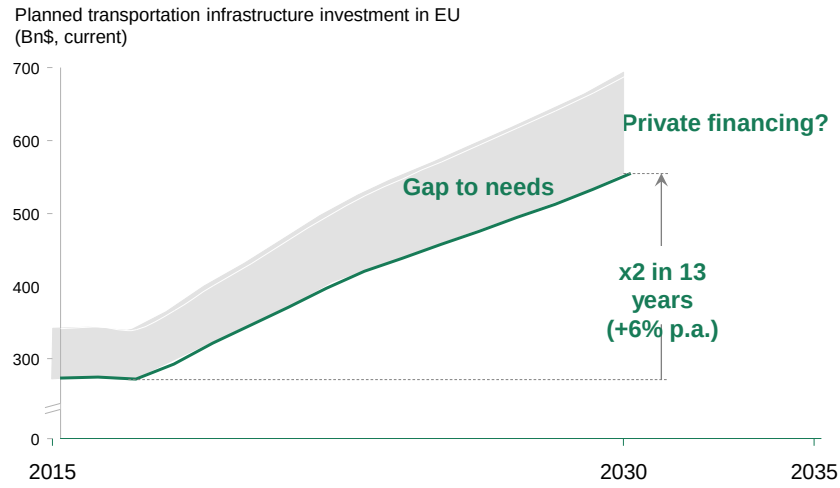
And technological breakthroughs are radically improving road safety. Public policies in various countries over the past few years have attempted to encourage people to leave their cars at home. But solving these two issues could actually reverse this trend and cars could stage a comback. That, for example, explains why Tesla's market capitalisation is now higher than General Motors'.

We also asked consumers about self-driving cars, and they also sounded very keen on the idea. Carmakers are working on it and these vehicles will be on the market in the coming decade. Our estimates suggest that electric and hybrid vehicles combined could account for more than 20% of sales by 2020, all continents combined.



Everyday transport is also facing big challenges. I don't have to tell you that building new infrastructure in urban areas is extremely expensive. There isn't enough space so we have to dig tunnels, for example, and that technology is very costly. And this extremely expensive infrastructure will become increasingly vital. By 2050, the vast majority of the world's population will live in cities that have more than 750,000 inhabitants, and there will be many more cities with over 10 million inhabitants than today. Economists estimate that traffic congestion can cost as much as 2% of GDP. Two of the three largest infrastructure projects now under development, the London Crossrail and Grand Paris, are urban mobility projects.

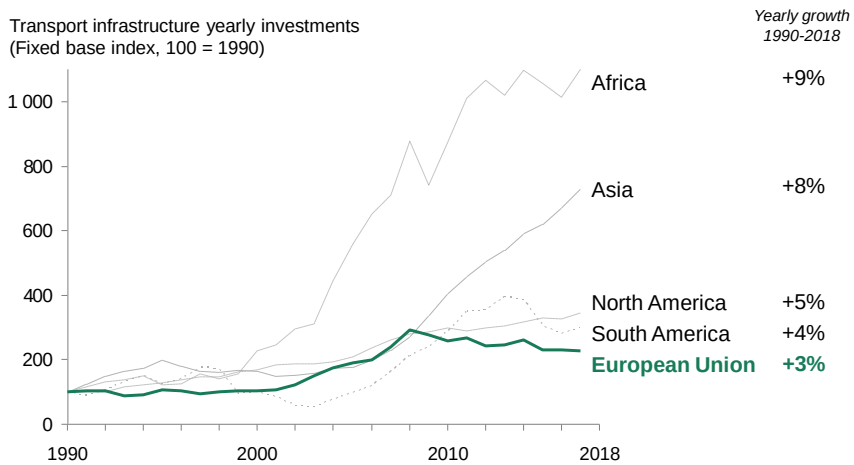
EUROPE IS UNDER-INVESTING TO MEET GROWING TRANSPORT DEMAND



Source: Oxford Economics, IHS Global Construction outlook, World Bank, Preqin, InfraPPP, EPEC (European PPP Expertise Center), BCG analysis

We're working with the World Economic Forum (WEF) and Oxford University to assess the funding requirements associated with mobility. Europe is spending just under €300 billion a year on its transport infrastructure. Studies suggest that this figure could be five times higher by 2030. That should give you a general idea of the sheer size of the funding requirements. And, even if Europe invests that much, infrastructure will still be 20% to 25% short of requirements, simply because demand is so strong. In any event, private investment in transport infrastructure will have to increase. Public-sector budgets will not be sufficient to cover all this investment.

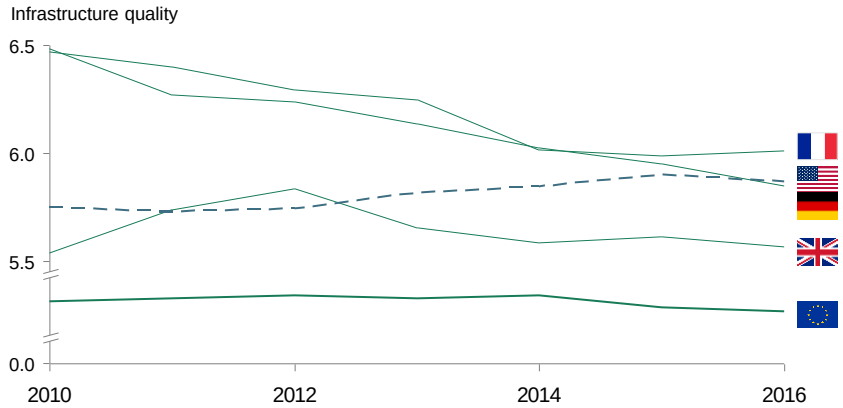
EUROPE IS UNDER-INVESTING TO MEET GROWING TRANSPORT DEMAND



Source: IHS Global Construction outlook, BCG analysis

Unfortunately, Europe is not in good shape. Its investment over the past three decades has not grown as fast as investment in the United States, where the economy has also grown more rapidly. Investment in public infrastructure in the US has grown twice as much as in Europe.

EUROPE IS UNDER-INVESTING TO MEET GROWING TRANSPORT DEMAND



Source: World Economic Forum – Global Competitiveness Report, BCG analysis

We run a user survey every year at BCG, and have seen that perceptions of the quality of infrastructure are declining in France and Germany, two countries that set the pace in this area until recently.

EUROPE IS UNDER-INVESTING TO MEET GROWING TRANSPORT DEMAND

"**While on the one hand motorway companies are committed to return the infrastructures in a good state at the expiration of the concession, the national road network on the other hand is facing**

an acute level of degradation."

Commission des Finances, Sept 2016

EUROPE IS UNDER-INVESTING TO MEET GROWING TRANSPORT DEMAND

"**The decline in the perceived quality of infrastructure in Germany is**

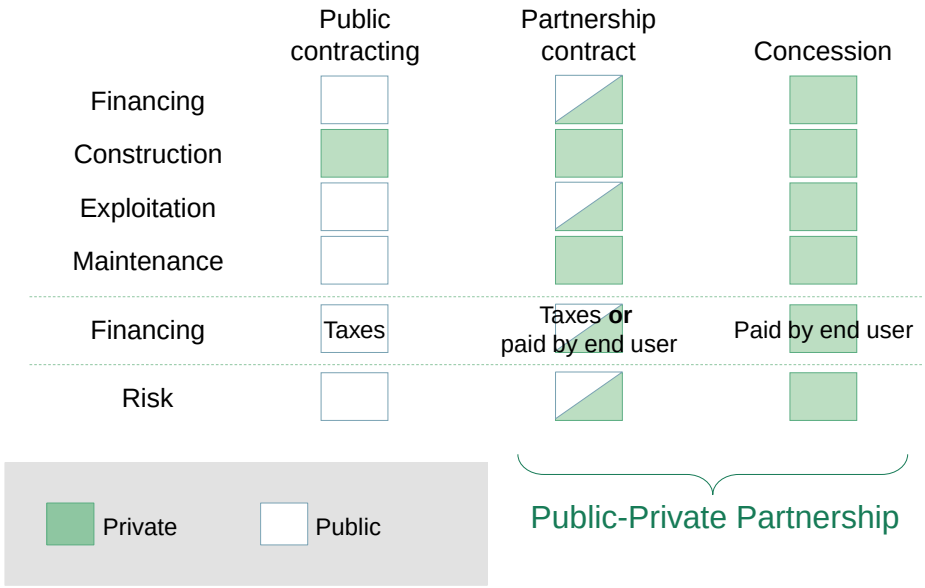
evident.

Germany has the 2nd lowest public investment to GDP ratio in the OECD while pressing infrastructure needs have been identified, particularly in transportation"

IMF, July 2014

In France, the Senate finance committee has pointed out that infrastructure quality is lacking. In Germany, the IMF has spoken about underinvestment in infrastructure. This trend applies to all European countries.

PRIVATE PLAYERS WILL BE INVOLVED TO FINANCE THE CAPEX WALL



Source: BCG analysis

The only way to solve the government's conundrum today, it seems, is to drop the public-sector-only doctrine and let private-sector players contribute to infrastructure funding. That's not an easy step to take because it means users will have to pay for some (or all) of the infrastructure. As it happens, we also asked Europeans what they thought about that, and 50% to 60% of them replied that they are willing to pay to use infrastructure – to different extents in different countries. But, in any event, people seem to know what to expect.

PRIVATE PLAYERS WILL BE INVOLVED TO FINANCE THE CAPEX WALL

Source: EPEC (European PPP Expertise Center) market updates

This is also a funding arrangement we've seen often on recent projects – especially on larger projects.

WILL PRIVATE PLAYERS SAVE EUROPEAN TRANSPORT INFRASTRUCTURES?

WHICH BENEFITS?

1. Private players alleviate short-term pressure on public debt
2. Public decision-makers stay in control of strategic planning of infrastructure
3. A virtuous user-payer model is enabled (while allowing some level of public subsidy)
4. This model leverages the expertise and know-how of private players

WHICH REQUIREMENTS?

1. Mature private players with solid financials
2. Economical and financial discipline from public decision-makers
3. Balanced regulatory framework to avoid rents while giving enough incentives for private players to invest
4. Mature politicians

2

The private sector has valuable expertise, especially when it comes to pushing the polluter-pays principle, which is gaining ground in synch with ecological concerns. This could set a virtuous circle in motion and start attracting private investment. That said, there are no guarantees that business disasters – like Eurotunnel not so long ago – won't happen again.

To avoid those extreme scenarios, we need an ecosystem of competent, mature private-sector players that can work side by side with decision-makers rather than promise them the moon. Of course, financial discipline is essential throughout the project's life cycle. Policy-makers won't be able to say they forgot to factor upkeep and maintenance costs into the equation. Upkeep and maintenance costs are included in the budget from the start. We also need a process to make decisions on complex projects involving a large number of stakeholders (urban projects, for example). Another issue is the possibility of adapting contracts. This needs to be included from the start, to accommodate requirements associated with each phase in an asset's life cycle, throughout the contract. Lastly, policy-makers need to rise above the fray and be wise: the fact that private-sector players are providing funding doesn't mean they should let that funding go to the wrong projects. People are expecting a lot. So it can be tempting to make easy promises even though the government's purse is empty. It's vital to deal with this risk and take action to address Europeans' requirements.

