

**2014**  
annual summit

# HIGHLIGHTS

TRANSPORT FOR A CHANGING WORLD:  
Session Summaries



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# Transport for a Changing World

2014  
annual summit

21-23 May 2014, Leipzig, Germany

OECD

FRANCE  
présidence 2014



# Transport for a Changing World

## A Look Back at the 2014 Summit

**C**hange is a dominant characteristic of our age. A profound and lasting process of transformation is permeating all areas of human existence today, and there is probably more than just a grain of truth in the quip that "change is the new normal". New technologies are creating unthought-of possibilities, while demographic change is altering the characteristics of nations and of global society. A changing economic balance redistributes global opportunity and emerging lifestyles create more diversity. Not least, climate change poses challenges to the fundament of our existence while energy options are shifting and the future path here is not yet clear.

These megatrends impact transport and mobility in ways that decision makers need to reflect today in order to shape responses that will remain valid in a rapidly changing world. The 2014 Summit of the International Transport Forum on "Transport for a Changing World" was conceived to provide just that: an environment for reflection of the big issues, with focus on discussion rather than decisions, intellectually stimulating, global in outlook and building on modal perspectives while not limiting itself to them.

What were the main outcomes of the 2014 Summit? With 20 plenaries, roundtables and workshops, 15 press conferences and media events, 14 technical and cultural tours, 11 side events and fringe meetings organised by partners of the ITF, the programme was of such richness and diversity that every participant will have his or her own take on what mattered most.

To me personally, a number of insights stood out among many other interesting ones. The potential of Big Data as the future 'fuel' of more efficient, user-centric transport solutions was highlighted by ministers as well as by the three CEOs speaking during the Open Ministerial session. While the potential benefits for passenger information, for freight optimisation and for creating smart infrastructure are huge, so are the legal and regulatory issues relating to opening up access to data and privacy. Here, strong political leadership will be required.

Technological advances will also help to ensure fewer people are killed on our roads. Yet 90% of the world's road deaths occur in low or middle income countries, and there the first step is to implement the more basic road safety measures. I was delighted to sign an agreement with FIA president Jean Todt in Leipzig for a joint FIA-ITF co-operation that will contribute to a better understanding of road safety challenges worldwide and to enhance traffic safety data, thereby helping policy makers to choose the measures with maximum impact.

The major challenge of urban transport was another important issue. With the influx of billions of people into new and old cities and mega-regions, adequate transport and land-use providing density and functional diversity will be the decisive factors in helping cities to fulfil their promise as centres of opportunity and wealth creation. Failure, on the other hand, would mean the danger cities becoming poverty traps that harbour squalor, not success. Also in this domain, information technologies will be opening the door to new solutions that can be more efficient and more inclusive.

Third, from the discussion in Leipzig I sense a conceptual shift in how we define transport itself. For some time already, the term mobility has come to be used in a broad sense to mean the ability of goods and people to move about without unnecessary impediment. Now, transport and mobility are increasingly viewed in a larger context that focuses on ensuring access. In this framework, transport is not simply a service provided (or not), it becomes a societal necessity and political tool to ensure social and economic inclusion.

Global networking is a highly valued part of the Summit and we try to provide ample opportunity for this – the Presidency reception, the VIP lunch, the cocktail and the Gala Dinner as well as the now traditional Ministers' dinner are some examples. Country delegations as well as business participants held more than 130 bilateral meetings and get-togethers during the two-and-a-half Summit days. Notably, six countries used the 2014 Summit to sign bilateral agreements, ranging from technological co-operation to air service liberalisation.

This publication aims to provide you with a summary and overview of the issues debated in Leipzig and the arguments made - as a reminder for those who attended and as a primer for those who missed a particular session or the Summit itself. An accompanying brochure shows the breadth of the 2014 Summit in pictures. Further resources are available on the Summit website ([www.internationaltransportforum.org/2014](http://www.internationaltransportforum.org/2014)), which will remain available as your online repository for related information. Here you will find presentations, press releases, video recordings of sessions as well as edited session highlights, interviews with speakers and VIPs, photos and more.

Finally, please do note 27-29 May 2015 in your diary as the date of the next Annual Summit of the International Transport Forum. The 2015 Summit will explore the theme 'Transport, Trade and Tourism' and it will again take place Leipzig, Germany, our beautiful host city since 2008. I look forward to seeing you there next May!

Sincerely,



**José Viegas**  
Secretary-General of the International Transport Forum





# Keynotes

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**James K. Galbraith**

is the Lloyd M. Bentsen Jr. Chair in Government/Business Relations and Professor of Government, Lyndon B. Johnson School of Public Affairs at the University of Texas, Austin, USA. He is the leading authority on the measurement and understanding of inequality and director of the Inequality Project at the University of Texas. His books include 'The Predator State', 'Inequality and Industrial Change', and 'Created Unequal'. Galbraith is chair of the board of Economists for Peace and Security, an international association of professional economists



# “A matter of standards”

James K. Galbraith

**I**t is a pleasure to be among practical people, charged, as you are, with making one of our most basic systems work. That transport does work is attested to by the fact that I am here, having spent last night in Barcelona.

Now what, in transport, is the essence of practical administration? Plainly, it is the strict application of effective standards. These ensured that my plane could fly. That I could breathe while on board. That we did not run into anyone else. Strict and effective standards on these and many other matters preserve trust. They impart confidence. They enable markets to exist. Without them, the entire transport sector would collapse, and we would be back, before long, to the horse.

Nowadays your task goes far beyond safe and efficient operation. It covers planning, fairness, urban development, the environment, and 'green and inclusive growth'. In each case, the practical substance concerns standards: What to require. When to require it. How best to enforce the rules. Your job is to match what can be done with what should be done. It is to match the goals that can be set, with the goals that can be met. It is to marry technical capacity to social purpose.