Europe, evaluation and perspectives

Jyrki Katainen

European Commission Vice-President for Jobs, Growth, Investment and Competitiveness

Ladies and gentlemen, first, thank you for the opportunity to discuss with you today. The two previous speakers (Dominique Levy, Ipsos & a speaker from Boston Consulting Group) have already explained the reasons we need more investment in transport but also more generally in European infrastructures. The examples they cited and their presentations were excellent. I especially liked the last point mentioning that we need mature politicians. When I was Minister of Finance, my colleagues regularly suggested that we construct this or that on the basis of PPPs. Every time, it was to circumvent budgetary discipline. That's why I got very circumspect when it came to PPPs. However, I have learned to overcome my doubts seeing that mature politicians can use PPPs responsibly. I also got very good examples of PPP models. Such as when we negotiated a contract with a private company for the construction of a highway building. The project was completed one and a half year ahead of schedule and the budget was respected. So there are good examples of PPPs, but there needs to be mature politicians. Thank you very much for reminding us.

Europe needs to invest more, I will elaborate a bit on the EU's role in this field. Most investments in infrastructure are the responsibility of governments and local authorities, but the EU also has a role to play.

We also need to take care of the geographical and territorial cohesion to ensure that our 28 Member States - 27 in the future - will develop on an equal footing and that our internal market will reach its full potential. But cohesion policy is not just about catching up: in all of our Member States, considerable efforts are needed to make our infrastructure and the way we use it is more sustainable. We need, for example, infrastructure for energy production, distribution and storage that allows us to improve our energy efficiency and develop renewable energy sources. In the same vein, we need transport infrastructure that supports the transition to more sustainable mobility and the substitution of oil as the main source of energy.

The new technologies resulting from the research allow us to modernize our existing infrastructure. But this does not exempt us from a proactive policy of transition to clean energy, intelligent and cooperative systems. The Commission published a Communication on Low Emission Mobility and an Energy Union Package in 2016 which defines a clear direction to adapt our existing infrastructure to new technologies. In the transport sector, a Trans-European Transport Network (TENT-T) is necessary for the effective and efficient functioning of the internal market. Our forthcoming "Mobility Package" will be an important leap forward on this road.

Strategic infrastructure corridors support the role of transport as an enabler of economic growth. They ensure seamless connectivity by means of a safe, clean and low emission transport network that meets the needs of consumers and business. And, in light of COP21, transport must also make important efforts to reducing emissions.

The Trans-European Transport Networks policy provides the framework for planning and developing infrastructure in an efficient and coordinated manner. This policy also improves connectivity with our neighbors and the rest of the world. The Trans-European Transport Networks shape mobility and must lead to the transition to low-emission mobility by introducing binding standards on infrastructure rebuilding, promoting communicating systems, strengthening multi-modality and stimulating innovation in Logistics of freight transport.

The necessary investment in transport infrastructure is estimated at EUR 130 billion a year until 2030. The EU is contributing EUR 10 billion to this budget through cohesion

policy and single market funds digital. The EU can not provide all the necessary funding. Member States and the private sector should participate.

The situation is similar in terms of achieving the EU's climate and energy targets for 2030, where investments of EUR 379 billion each year are to be made Over the period 2020-2030, mainly in relation to energy efficiency, renewable energy sources and infrastructure. EU companies must be at the forefront of these investments. In this context, their capacity for innovation plays an essential role. With an annual budget of € 27 billion for research and development in the countries concerned by the European Union, the EU is well placed to make this transition an industrial and economic opportunity.

We will not forget that this cannot be achieved with a unique approach. The quality of the infrastructure varies considerably within the EU. In many countries, the infrastructure does not yet meet our current needs and standards. In these regions, additional investments must be made to fill the gaps so that we can move forward together with the use of new technologies.

Cohesion policy will have a major contribution to make in implementing our action plan for sustainable growth, which includes the European Energy Union, the circular economy and the decarbonization of transport. Over the period 2014-2020, more than € 18 billion has been allocated to investments in clean urban transport, deployment of intelligent transport systems, promotion of multimodal transport and active forms of personal mobility such as walking and the bike.

In addition to investments in the low-carbon economy and energy infrastructure, cohesion policy also promotes investment in climate change adaptation, risk prevention and environmental protection measures. The modernization of our infrastructure is a complex and difficult task involving actors at all levels of government and administration: the EU, national, regional and local. We need a mechanism that allows us to align all those players who must work closely together to achieve our common goals.

Let's look at infrastructure financing. EU investment has picked up since 2013 but is still 9% below its pre-crisis level. On all EU investment, those devoted to infrastructure declined by about a quarter, from 2.3% of GDP in 2009 to 1.7% of GDP in 2015. Many Infrastructure projects require public funding, many of which would never occur. But we all also know the constraints on public finances. There is room for wider user-pay and polluter-pays principles to be applied more widely and to attract private investment to revenue-generating projects.

PPPs, in appropriate circumstances and when well prepared, can be an effective and cost-effective way to foster collaboration between the public and private sectors. This is especially true for projects related to transportation, energy, environment and IT infrastructure. In these contexts, public co-financing, in the form of subsidies or financial instruments, can help mobilize private investment.

In 2016, increased demand for infrastructure and availability of debt financing, as well as an increase in the number of investors seeking direct investment, intensified competition for infrastructure assets and pushed prices down the rise. The financing structure of the European PPP market remains heavily dependent on debt, mainly in the form of borrowing. Financing via bonds made a significant comeback after 2013, but the use of bond issues related to project financing was limited to countries such as the United Kingdom, Belgium, France, Germany, the Netherlands and Ireland.

There is undoubtedly an important potential for developing public-private partnerships in the European Union, both to mobilize scarce public resources and to combine the expertise and capacities of the public and private sectors. Well-prepared PPPs, however, require high level expertise from Member State authorities as well as from private developers. This is essential for the proper selection, evaluation, design, preparation and implementation of such contracts, as well as the most appropriate financing arrangements.

In this context, the Commission and the Member States will focus on expanding cooperation and technical assistance and improving information exchange to assist national and regional public and private and project proponents make better use of past experience and good practices from projects already carried out. The European Center of

Expertise for PPPs already working within the EIB is a good example of a network of this kind that could be developed in the future.

Another important source of funding is the "Investment Plan for Europe", known as the Juncker Plan. Anxious to meet the needs and investment gaps, the EU launched this Plan in 2015 as a major priority to boost employment and growth. As the cornerstone of the European Investment Plan, the European Investment Fund (EFSI) is an essential element in achieving the objectives of EU policy. EFSI is intended to support investments in key sectors such as strategic infrastructure, environment and efficiency in resource use, education, research and innovation, health, the economy as well as the financing of SMEs and medium-sized enterprises.

I am pleased to see the tangible results of the EFSI, in that it mobilizes higher levels of funding and promotes closer links between private and public investment. The Fund has already assisted investments of more than EUR 183 billion in the 28 Member States. It is therefore on track to reach the target of EUR 315 billion by the end of the first half of 2018. For example, in the transport sector, EFSI is supporting 36 projects in line with the objectives in this area, representing a total investment of 15.24 billion euros.

Let me cite other examples:

- The EFSI guarantee has been granted to several infrastructure projects in the framework of public-private partnerships in the field of road transport and airports, rolling stock, port development, public transport and contribution to Funds for infrastructure.

- In the area of clean mobility, several urban projects have received support from the EFSI, including bus trolleys equipped with hydrogen fuel cells in Riga (Latvia), six hybrid bus lines operating at Hydrogen in Artois-Gohelle (France), compressed natural gas buses in Las Palmas (Spain) or a fast bus transit system in Palma de Mallorca (Spain).

- Eco-transport projects have also been pre-approved by the EIB, with the possibility of mobilizing an additional 3.5 billion euros.

- In addition, under the EFSI, the EIB is providing a EUR 250 million framework loan to help the urban renewal of the city of Lisbon by giving special attention to transport. TIIC transport and social infrastructure, for an amount of 300 million euros, can also be mentioned. With EUR 60 million from EFSI, the fund plans to invest in small and medium-sized projects in the fields of transport and social infrastructure across Europe.

Looking to the future, we strive to develop a large portfolio of projects that can make a significant contribution to society and the economy, are technically viable and have a significant impact on employment and growth. In order to provide greater security for investors and obtain substantial funding for projects in Europe, the Commission proposed in September to increase EFSI's financial resources to EUR 500 billion up to In 2020. After receiving political agreement from the Council, the proposal is currently being studied in the European Parliament.

The tools provided for in the second pillar of the Investment Plan promote contact between infrastructure investment projects and the real economy:

- The European Investment Advisory Platform provides all-round technical assistance services. Project promoters, public authorities and private enterprises can benefit from these services to launch their projects, prepare them for investment, or identify appropriate sources of finance. The Platform has already processed more than 430 applications.

- The Commission has also created the European Portal for Investment Projects, a transparent pipeline of investment projects in the EU, on which private and public project promoters can present their projects to make themselves known to potential international investors. This is a kind of "speed dating" for European project promoters and international investors. The portal contains more than 150 investment opportunities in European infrastructure, representing a total of nearly 60 billion euros. More than one third of the proposed projects come from the transport sector and others are added each week.

My final point will be about the combination of different funding opportunities in the EU. I would like to say a few words about the link between EFSI and the EU's most important

source of co-financing of EU infrastructure projects, the European Structural and Investment Funds.

The European Structural and Investment Funds and the EFSI are complementary and mutually supportive in order to achieve common objectives: promoting investment, economic growth and employment in the EU and improving competitiveness in areas such as research and innovation, the digital economy, the energy mix, transport or the circular economy. In the coming years, the European Structural and Investment Funds and the EFSI will be able to finance investment at significant levels in the Member States. For their part, they play an essential role in achieving the objectives of European policy and they also promote synergies for the regions of Europe.

The Commission expressed early on its desire to involve regional actors in the EFSI. Without the involvement of regional authorities, the Investment Plan will not have the desired impact on the real economy. Regional decision makers, given their extensive network at the regional level, can make a significant contribution to disseminating information on the opportunities offered by EFSI, but also submit their projects to the EIB Group as any other public / private promoter. In addition, due to the broadening of its eligibility criteria, EFSI may cover strategically important investments that are not eligible under the European Structural and Investment Funds. The two instruments, combined within the same structure, attract more private and public investors.

In this context, investment platforms can be an important mechanism for combining the two sources of financing. Managed in a professional manner and supported by the EIB's experience, these structures reduce transaction and information costs and allow a better allocation of risks among different investors. Investment platforms are also effective tools to finance smaller or local projects that would not in themselves be large enough to benefit directly from EFSI funding.

Ladies and gentlemen, I have tried to show that we need innovation in transportation and infrastructure construction because of constraints on public funding. But also because new technologies and innovation will allow us to develop, for example, the whole concept of mobility. That is why we need a private sector active in this area. We must accept the transition from a purely public infrastructure to an infrastructure partly financed by the private sector. And to do that, we need strong cooperation.

I also wanted to raise another point, namely that there are many financial resources in the EU budget that are supposed to help us achieve the objectives of our policy. But it is even more important than public funding, it is a regulatory environment that will encourage private investors to invest in our competitiveness and well-being, provided we are right.

Laurent Zylberberg, President of the European Association of Long-Term Investors

You are very committed to a bottom-up vision of projects. You have said and we are convinced that the public sector and the private sector must work together. We know that the EFSI and the European Investment Plan are a success. This is largely due to the involvement of national promotional institutions and banks (NPBI). How could we be more engaged and cooperate more closely with the EIB and the NPBI in the future? Is it possible to have representatives, for example, on the EFSI Steering Committee in the future?

Jyrki Katainen

One of the opportunities that seems clear to me with the NPBI, the EIB and the EFSI, but also if we want to combine the structural funds with other sources of funding is to establish investment platforms which could bring together a large number of small projects. Normally, when you think about EU funding, the money that comes to mind is hundreds of millions or even billions of euros. But there is also a need for more modest projects that can serve as an example. For example, considering urban structure, in the case of intelligent mobility, investments are not always enormous. An investment platform could be a good way to promote cooperation between the public and private sectors to jointly propose solutions for financing innovations on a smaller scale that could be tested, for example, in the field of urban structures.

How can we develop the infrastructure projects that answer the mobility needs expressed by Europeans?

I) The strengths of public-private partnerships

The session opened with the screening of a video transcribed below.

Pedro Marques, Portuguese Minister of Planning and Infrastructure

"Tourism has developed a lot in recent years, especially thanks to development in airline traffic. The fact that the airport concession company and the government have a stable, long-term relationship helps to make investment decisions fast. We hope to see mutual benefits from this project in future."

Jean-Luc Heimburger, President of the Alsace Eurométropole Chamber of Commerce and Industry (France)

"The A355 motorway project is vital to build our area's appeal. I think it will be good for Strasbourg Eurométropole because it's in the only French region that doesn't have a full motorway network today. We've wasted a lot of time deferring local development and economic development. Based on our calculation, that's costing us about €200 million a year.

"VINCI seems to be a reliable partner and I think we can be proud to have a company that size operating this motorway. A project that will make our lives easier and our commutes faster, and invigorate the economy and create jobs here, can only be good news."

District heating in Birmingham (UK) and Opalenica (Poland)

Birmingham has been working on various district-heating, water-cooling and power-generation systems to reach its consumption targets, since 2016. "If we can reduce our consumption by 25%, we can invest an additional £400 million in the local economy," says Paul Tilsley, Lord Mayor of Birmingham. Cofely is involved in this partnership with a unique, novel business model, enabling the public and private sectors to meet the city's emission targets.

Opalenica and Engie Services signed a contract to modernise heating and manage energy in eight public buildings in the area. This contract guarantees energy savings to the tune of 40%. "We have also set up an educational project with our private partners, to show the community that joint investments can bring about pioneering solutions. Our city can use smart solutions this way," says Pawel Jakubowsky, Mayor of Opalenica.

Patrick Jeantet, Chairman and Chief Executive Officer of SNCF Réseau

"The Tours–Bordeaux high-speed line is the biggest project this decade. And it's based on a PPP. VINCI is able to allocate extraordinary resources and manage very large projects around the world. This is one of them. We supplied our expertise in railway construction, and in construction in operation, which is something we have an excellent command of at SNCF. We're combining what the private and public sector do best.

"The first advantage is that we're using private funding. So there is more public funding for other projects. Ultimately, this means more projects will see the light of day.

"The second big advantage is that, when you use PPPs properly, you save time. You move forward much faster on projects that take a long time. I think this is essential. Two are smarter than one!"

II) Christophe Pélissié du Rausas' reaction to the film about PPPs

Alex Taylor

Christophe Pélissié du Rausas, you're a member of the Board at Lisea, the company that holds the concession for the high-speed line between Paris and Bordeaux. What did you think about these testimonials?

Christophe Pélissié du Rausas

I thought that what Patrick Jeantet said about two being smarter than one was particularly interesting. I think proper teamwork between the public and private sectors is one of the key success factors. That was especially true on the South Europe Atlantic project. We recently completed this 300-kilometre high-speed line between Tours and Bordeaux and hope it will open to traffic on 2 July next. We completed it in 72 months, even though the contract provided 73 months. We finished a month ahead of schedule. That means something on a €6 billion project. Many observers estimated that **a project like that, led by a public-sector organisation, would have taken significantly longer to complete (about nine years instead of six)**. That's one example of the sort of time we can save with this type of arrangement.

On projects like this, dealing with the administrative and environmental aspects is easier if the people designing the project and deciding on the technical aspects handle them too. This boosts efficiency and saves time.

This model is also more efficient because we can take a more "industrial" approach during construction processes. Of course, the project's framework and requirements mustn't change too much over time. If a private-sector company is awarded a contract that involves building three bridges and the customer then tells it that it has to build 50 bridges, people will start asking questions.

Lastly, experience has shown that risk management is essential. At the very start, during the very first months, we all sat around the table and spoke completely openly about the key issues. Both partners need to talk about all the issues so the project can move forward smoothly afterwards. There again, the fact that the same people make the decisions, and get to know each other from the start, makes things easier and the project more solid.

The vision of investors and the private corporate sector

Ralph Eley

Director of Asset Management, Allianz

At Allianz, we're becoming increasingly involved in infrastructure investment – especially over these past five years. We have invested €9 billion in PPPs working on infrastructure projects so far. And we've seen just how much this sector has changed and gained prominence among investors.

From where we're standing, we're looking at long-term debt (20 to 40 years) and feel comfortable with the risk associated with infrastructure. We're also working on several projects with the European Investment Bank, mainly within the Juncker Plan, which was mentioned earlier.

The market is willing to provide a variety of long-term financing arrangements for infrastructure projects. One-third of the investments in our portfolio involve new infrastructure. We'd like to see more new infrastructure in our portfolio, actually, but of course this depends on the opportunities that come up.

We're perfectly willing to work with public-sector players to help them bring about new projects, as governments are the ones that set these projects in motion. Infrastructure will never be a market-driven sector (unlike telecommunications or consumer goods, for example). The government needs to make the first move, by supplying public funding, and with regulation authorising the projects and the administrative formalities surrounding them.

Manuel Cary

Associate at Transport Infrastructure Investment Company (Portugal)

We all know about PPPs and I don't need to defend this model here. They work very well if they are rolled out in the right conditions. If the goal is not just to fill a hole in the budget, they are a smart choice. And they work especially well when the public- and private-sector players spread out the risks. Then, the project needs to be properly set up from the start, and everyone involved needs to understand the model and its implications, because we can't change the rules non-stop when the project has started. This is essential for the people investing equity because they are in it for the long term and need to be able to trust.

We have been seeing a major shift unfolding on this market for some time now. First of all, remuneration used to be based on use and traffic, and is shifting towards availability and performance now. Funding arrangements have also changed a lot – especially since the financial downturn. Back then, projects had long-term financing. That is no longer the case today. The typical arrangement for infrastructure project funding encompasses short-term financing during the construction phase then project refinancing for the subsequent phase. This is a new model, and it is redistributing the risks.

Also, as BCG pointed out, transport infrastructure is changing in depth and there's no way of telling what it will look like in 20 years' time. That's a big concern for us: will we still need roads in 15 or 30 years' time? And, if we do, how many? How will mobility evolve over that period? The changes are so big that these simple questions are now critical for private investors.

Combining resources: 12 recommendations on how to finance transport infrastructures in Europe

Alex Taylor

Kurt Bodewig, who co-authored the June 2015 report on funding infrastructure projects, was supposed to be here with us today but, unfortunately, his plane was unable to land. Herald Ruijters, the Acting Director of the European Commission's DG Move (DG Mobility and Transport), agreed to step in at the last minute to talk about the recommendations in this report written with Vice-President Henning Christophersen.

Herald Ruijters

Acting Director of DG Move, European Commission

I would like to thank you for the outstanding quality of the presentations we have heard since the beginning of this conference.

Vice-President Katainen of course spoke about the investment plan for Europe. One of this plan's three pillars is investment with the European Fund for Strategic Investments (EFSI), which provides guarantees rather than funds. This plan's two other pillars involve facilitating investment and simplifying legislation.

That's what the Christophersen-Bodewig-Secchi report is all about. It was written in 2014, before the Juncker Plan was adopted, and the goal was to interest more private investors in funding the huge portfolio of projects in the field of transport.

This report also aimed to be pragmatic and listed 12 recommendations to include private investors in these projects. They have not all been put into practice yet and a progress report will provide us with an update on their implementation. A second report will come up with other leads to continue to facilitate investment in infrastructure.

One of the recommendations that has been applied on various projects, for example, involves lowering the reserve ratio on the capital invested by insurance companies so that they can come onboard more easily. We're also talking to our colleagues on the Commission about the new rules on State aid, to provide more foresight and visibility on projects *ex ante.*

We are also publishing guidelines for PPPs with our colleagues at Eurostat and the European Investment Bank (EIB), to make sure that Eurostat's accounting rules are properly understood and interpreted, to make this type of partnership easier to put in place, and to decide beforehand which project costs will be incumbent upon the public sector and which will not. Lastly, we are also working with Jaspers (Joint Assistance to Support Projects in European Regions) and the IBE's Advisory Hub on facilitating investment.

One of the main questions is what we can do to combine the public and private sectors' capabilities more efficiently and effectively. DG Move is working on this and the priority, via the Connecting Europe Facility, is to focus on European infrastructure networks that private-sector players are more reluctant to fund because the capital requirements are so big and return on investment takes so long. Going forward, it's quite clear that some subsidies will need to focus on very specific high-value projects to deal with this issue.

Vice-President Katainen announced earlier today that the EFSI had reached an agreement on its 36th transport infrastructure project. That said, we need to make sure the different funding arrangements – meaning subsidies and debt underwriting by the EFSI – do not overlap. It is true that people with projects naturally tend to prefer subsidies. I think, in future, we will need to focus underwriting on projects that can generate revenues, and try to enlist private-sector stakeholders. There are also areas that are somewhere in-between: they can't rely entirely on the public sector or entirely on private investment. Subsidies can

be part of the answer, combined with discussions with commercial banks to determine what type of private investment makes most sense. This is an intermediate model, called "blending". We're experimenting it in the transport sector with a €1 billion budget, and are looking forward to seeing the results. We get the impression that certain projects – for example the ERTMS on the Paris–Lyon line, green shipping and alternative fuel development – could get some traction with this type of blended financing.

There are plenty of eligible projects. We have identified €750 billion worth of projects on the TEN-T corridors that will only get off the ground with subsidies. EFSI underwriting and the blending mechanism should significantly improve the arrangements to provide the necessary funding.

The European system: what tools for infrastructure projects?

Jean-Eric Paquet

Deputy Secretary General of the European Commission

Vice-President Katainen and Herald Ruijters have already spoken at length about the tools. I'll talk about two other European Union mechanisms to complement private-sector and Member State investment in infrastructure in Europe. Naturally, the EU is working at European level in synergy and close contact with national-level authorities on these issues.

The European Commission's policy since the beginning of Jean-Claude Juncker's term in office has been focussed on growth and jobs. The wifi-for-all initiative in the digital arena, for example, includes a substantial component involving growth and jobs. It's the same with the energy transition, starting with the "Energy" package, meaning the European legislation providing a framework to foster projects involving renewables and energy efficiency. Likewise, the project on the circular economy is designed to complement work on research and innovation. I could also mention the initiative on funds of funds or the Council's work on enhancing Europe's competitiveness. The goal, in every case, is to increase investment, in order to develop growth and jobs throughout the continent.

Investors have a full set of tools or strategic levers they can use for their projects. Other initiatives are aimed at removing obstacles to investment in Europe. Jyrki Katainen and Herald Ruijters mentioned a few examples. Member States need to look at their policies or regulation and find anything that is hampering investment projects there. This exercise ties in with the European governance framework. We analyse strategic or political difficulties in Member States every February, and recommend reforms in each country every May.

These past three years – and especially this past year – we have identified countries that have a little headroom in their budget and are encouraging them to invest that surplus in infrastructure. We are also encouraging structural reforms in fiscal policy, the justice system and bankruptcy management mechanisms. The goal, again, is to find the obstacles and push reform to remove them.

We sometimes work on very down-to-earth initiatives with the IBE's Advisory Hub. Besides providing this technical assistance, we are organising "speed-dating" meetings private- and public-sector stakeholders, moderated by a number of European coordinators, twice a year. The people at these meetings can talk about difficulties they are dealing with at any stage in a project preparation or financing cycle.

These coordinators are also thinking about a more strategic issue, "transport corridors". Lastly, on the transport and energy front, the Innovation and Networks Executive Agency (INEA) can also team up with the private sector to help people there use their resources more effectively and activate synergies among the various public and private funds and financing tools.

The emergence of projects: a factor of effectiveness, an asset for economic growth in Europe

Julián Núñez

President, Seopan

Infrastructure is one of the main pillars in the EU's strategy for smart transport looking at 2021. There is plenty of evidence that this mechanism works. I will only mention a few examples from Spain. Every €1.0 invested in Spanish infrastructure generates €0.9 in new economic activities. This sector has a considerable impact on the economy – much more so than the automotive, telecoms or energy industry, or agriculture.

Moreover, infrastructure projects in Spain generate 49% in tax returns and only entail 9% of imports. Lastly, every €1 million invested creates 14 jobs (both direct and indirect). In Europe, toll taxes are funnelling €14 billion a year into the economy. And we mustn't forget that France and Spain would never have become the world's number-one and number-three tourist destinations respectively without high-quality motorway networks.

Demographic growth, the rural exodus, economic globalisation and other trends in society mean we need to modernise our infrastructure, to enhance people's quality of life and to help our economies function smoothly.

The presentations so far have shown that the European Commission is perfectly aware of these issues, and we have heard about a number of interesting tools. Some of them are designed to increase private funding, which is essential at a time when many countries, including Spain, are dealing with budget restrictions, and when there is abundant cash in the public sector and many investors are willing to support infrastructure projects.

It's important to develop transport infrastructure co-financing and, more broadly, take a new look at our infrastructure funding models. As a general rule, roads, water and electricity distribution networks, and wastewater treatment plants, shouldn't be funded out of the public purse but by users. This is one way of enhancing efficiency, saving resources and using those resources more smartly, without letting that infrastructure slip out of the public sector's control. Some countries are reluctant to use these instruments. The EU should encourage these policies, and maybe even impose them, in every country, using consistent criteria. The Commission will table a motion to revise the Eurovignette Directive next month, providing the first opportunity to take action on this front. It will be like the Water Directive: Member States will be asked to transfer costs, based on the user-pays principle.

It is also becoming essential to modernise the infrastructure funding system. Our port and airport infrastructure put Spain in a position to pull back from the financial crisis. The country managed to increase its exports and has seen 3% growth a year these past two years. That said, Spain is still suffering from its infrastructure undercapacity: 814 assets need to be modernised, requiring a total investment in excess of €103 billion. These investments will have a considerable impact on the economy: in Spain, estimates suggest that they will generate €50 billion in tax returns and create about 1 million jobs, adding up to a €79 billion total contribution to economic growth.

However, budget restrictions mean less funding is available for infrastructure. Investment plummeted 87% from 2007 to 2016 and the number of calls for tenders dropped 74%. Calls for tenders involving concessions nose-dived 98% over that period. Most infrastructure projects have been shelved or frozen. It is absolutely vital to get these infrastructure projects back on track if we want to remain competitive, and that involves finding alternative funding mechanisms where the users pay. And our fellow citizens will be the ones to gain.

Concessions, long-term commitments and resilience: the example of Greece

Panayotis Papanikolas

Managing Director of Olympia Odos, CEO of Gefyra

I think the best way to talk about the concession model's resilience is to talk about how it survived the tough situation in Greece. Greece enjoyed its glory days with the 2004 Olympics. Less than 10 years later, its GDP had shrunk by 25% and unemployment was at 25%.

There is no doubt that Greece's infrastructure spent this past decade at the bottom of the class in Europe. On every score, including the quality of its road and motorway network, the way it was organised, the way it was managed, and its maintenance standards. We've seen the direct consequence of that in the survey that was presented earlier: the Greeks spend more time on the road than anyone else in Europe, and 90% of the people who took part in the survey welcomed innovation on this front. We have also seen that the number of accidents is increasing in Greece, which has the worst track record in Europe and a dilapidated road and motorway network. There are more fatal accidents on the road to Corinth than on any other road in Europe.

This need to modernise roads led to the first generation of concession contracts, shortly before the 2004 Olympics. The ring road, the Athens airport link and the Rion–Antirion bridge were built during that period. Public works also began, including a motorway in the north of the country (Egnatia Odos) and the Olympic venues, including the Olympic Stadium in Athens.

This first generation of concession contracts was successful and the Greek government then decided to embark on an extensive plan for its motorway network. Construction work began in 2008. We kicked off this plan, spanning 1,500 kilometres of motorways, five concession projects and investment in excess of €7 billion. The following year, the crisis hit us. You already know what happened next: GDP dropped 20%, living standards dropped 32% and unemployment hit 25% in 2015 (40% among people under 29).

This economic crisis also hit the transport sector, precisely when motorway construction work was starting. It had a huge impact: traffic nose-dived 45% on the existing motorways. We realised that, in these extreme circumstances, the business model for the motorways under construction was no longer viable. Lenders closed the tap and works ground to a halt everywhere in Greece between 2010 and 2015. Then we started negotiating with the government and lenders. Work resumed but the rules on reserves imposed in 2015 hampered these concession projects.

What can we learn from all this? We have seen that we need to be more innovative when it comes to the sales deals for users, who have less time now. We were pioneers on this front, and on the interoperability front, and we adjusted to weather the crisis. Maintenance standards on the Rion–Antirion bridge remained high during all these years, but declined on public-sector projects due to the lack of funding (for example on the Olympic Stadium or Egnatia motorway in the north of the country), and the value of those assets is declining.

New motorway projects accounted for about 2% of GDP growth during the crisis years. They entailed hiring 10,000 people directly and 32,000 people indirectly. During this period, we had to work with eight different ministers, starting negotiations from scratch each time, to reach an agreement and stabilise the situation. All this goes to say that the concession model is the right way to go, even in countries dealing with a very severe economic crisis. It is a resilient model.

Alex Taylor

Thank you very much. Yes, we can imagine the difficulties you must have had, dealing with so many different ministers.

The concession model: a model for the future?

Benoît Le Bret

Lawyer

Alex Taylor

I will now hand over to Benoît Le Bret, Associate at the Brussels office of Gide Loyrette Nouel. How might the European Directive adopted in February 2014 be more widely used?

Benoît Le Bret

For a lawyer like myself, it is not easy to provide a simple answer to such a difficult question. We need more mobility and we have noted the gap compared with the expectations of public funding. From a legal angle, the answer is there before us: the concession. This model has been around for many years. Concessions were used in France to create the motorways that are the envy of our Belgian neighbours. This contractual model was at the time not regulated at the EU level as it involved too many subtle differences from one country to another. That was until Michel Barnier had the courage to see that a Directive about concessions finally saw the light of day in 2014.

On the one hand, it corresponds to EU principles and on the other respects the added value of the concession. It provides a legal framework for the granting of concessions, without however laying down a single procedure, unlike the case for public contracts. Concessions are contracts based on the principles of fairness and transparency. These contracts define the roles and risks between public decision-makers and private partners. They are typically first signed for five years, but may be extended if necessary. This provides crucial flexibility as the sums engaged must be recovered by way of royalties over the term of the contract. These three variables form an inseparable triptych. Well-shared risk, long-term finance and the user-pays principle are also features of this type of contract. The Directive makes provision – and this is not the least of its positive contributions – for adjustments to be made throughout the term of the contract because they have been written into the contract at the outset, because they correspond to needs that arise over time, or because they are of only minor importance compared with the initial contract.

The framework of the Directive therefore respects the concession's added value and provides a response to its various challenges, while at the same placing all European stakeholders on an equal footing. We now need to finalise the transposition of this text: 15 Member States – such as Belgium, Sweden and Eastern European countries – have not yet done so.

But we do not need another implementation law, a delegated act or guidelines. Of course, lawyers are not against the creation of new laws as they provide them with even more work, but we need to act with caution in this instance. I would therefore recommend not producing any new texts and to simply limit ourselves to implementing those that already exist; otherwise, all the application possibilities opened up by this Directive will be swept aside.

Alex Taylor

You are an excellent lawyer and you have pleaded your cause convincingly. Xavier Bezançon, the World Bank views concessions very favourably, but Europe a little less so. What is your view?

Xaver Bezançon

General Delegate of EGF-BTP

Concessions were first created by the Romans. They were then introduced in France in the 16th century for canals and public transport. In the 19th century, they became a leading model that was used for transport, water distribution networks, urban construction, gas, electricity, telecommunications and so on. Haussmann's work in Paris was carried out under 42 concession contracts. The city was completely reconstructed over a period of 15 years thanks to PPP and concession contracts.

In the area of private finance – with payment by the user – or public finance (schools, prisons, hospitals), concessions are hugely successful today in the UK, France and wherever else they are used. I wrote a book with François Bergère from the World Bank about the decade of PPPs and the 600 such contracts signed. This approach has been a huge success, as these 600 contracts generated €18 billion worth of work in the space of 10 years that the public purse could never have financed alone. Concessions therefore speed up growth, at an advantageous cost.

At the outset, Europe played a positive role. In 2000, the interpretative communication about concessions was very liberal and encouraged competition. But the 2014 regulation gives reason for concern, because it makes provision for a whole swathe of para-public activity that will not be open to competition for contracts or for concessions. It also contains the idea of the need to group contracts into works packages, which runs counter to efficiency and energy performance in particular.

The UN, World Bank and OECD constantly promote PPPs. The World Bank has just described the cascade doctrine according to which public projects should preferably be implemented by the private sector; then, if that is not possible, under a PPP; and lastly, if both the former two methods are not feasible, funded out of the public purse. This doctrine incorporates all the principles of common sense. It would be a good idea to adopt it in Europe.

We also need to give private companies and funders a new lease of life. Pension funds and insurance companies are keen to invest. We therefore need to reinstate the extremely mature legal and financial attitude that the politicians of the late 19th century had with regard to concessions. If we want to support our European companies' exports, we must encourage concession and PPP contracts in Europe. We must also promote the globalisation of functions and develop these systems. Policy-makers must learn from European history and be more proactive in promoting a European system to take better account of private offers.

The infrastructures of the future and their contribution to new mobilities

The session opened with the screening of a video transcribed below.

New services: a shared reality

Frédéric Mazzella

CEO & Founder of BlaBlaCar

The aim is to switch from the era of ownership to the era of use. Former generations had to own a car to get about, whereas today's generations are happy to use their smartphone to contact someone wanting to make the same trip. BlaBlaCar now has over 40 million members in 22 countries, including over 11 million registered users in France, where 40% of 18- to 35-year olds are registered with BlaBlaCar.

For carpooling to be possible, a passenger has to meet the driver somewhere. So meeting places have to be created. They need to be safe, connected and provided with services. For example, they can be adjacent to a public transport network. Or they can be places where drivers can leave their car and travel as passengers.

Pierre Coppey, Chairman of VINCI Autoroutes

The future will obviously entail an intermodal approach as digital technology makes it possible to organise the interfaces between rail, road and motorway, the main road networks and outer urban areas. For users, the approach entails organising the meeting point between supply and demand.

Frédéric Mazzella

If we look at how cars are used today, we see that they are parked 95% of the time, stuck in traffic jams 0.5% of the time and hunting for a parking spot a further 0.8% of the time. They are effectively only used to travel 3% of their life span. Furthermore, when they are travelling, three or four of the spaces are unused. That means that we use around just one quarter of 3% of a resource that costs 10% of our GDP. Given environmental protection and economic efficiency, it is obvious that carpooling has a fine future and that digital technology can contribute hugely to it.

Pierre Coppey

Along the same lines, road and motorway infrastructure is not used to its full potential. BlaBlaCar, which addresses the problem from the angle of usage and seeks to achieve higher vehicle occupancy, is bringing new users and clients onto motorways. We need to work together, to satisfy our respective clients' needs and to cross-fertilise our cultures.

Alex Taylor

I will now hand you over to a mobility expert, Nikolaus Lang, who in particular speaks at Davos. He will talk to us about the consequences of these new modes of transport, such as BlaBlaCar.

New mobilities and their consequences

Nikolaus Lang

Mobility expert - Senior Partner & Managing Director, The Boston Consulting Group

I lead the study on new mobility at BCG and I am delighted to be here with you today. The urban mobility industry is facing its greatest revolution since the switch from horse-drawn coaches to cars.

You will have heard 20 speakers today and I'm sure that you will promptly forget most of what I say. But if you remember three figures this evening then I will have done my job. These three figures are simple: 60, 80 and 6. Last year, we canvassed over 10,000 people in 27 cities around the world to ask them if they wanted to have self-driving cars. And **60% of them**, all ages combined, replied with an immediate "yes". At the World Economic Forum in Davos these past three years, I talked with 100 mayors, and **80%** told me that self-driving vehicles would start to become a reality in their cities within the coming five years. These are cities like Gothenburg, Singapore, Boston, Pittsburgh and Dubai. Of course, you will tell me that politics always ends up delaying implementation and that even if 80% of decision-makers say so, it still won't happen. Yet, BCG, the World Economic Forum (WEF) and 30 companies working in this field have already chosen a city to launch self-driving vehicles: Boston.

We launched this initiative on 20 July 2016 and the self-driving cars were put on the road on 4 January 2017, just **6 months post-launch**. Without tying ourselves to any one carmaker, we contacted an MIT startup called Nutonomy, which managed to modify an electric Renault Zoé and to put it on the city's roads. So, it is possible to get self-driving vehicles out on the road in under **6 months**.

Boston faces many challenges. It has a population of 700,000 at 7.00 am and twice that number at lunchtime, which poses a real challenge for mobility. Income inequality is growing in this city. Its road, metro and bus transport infrastructure is very old. The city is looking for solutions.

The residents were in theory ready to pay up to $5,000 more for a self-driving vehicle. Because with a self-driving vehicle they could live further away from the city centre to take advantage of cheaper property and rent, they wouldn't have to pay to use public transport, they wouldn't have to pay for parking, and insurance would be funded by the carmaker. Combined, the savings amounted to around $400 a month or $5,000 a year.

Video about the BCG project in Boston

"Mobility is like arteries; it can become blocked like in humans. In some cities like Singapore and Gothenburg, we are already working on new models including self-driving vehicles. The city of the future will include autonomous cars and autonomous buses because of their significant impact on safety and the ecology. We can look forward to many innovations in the area of urban mobility, whether for deliveries and the last kilometre, or for point-to-point travel. The city of the future will have fewer accidents and will have parks instead of car parks.

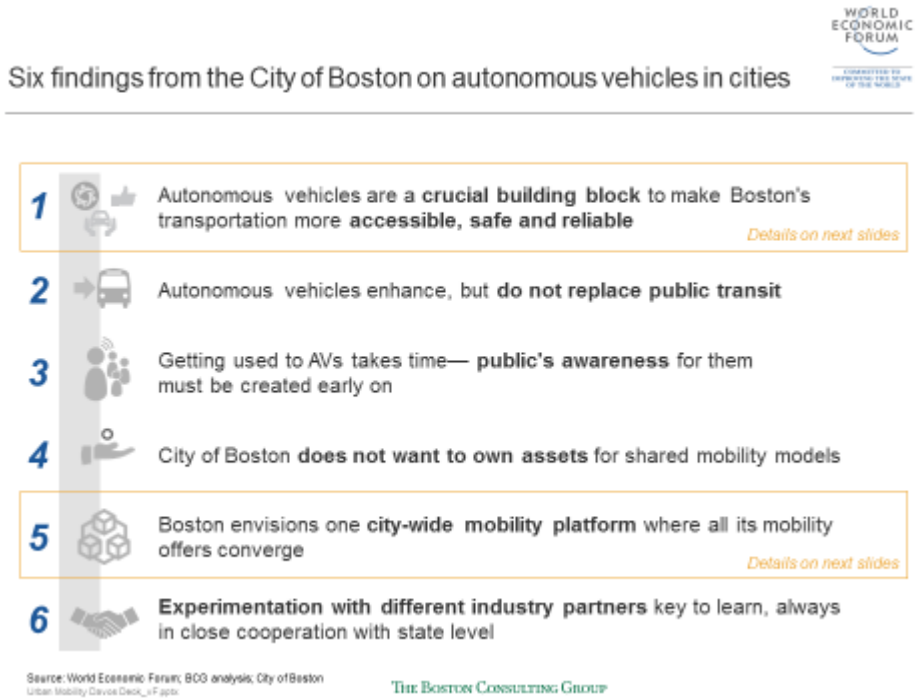
"The WEF, in conjunction with BCG, is working with Boston on a self-driving vehicle pilot project in order to reshape the future of urban mobility. We have just implemented a major urban mobility master plan called "Go Boston 2030". We asked thousands of citizens for their thoughts on mobility of the future. They wanted a safer, more reliable and more accessible transport system. I have committed to providing them with a more inclusive city that will be ready to incorporate all the modes of transport they want.

"We are working on three fronts: the overall view of mobility, the strategy for incorporating self-driving vehicles into this view of mobility, and facilitating the circulation of self-driving vehicles in the city. Our population is the most innovative and the most entrepreneurial in the world. Our city is also endowed with a very complex road network and is subject to very complicated weather events. So there is nowhere better to test these self-driving vehicles.

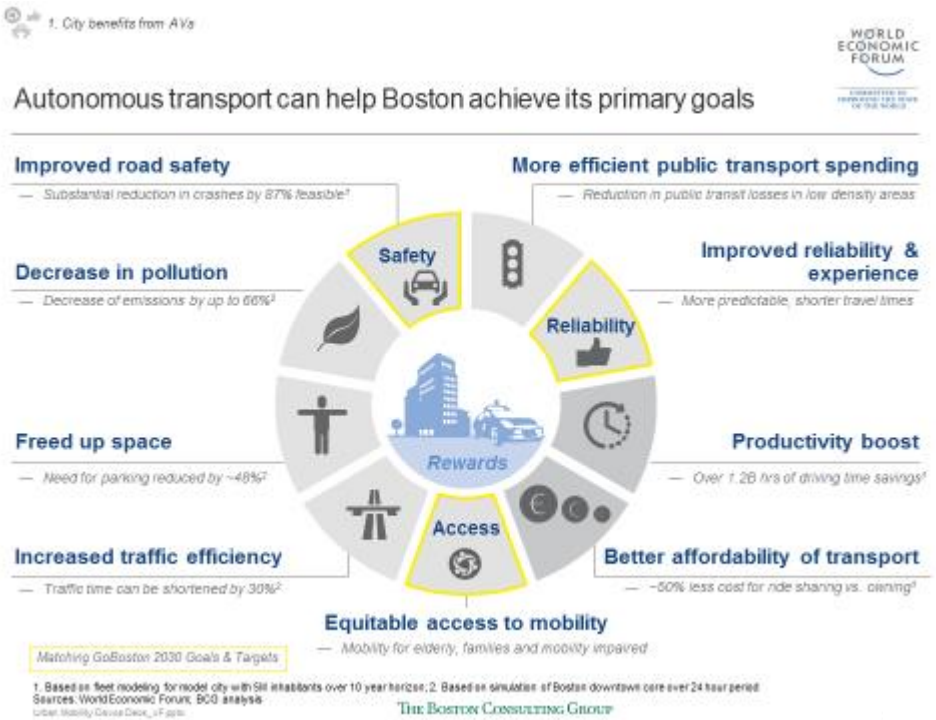
"We are involved in developing on-board technology in the vehicles, and we will strive to define the best economic models that will meet the population's expectations and the requirements of the infrastructure on which these vehicles will travel.

"Our world is unpredictable, but we will do everything we can to make sure that self-driving vehicles operate satisfactorily in all situations. We are collecting data; we are working on mapping and we are conducting trials in south Boston, near the port, that will gradually be extended to the city.

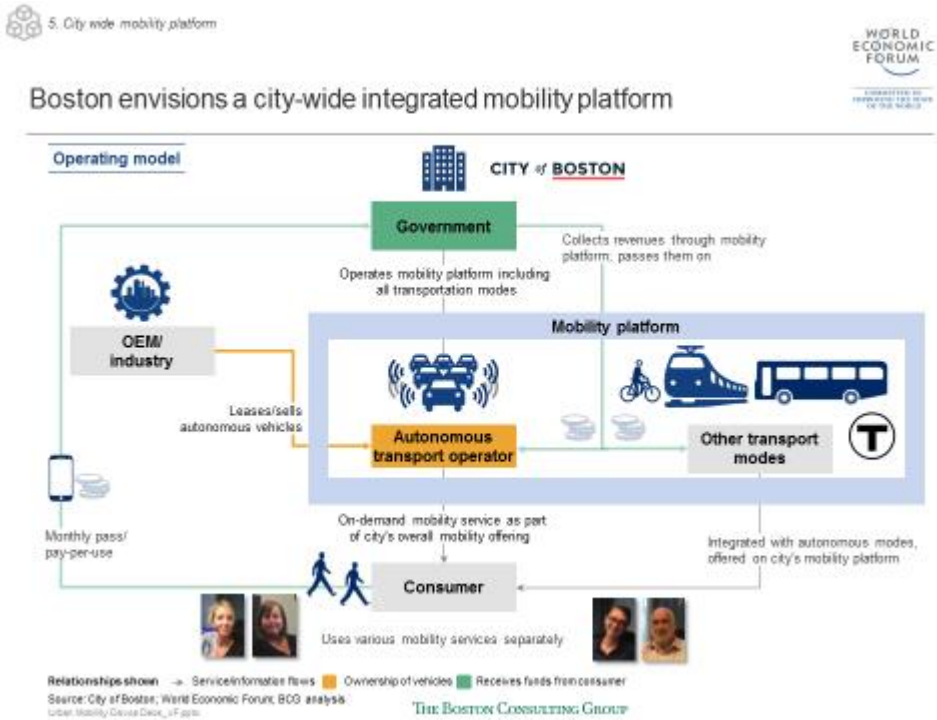
"These trials are examining the entire mobility offer and take into account all areas of impact. We will probably not see any great changes from one year to the next, but the accumulation of these small changes over the coming 15 years will mean a giant leap forward. This is an extraordinary time for the self-driving vehicle."



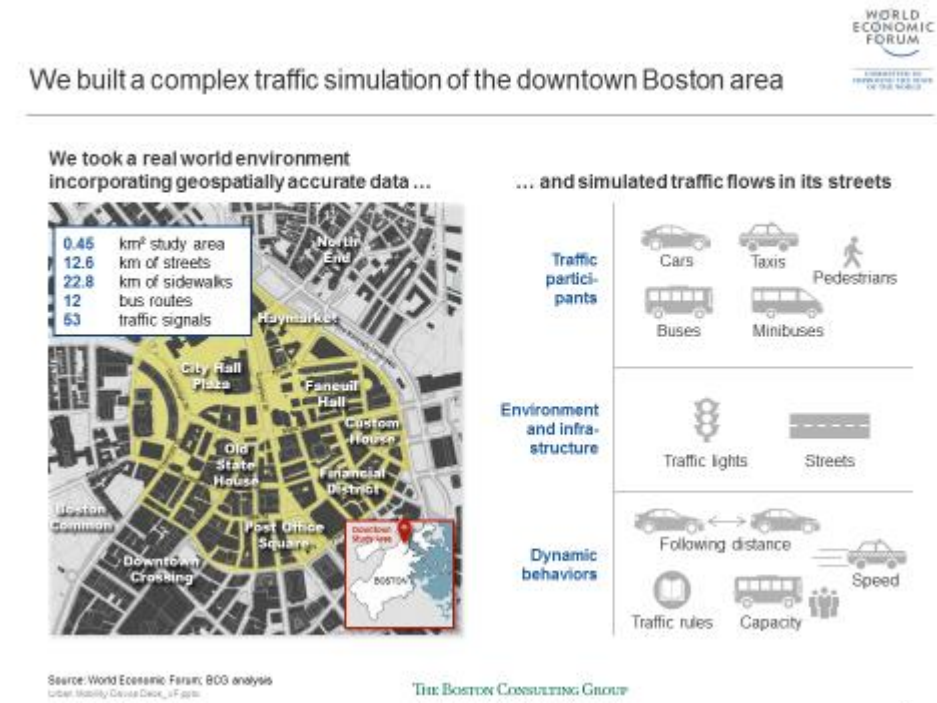
When we look at self-driving vehicles in Boston, several points would seem to be particularly salient. These vehicles must be an important part of the mobility plan for Boston. They must be accessible, safe and reliable.



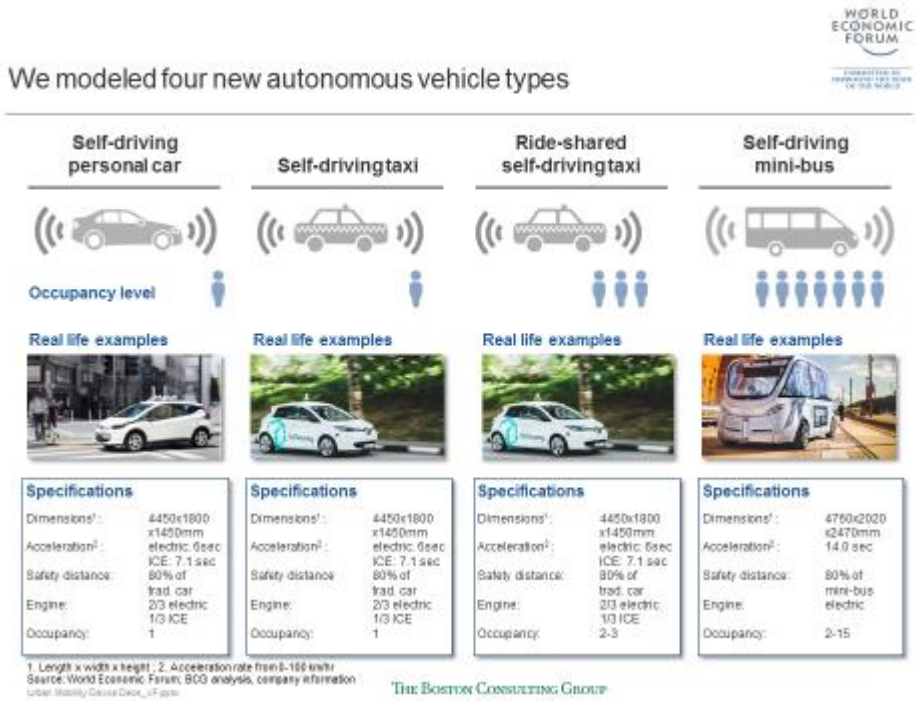
6.8% of Bostonians are too young, too old or live too far out to benefit from the current mobility services. We need to identify and implement a global mobility platform. Cities themselves want this integrated offer, operated by consortiums. And that is where the private sector must present its forward-looking proposals.



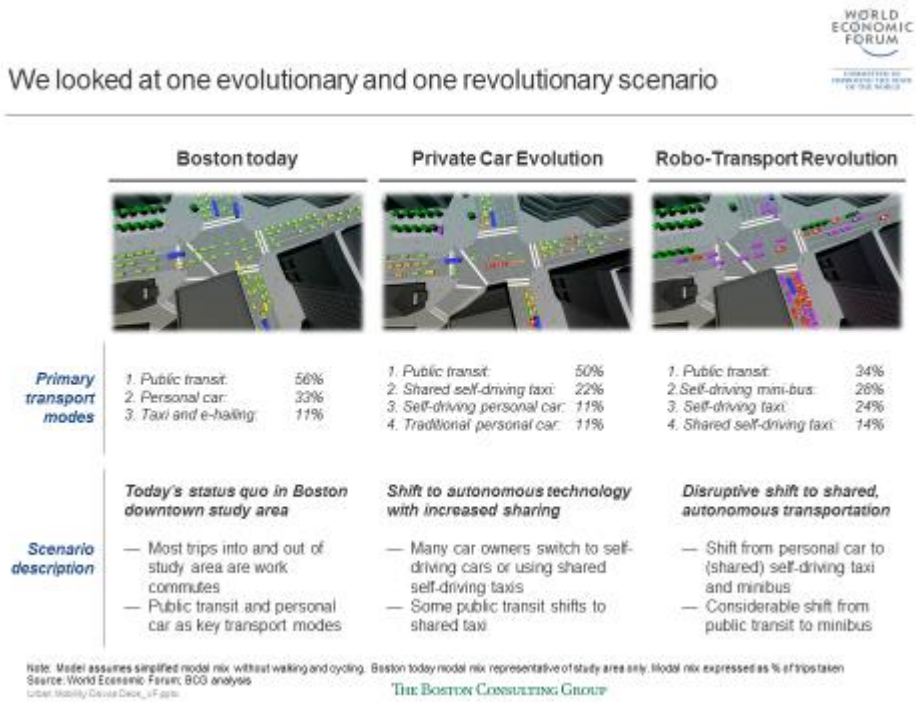
There are stakeholders like Uber that are trying to put together such proposals. The industry needs to anticipate these changes. The above slide shows you an example of an integrated mobility platform that manages traffic, handles payments and grants concessions for managing and operating transport infrastructure. It is very important for understanding how cities will direct their mobility choices for the coming 20 or 30 years.



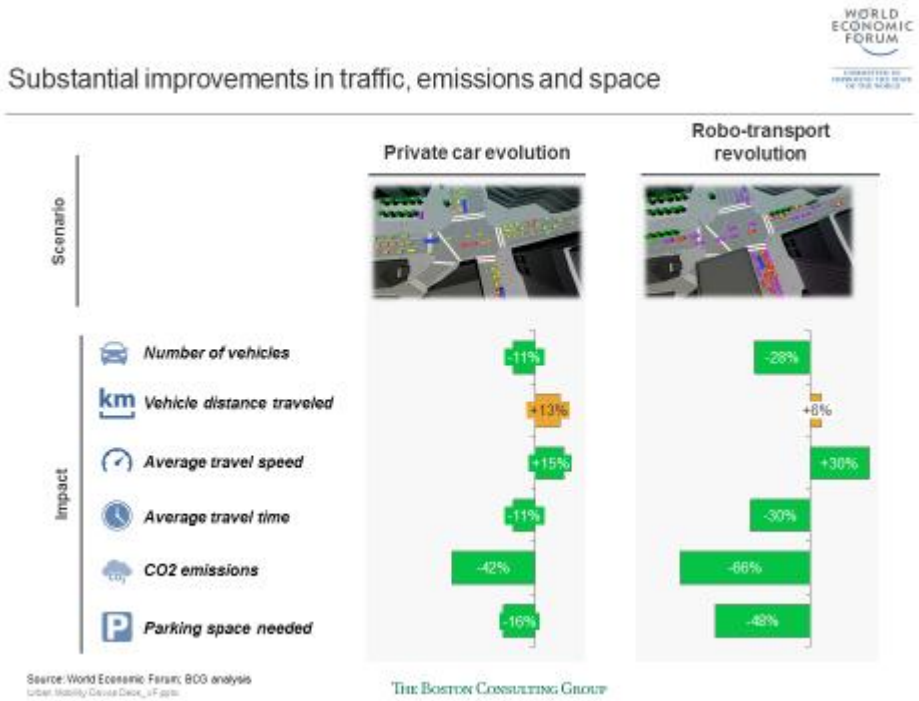
Within the framework of the WEF, we have worked with MIT on a very complex traffic simulation model analysing 180,000 daily trips within a 0.45 sq. kilometre sector of Boston's city centre. Each car, bus, bicycle, pedestrian and traffic light has been modelled.



We have compared four new modes of transport: self-driving private cars, personal or ride-sharing robo-taxis, and the automated minibus, which seems to be the most promising avenue. If I were in your place, I would invest more in automated and self-driving minibuses seating 6 to 12 passengers, and less in a fleet of large buses and robo-taxis.



So, we have included these self-driving vehicles in our transport model, based on several simulation scenarios allowing us to work in prospective mode and to think about the future of the city.



By retaining only self-driving vehicles, we note that there will be far fewer vehicles on the road in the future – by up to 30% – because of shared use. The number of kilometres travelled will increase, as some trips will be made empty. At the same time, we will go faster and commutes will take less time. CO_2 emissions will fall because all the self-driving vehicles will be either electric or hybrid. **They will save space, especially since there will be 48% less parking**. This latter factor explains the move made in Singapore in this area: the city owns 50% of the car parks and is getting ready to convert them into offices. The most recent car parks built in Singapore include technical service ducts in the ceiling ready for office conversions.

Remember the three figures I gave you at the start of my presentation: 60% of the world's population wants self-driving vehicles now, 80% of mayors want self-driving vehicles in their cities, and it can take only six months to happen.

Alex Taylor

Thank you, Mr Lang, for this trip into the future.

The contribution of new technologies

Nicolas Sekkaki

CEO of IBM France

Hello everyone. I'm delighted to be here today. We've heard a lot of figures. For example, 2% of the planet is covered with urban areas that produce 70% of carbon emissions and 1.6% of GDP is lost in traffic jams. New mobility is changing people's infrastructure needs and those needs stretch far beyond roads and motorways.

IBM is extending its range of products to improve the client experience and adapt to new uses. This sector, unchanged for over 40 years, has suddenly undergone far-reaching change in the past two years. First, by considerably improving the services provided to users and then by leveraging the data generated. What do clients do with the data they generate and that they have at their disposal?

Everything is changing very fast, including transport and IT infrastructure: digitalisation and IT are working their way into the transport sector. Smart mobility is becoming a reality, with transport on demand, carsharing and connected vehicles.

Users' new experiences are pushing us to restructure our offer. In the past, it was the citizens who adapted to the infrastructure; now, it will be the opposite. New digital tools are opening up potential for new mobility services and new service providers.

Let's take a closer look at the changes the mobility world is undergoing and their impact on infrastructure. Today's users are hyperconnected non-stop. Seamless connectivity is therefore crucial, including for bandwidth-intensive uses like video streaming. Multimodal travel and new uses for the road network will develop with the arrival of carsharing and self-driving vehicles.

New players will necessarily emerge with these **technological** breakthroughs. A new world is dawning before our eyes. Artificial intelligence will also take hold in this space. There can be no self-driving car, no user information and no man-machine interface without artificial intelligence. The operator will therefore present users with a personal assistant.

Today, we stop in a service station to fill up, but tomorrow the system will indicate the number of stops needed depending on the charge time and time available to you. The infrastructure will therefore have to adapt in response to these new uses. The Internet of Things will have to be able to collect all this data. Today's Internet is no longer that of humans. There is a growing number of sensors feeding an increasing volume of data into the network, generating traffic seven times that of Google. Within two years, 20 billion sensors and machines will be connected… and that figure will rise to 50 billion soon afterwards. The IT infrastructure will therefore have to enable machines to connect to each other to serve humans. It will have to manage payments, sales, customer service, technical and maintenance operations, while meeting all safety criteria. Infrastructure managers will be able to become transport operators and suppliers of digital services.

Europe provides countries and infrastructure operators with the opportunity to roll out this transformation, while ensuring equal access to data and fair competition. Europe also allows service continuity across borders by making sure systems are interoperable. Several operators can work together on the one IT platform to deliver services to the end user. The EU can facilitate this interaction through cooperation between the public and private sectors. IBM is ready to play a pilot role in this infrastructure's adaptation by providing online services to encourage co-creation and innovation.

It all begins today with the sharing of ideas, but I believe that our world is undergoing a massive shift on all levels: insurance, carmakers, cities, infrastructure operators, etc.

Thank you for your attention.

Rebound

André Broto

Director of Strategy, VINCI Autoroutes

Alex Taylor

André Broto, you are the head of strategy at VINCI Autoroutes. What are your thoughts? Your priorities?

André Broto

I will say a few words about the needs, then talk about digital technology and then the consequences for projects.

With regard to needs, we have to distinguish between three categories of distances. Long distance is the central government's responsibility and includes occasional trips, motorways and rail. Short distances refer to the city and municipality, and involve public transport, walking and cycling. The intermediate distance – several tens of kilometres – is crucial for assessing the needs that still need to be met. The French Statistics Institute Insee tells us that two-thirds of the active population work outside the municipality where they live, that their number is increasing, that they travel 17 kilometres in the morning and the same again in the evening, and that this distance is increasing. 80% use their car. These are the outer urban areas of large cities and are home to half the population, in France at least. These people need access to their work or education.

The transport offer in these regions has fallen behind and that is creating a social issue because access to work and healthcare is more difficult for these people who feel that they are "a long way from everything", to quote the expression used by market research firm Ipsos. There is a major governance obstacle here: the central government handles long-distance mobility needs and municipalities deal with short-distance needs, but no one is responsible for the problem of intermediate distance needs. A problem that has no owner has no obvious solution. As a result, the transport offer on the city fringe has lagged behind. But it has now become urgent for social and economic reasons. It is also a key factor in determining a city's dynamism, as well as being urgent for the climate, since 80% of these trips are made using private cars.

Concerning digital technology, we see that on the other side of the Atlantic, Uber is focussing its attention on Pittsburgh; Lyft, the Google subsidiary, on San Francisco; and BCG on Boston. These companies are attracted by these regions where demand is high and supply wanting. It is in the outer fringes of our urban public transport systems that the deficit and losses are accumulating without managing to provide a satisfactory alternative to cars. Digital technology is revolutionising our public transport systems, encouraging shared modes. We might think that by making traffic flow more smoothly and helping make better use of vehicle capacity, there will no longer be any need to invest, as the same flow of vehicles will transport two to three times more people. However, if we free up public space, the pressure on cities to use this space for other purposes is so strong that cars – even if non-polluting – will continue to be directed to specific infrastructure. We will also witness a rebound effect in demand as a result of self-driving vehicles lowering the cost of transport.

Elon Musk has confirmed this rebound effect and the need to invest: *"Without tunnels, we will all be in traffic hell forever"* and *"I really do think tunnels are the key to solving urban gridlock. Being stuck in traffic is soul-destroying. Self-driving cars will actually make it worse by making vehicle travel more affordable."*

The main lessons to be learnt from these changes are that high quality infrastructure needs to be built in the urban fringe of major cities and that mobility needs to be regulated. We will have to reinvent suburban transport systems. These systems – road for the main part – will have to be connected to rail with carpooling car parks, designated lanes, multimodal hubs, etc. All this needs to be coordinated via intermediation platforms. In this way, our infrastructure will be more agile, and we will have built a system based on Mobility as a Service.

Finance and innovation in infrastructures: towards new models?

André Autrand

CEO & Founder of La Compagnie Financière des Infrastructures

Alex Taylor

Thank you very much. André Autrand, you are the director general of La Compagnie Financière des Infrastructures. Appropriately then, how are we to finance this infrastructure?

André Autrand

I am delighted to be here with you today. This conference is really stimulating.

We don't yet know what the new funding model will be for infrastructure but one thing is sure: the changes arising from big data that will impact infrastructure in the future will also change the way it is financed.

The new economic models that underpin infrastructure development will necessarily undergo change driven by the digital economy. By opening up user payment possibilities more widely, this change will encourage a broader use of the concession model, not just for transport, but also for a number of local urban services, and will also involve PPPs. More diverse financial models than those practiced today will evolve in response to assets based on new economic models whose full-scale feasibility will only have been measured over a relatively short time.

The success in integrating these new assets and their funding will be improved by adapting contractual frameworks and the European statistics regulations on which they are based. The 2014 European Directive on concessions has now created a clear legal framework by authorising contract extensions to develop new services liable to incorporate digital economy innovations.

Project funding, whether under a PPP or concession, has been less successfully included in European statistics standards. Even if the clarification of the assessment criteria recently introduced by Eurostat is welcome, the infrastructure sector would certainly benefit, alongside the Juncker Plan, from stable and predictable rules that are more conducive to investment. The adoption of new insurance sector solvability rules reducing the capital expenses associated with infrastructure investment, following the exemplary cooperation between EIOPA and the European Commission, could serve as a model here.

Like the energy sector assets, which in just a few years have gone from nuclear power plants to solar parks, wind farms or smart grids, significantly reducing project size, the infrastructure sector is today on the cusp of a major shift. The concession model will find its rightful place because of its flexibility, its scalability and its reformed legal framework. We might hope that the public powers lend all their weight to this shift, including those aspects around statistics regulations, in order to give Europe every chance to succeed within the context of the Juncker Plan.

Alex Taylor

Thank you very much for this review of the financing situation.

The European Commission and the development of new mobilities

Herald Ruijters

Acting Director of DG Move, European Commission

Thank you for allowing me to speak again. I still have those figures 80, 60 and 6 in mind. I don't believe in the Hyperloop or flying cars, but I do think that self-driving cars will soon be on our cities' streets.

A few days ago, one of Germany's major carmakers announced that it will include the C-ITS system before 2019 in one of its upcoming models. As stated by one of the speakers before me, we will need to avoid legislative overload if we are to encourage this trend for which we have a pressing need. There are far too many road accidents, including 26,000 fatalities each year, and traffic is saturated, affecting 1% of our GDP, or more as has been stated here.

Regarding automation, the Commission's various departments are working closely together. Following the communication adopted at the end of November 2016, the DG Move is preparing a delegated act for the rollout of C-ITS. It may be ready by spring 2018. At the same time the DG Grow is bringing together industrial partners to prepare the legislation needed to frame automation projects. The DG Connect is also preparing the development of 5G, which will be very important for the rollout of interconnectivity.

Our citizens want very comprehensive systems, especially in outer urban areas, where autonomous individual systems will not be enough because of the lack of infrastructure capacity. One potential solution is illustrated by the use of automated buses in Singapore, where the ITS World Congress will be held in 2019. We are witnessing profound change: combinations of automation and digitalisation will revolutionise our behaviour. We are all experiencing it: we don't go to the station without knowing what time the train will arrive. We therefore choose our departure time accordingly and that allows us to leave our car behind and then use a multitude of transport modes. It is therefore obvious that our transport model will be modified by apps that enable us to choose a taxi or vehicle with a driver and more generally to adapt our mobility to the traffic conditions in real time.

To return to the main topic, the concession and PPP models provide investment opportunities. The European Commission is proposing other funding models. We will be holding a "Connecting Europe" congress in Tallinn on 21 and 22 September 2017, that aims to bring together the stakeholders and to look for concrete solutions for specific projects. Similarly, we are organising a conference on digital technology in transport on 9 and 10 November 2017, also in Tallinn. The European Commission has committed to this approach; it is investing in transport projects and the associated legislative support. Some projects will be completed within six months, others sooner, with the mobility package at the end of May. One thing is certain: automated driving and/or self-driving vehicles will be available by 2019, if not sooner.

How to improve the efficiency of the relationship between public and private decision-makers?

Xavier Huillard

Chairman and Chief Executive Officer of VINCI

I am pleased to speak here today in front of this forum where the future of our societies has so often been examined and discussed. These talks about Europe's future infrastructure have been truly rewarding. The mobility revolution has already begun, as Frédéric Mazzella so brilliantly demonstrated to us. It will transform the way we live. We will have to work together – European decision-makers, public authorities, company managers and opinion leaders – to organise this new mobility.

I would like to thank presidents Katainen and Fayolle for the trust they have placed in us. They can rest assured that companies like VINCI are aware of the challenges around Europe's continued construction, and are committed to playing their role to the full for the public good. The growth of mobility is a concrete example and many of us have applauded the announcement of the Juncker Plan, which is one of the most important measures taken by the European Union to promote investment, especially in the areas of infrastructure and innovation. For its part, VINCI is a global player in the infrastructure construction and concession business. More than 80% of our revenue is generated in Europe and we are particularly attentive to the European Commission's stated directions and recommendations.

I have noted that transport infrastructure investment in Europe should double by 2030, from €300 billion to €500 billion a year, meaning a total of €6,000 billion over the period. That is a remarkable figure. However, from the Ipsos-BCG study, we have all understood that there is an infrastructure gap between the real needs and the investments earmarked to support the deep changes our societies will undergo. Whether it is the mobility revolution or growing urbanisation or the energy transition, all these changes will require extensive renewal of our infrastructure in the broad sense of the word, and changes in the way we work together, especially between the private and public sectors.

For PPPs, Europe has had a complete framework for defining the relations between public authorities and private stakeholders since the new directives about concessions and public contracts were adopted in 2014.

Europe can also capitalise on France's long-standing experience in this area, as explained earlier so clearly by Xavier Bezançon. The respective roles of the concession granting authority and the concession company are clearly defined between the private investor that finances, builds, maintains and operates the infrastructure, and the public authority which determines the programme, selects the concession company, makes sure that the work is completed satisfactorily and supervises the quality of the infrastructure's operation. The contract defines the risk transfer between the public authority and the concession company. This risk is inherent in the concession. It is also its strength, as it is this risk that first led to designing and building the infrastructure taking into account its long period of operation, which in turn encourages the company to develop a high quality service to provide to its users, i.e. the end clients without whom there would be no income.

The concession as a tool is modern and relevant for designing, financing, building and managing new infrastructure. It is equally so for upgrading, renewing and maintaining existing infrastructure.

Airport concessions are growing in a number of countries, whether for the creation of new airports or for the operation, refurbishment or extension of existing airports. In all cases, as the example of VINCI Airports shows, the concession approach provides a solution to the issue of a region's attractiveness. It does so by engaging the concession company's investment capacity and its programme management expertise in airport management and marketing to attract more airlines. By meeting these challenges and combining its various fields of expertise, while leveraging the VINCI Group's financial strength, VINCI Airports has in the past few years risen to become the world's 4th largest airport operator.

The 9,100 kilometre French motorway network, one of the best in the world, also exemplifies the effectiveness of the concession approach. This network has been largely built without any public funds, using instead the allocated resource, the tolls paid by users, and by cross-subsidising – more difficult today – motorways with high traffic volumes and those for which the economic potential was less. This is the user-pays principle in its most complete form and which, moreover, has considerable ecological merit. This approach has historically been used to build the French motorway network and is now again being used to modernise this same network, widen certain sections and make environmental upgrades to bring it up to today's standards: this is the aim of the French motorway stimulus plan introduced in 2015. In complete accordance with the rules and principles defined by the European Union and verified by the Commission, this plan will involve an investment of €3.2 billion contributed by the main French motorway companies. While improving traffic flow and safety for motorway users, this plan is also creating economic activity and employment for public works companies.

It is again thanks to this contractual arrangement that it was possible to create the world's largest high-speed line concession, connecting Tours and Bordeaux, which will open to traffic on 2 July. You heard the conclusion by Patrick Jeantet, Chairman and Chief Executive Officer of SNCF Réseau, "two are smarter than one".

We therefore have a framework that has proven its effectiveness but there is a paradox: the Ipsos study presented earlier by Dominique Levy reveals considerable mobility needs expressed by Europeans and yet the use of all forms of PPPs has become a more natural reflex outside France than in France.

This explains why we need technically well prepared, mature and considered projects with clear aims. This means allocating energy, and human and technical resources to plan and prepare for the future with tomorrow's projects. In this respect, we believe that the rollout of the European Investment Advisory Hub (EIAH) is a particularly useful step.

Expertise in the various fields – finance, legal, technical and operational – needed for a concession project is the main contribution private companies can make to the partnership between public and private stakeholders for the creation of infrastructure. At VINCI, this expertise is enshrined in our integrated concession and construction model that we use for railways, motorways, airports and even stadiums.

The example of the Tours–Bordeaux HSL is particularly telling. The integration and interaction from the outset of the concession consortium and the construction consortium, both mainly comprised of VINCI companies, made it possible to establish and stick to a very tight schedule, considerably tighter than is usual in a standard public contract. In this instance, less than six years will have elapsed between the time the contract was signed and the time the line opens to traffic, to design, negotiate, build and commission 302 kilometres of high-speed line and 38 kilometres of connecting line. Integrating programme management and design-construction expertise provided us with an overview and overarching management of the project's economics, and was a significant contributing factor in bringing the project in on its initial budget, which, as we all know, is rare for a project of this scope. Finally, from the moment the concession company takes responsibility for the operation and maintenance of the infrastructure it has been contracted to build, it is in its best interest to select durable construction solutions at the outset that will

optimise the project's cost across its entire life cycle. In this respect, the concession approach is clearly advantageous from economic and ecological standpoints.

In a separate area – motorway concessions – we have referred extensively to the fact that the privatisation of French motorways has enabled over €15 billion worth of works and development without any contribution from the government. But it is a less well-known fact that this privatisation has helped contain the network's construction costs resulting in savings that we reckon amount to €4 billion.

It should also be noted that concession companies are willing – since that is part of their remit – to contribute to the investments decided by the public authorities, as are the investors. The presentations by Ralph Eley from Allianz, Manuel Cary from Transport Infrastructure Investment Company, and André Autrand are evidence of this lasting appetite for funding infrastructure projects. There is in fact far more money available from investors, whether insurance companies or infrastructure funds, than there are good projects in which to invest.

Two pre-requisites would seem crucial. First, it is essential to provide the means for these contracts to be managed over time. We concession companies make long- and even very long-term commitments. Our longest concession is the A86 Duplex motorway between Rueil Malmaison and Vélizy in the Paris region. We have the contract for this concession until 2086. The public authority must support its private partner for the duration of the contract by providing it with contractual, legal and fiscal stability to ensure its investment remains sustainable. The counterpart of a long-term partnership is security, and legal, regulatory and fiscal stability.

However, stability does not have to mean a do-nothing approach. While the general framework for concessions must provide long-term stability in light of the amounts and terms of the associated investment, not everything can be predicted, costed and set in stone in a contract designed to remain in force for decades. Panayotis Papanikolas clearly explained to us earlier that when we signed contracts in Greece, just before the collapse of Lehman Brothers, no one could have written the contract that would have contained all the clauses enabling us to navigate this deep crisis under the best possible conditions. In other words: the longer the term of the contract, the more flexibility and room for negotiation we need to retain, so that it can be adapted to the changing situations, which we are generally unaware of at the time of signing.

The users' contribution to covering the costs is also crucial, in accordance with the user-pays principle. This is the safest and most direct way of empowering users and of financing the infrastructure networks Europe needs. This contribution can completely offset costs, as in the case of motorways and airports, or provide only partial cover. It is clear that a contribution by users – even if only partial – is the safest way of funding the infrastructure Europe needs. Secondly, the users' contribution to covering costs is also an essential condition. It tallies with the user-pays principle promoted by the Commission. While there are some forms of infrastructure for which this contribution covers all the costs – motorway tolls and airports for example – not all projects have the same potential. All the same, it is clear that the users' contribution – even if only partial – is, in our view, the safest and the most direct way of funding the infrastructure networks that Europe needs and, above and beyond that, of ensuring its maintenance and upgrade.

Our fellow citizens have an integrated view of mobility; we too need to have an integrated view of the economic model for mobility: we need to be able to identify and leverage the ability to pay wherever it is.

What are Europe's infrastructure needs? The very interesting study by Ipsos and BCG shows that there are many expectations. Even if they differ from one country to another, one thing is certain: the need is huge. A lot still needs to be done to link the Member States to each other and to help some of them catch up. Another finding from this study is that everywhere Europeans are expecting personalised transport services. This will require investment to modernise, standardise and connect infrastructure.

Europeans are also demanding reliable and continuous information about traffic conditions.

Modes of travel are increasingly enhanced. The content of a trip is changing. Less and less time is wasted or spent passively; more time is devoted to other tasks whatever the mode of transport: train, plane, coach, or connected and in the future self-driving cars. Travel is set to become a mobility experience. No one must be left behind from this mobility, which must therefore be viewed as a factor in social inclusion.

The example of Boston, presented to us by Nikolaus Lang, is a good illustration of what will change in large cities; it was also a point raised by André Broto. The challenges are the same on both sides of the Atlantic: investment will first be concentrated in large cities, not just in city centres but above all in outer urban areas, to optimise the existing transport networks by developing multimodal approaches and creating mobility that reduces the current divide between citizens living in the city centre and those living in the urban fringe. We are experiencing an epochal change in urban growth that will radically alter the way we design facilities and infrastructure. In particular, interchanges will become all-important as they will hold the key to transforming travel.

The transformation will also come from how people use transport, and especially new uses arising from the digital revolution. We are already starting to see the effects with community practices like carpooling – which now accounts for a significant share of motorway traffic. The upcoming arrival of self-driving cars will bring about a deep-seated shift in the usual distinction between public transport and private cars. Use will increasingly take over from ownership: it will no longer seem necessary to own a car to have access to the flexibility this mode of transport offers. Like consumers and citizens, the infrastructure will have to learn to be more agile in response to these changes. The issue will no longer be just to build and maintain the physical infrastructure, but to make it a real conduit for new mobility services.

It is my belief that to implement these changes, to take up in time the many challenges they imply, we will need to tap into all resources – that is, resources of every kind and not just financial, in both the public and private sectors. Given the considerable needs, PPPs will increasingly be seen as the right answer as they can not only pool the necessary finance, but also, and above all, enlist the necessary talent and encourage innovation to underpin this new mobility. In short, we are merely following an historical trend: in a world that is becoming more horizontal, more transversal and more collaborative, PPPs can regain their relevance to become an entrepreneurial model serving the public's needs.

And this model, it seems to me, fits perfectly with the European Commission's strategy that aims to respond to European citizens' long-term expectations.

Conclusions

Ambroise Fayolle

Vice-President of the European Investment Bank

It is invigorating to hear so many new ideas and projects: that is one of the things Europe needs today. The EIB is the European Union's bank for which we implement its priority policies. Infrastructure is foremost among these and corresponds to one-quarter of our business, €18 billion in 2016. The other priorities are innovation, climate change and SMEs.

After the 15% contraction between 2008 and 2014, we are now seeing an upswing in investment in Europe, especially by companies. Infrastructure investment continues to suffer. It accounted for about 2.2% of GDP in 2009 but had fallen to 1.6% of GDP in 2015. This decline concerns all sources of funding: public funds as well as PPPs. We therefore need to reignite investment. You need only travel around Europe to get an idea.

We surveyed 12,500 non-financial companies about the main obstacles they face with regard to long-term investment. The lack of adequate infrastructure is not the first thing they mention, but it is nonetheless seen as a significant obstacle. We were, however, surprised by the results of this study, as we were expecting to find obstacles linked to regulations top the list. Instead, the leading two obstacles mentioned are uncertainty about the future and the difficulty in recruiting adequately skilled employees. We therefore need to take a close look at issues of trust around investment, as well as training and education problems.

The Juncker Plan, launched two years ago, remains a very important part of our investment policy, including for infrastructure: 8% of the investment funded by this plan was for 40 transport projects spread evenly across Europe. To give you an idea of what the EIB can fund, there is the case of the Pas de Calais mining area in France, where 40% of people do not own a car. This is a major handicap in terms of their mobility and employability. We are therefore building a bus rapid transit system in this region to improve people's quality of life and access to employment. Again thanks to the Juncker Plan, we have developed new risk-sharing products with financial institutions in the area of green shipping. This is a new market for us and we are using the Juncker Plan to understand it better. It has considerable potential for improving infrastructure and the climate.

Finally, we have developed fund financing designed to finance small PPPs. We are also very open to the development of PPPs, but these contracts need resources and expertise that are often underestimated, along with a stable regulatory framework. Using the resources of medium-sized insurance companies can be a potential driver. We have found that the large insurance companies have the resources to assess infrastructure projects, but smaller companies are not necessarily in the same position even though they are keen to diversify their investment into such products. We have a sizeable portfolio of infrastructure projects that we can "securitise" to revive this type of investment. This could help create a link between the financial markets and the Juncker Plan. We have begun work on this topic with the Commission.

To conclude, the need is considerable. We must therefore be innovative, notably by maximising the capacity of public institutions to act as a driver, as stipulated in the Juncker Plan. We also need to work together in a tangible manner. We need to be as clear as possible for our fellow citizens that Europe aims to improve the daily lives of each person and to help fund the competitiveness of their companies.

Thank you for your attention.