## When trust collapses

In the spheres I know a little better – including finance, economic inequality and the yet-larger questions of policy – the same practical approach is fitting. As in transport, lives are at stake. But the connection is not quite so immediate, or so visible. And so an appreciation of the role and necessity of standards is not so clear and the practical approach does not always prevail.

In home mortgage finance in America for over three decades – as staff economist to the House Banking Committee in 1980 I was present when the debacle began – we succumbed to those who sought easy money from weaker standards. There was easy money in making bad mortgages. There was easy money in rating them. Easy money in selling them off, all around the world. In due course, fraud suffused the system. And when trust collapsed, the entire world credit system failed.

The rise of toxic finance drove the rise of unstable, unsustainable inequality. This is true in the United States, in Europe, and in almost every country for which I have been computing inequality measures over 20 years. It is no surprise that inequality peaked with the credit booms: in 2000 in the US and worldwide, in 2007 again in the US, and, by our measures and as example,

in 2008 in China. Rising inequality, like rising blood pressure, prefigures crisis. It's a warning sign. When it falls after the crisis – that is too late.

## Standard of life

Can inequality be managed – as transport is, and as blood pressure can be? Of course. And the basic means are the same. To manage inequality, to control it, requires strict, effective standards. These include social insurance, minimum wages, collective bargaining, and public goods including education, health, and the control of finance. It is hard to apply and sustain these standards in a world of open trade, fractured banking and taxes. It is hard to resist the predatory forces that seek easy money in breaking them down. It is hard to do all of this in the face of the digital revolution, which saves work and eases life but also concentrates incomes and wealth – and is bringing an end to millions of jobs. But that is what the control of inequality requires.

The largest task we face is to sustain, and enhance, our standard of life. Yet here again, the principle applies. Economic development – the condition that distinguishes the OECD – does not consist mainly in exclusive technology or superior education or big towns. These are everywhere, or can be. Economic development, much more basically, is a matter of strict and effective standards, competently enacted, fairly applied, and willingly respected for the most part. Anyone who lives outside the OECD knows this.

## Myth of self-organisation

In the wider world, you have to struggle for the simple things: clean water, unpoisoned food, effective drugs, safe housing, paint without lead, appliances that do not catch fire. In the wider world, you have to deal with a culture of defiance, and resistance, and persistent defeat of standards. It makes life hard. It makes people poor.

Inside our region, we face confusion on this issue. The confusion is not accidental. It is deliberate, an ideology of entropy driven by the easy score. 'Rent-seeking' – a term of art you all know – does exist. Of course it does. But it does not follow, in logic or in life, that every public standard is a matter of seeking rents.

Europe is a continent of high standards. But here the myth of standard-free self-organisation has taken especially strong hold. This is partly an accident of timing. At its intellectual high-water mark,

alas, that myth of self-organisation under broad and meaningless rules was built into the foundations of the economic union. And the result, especially since the crisis, has been to bring some member states – the weakest members – to the brink of collapse.

## The future hangs on proper judgement

Our challenges now include jobs, growth, fairness, the environment, the repair of damage done in the crisis. They are daunting. But in each case, let me suggest, the proper first step is a change of ideas. As a one-time Marshall Scholar, it makes me proud to quote George Marshall, speaking at Harvard on 5 June 1947. These were, as you know, the remarks that would launch the OECD:

“The remedy lies in breaking the vicious circle, in restoring the confidence of the European people in the economic future of their own countries and of Europe as a whole.... Our policy is not directed against any nation or doctrine, but against hunger, poverty, desperation and chaos... Its purpose should be the revival of a working economy... And yet, the whole world of the future hangs on a proper judgment of things.”

Great though it was, Marshall's speech was the second of that era to signal the power of changing ideas. Let me end with a mention of the first. It was delivered in Germany, in Stuttgart, on 6 September 1946, by another American Secretary of State, James F. Byrnes. This was the “Speech of Hope.” It held out, for the first time, the prospect of independence, democracy and economic recovery to a defeated German nation. I won't quote from it. It was the substance that mattered, and soaring passages are hard to find.

## Resetting the debate

Yet, in that single speech, Byrnes on that day buried the Morgenthau Plan. He defeated schemes to pastoralise Germany. He ended the danger that Versailles might happen twice. In that speech, Byrnes reset the debate. He paved the way for Marshall, for the Marshall Plan, for European recovery and for the OECD. A change of ideas became a change of history.

That speech was written by an economist. His name was John Kenneth Galbraith. My father, as it happens – and so it is close to home.” ■

(Edited from the manuscript)

# “Politicians must protect public space”

Paul Romer

**P**aul Romer, renowned expert on the economics of urbanisation, opened the session on “Creating Livable Cities in a Changing Urban Landscape” with a keynote focusing on the importance of public space for the development of a city. Drawing on the case of New York as a successful example for urban growth, Romer highlighted how the decision to create a firm framework that left urban dwellers a high degree of freedom to physically develop the land, had been critical to “future-proofing” the city.

In 1811, a development plan was passed for Manhattan, then mostly uninhabited, which divided the island into rectangular grids along which it would be developed. The plan increased the area of New York City sevenfold and it took 100 years to build out all the area, but in doing so “created opportunities for millions of migrants”.

In Romer’s view, “this is the general strategy that will deliver progress throughout the planet” even today. The world needs cities that can welcome the millions of people seeking the opportunities they provide. Allowing people to move to cities is the best strategy to ensure progress. But freedom to move into a city can only work if it exists within a framework, and there is a tension here.

## Long-lasting implications

Manhattan’s grid brought both together, argued Romer. Within the physical framework of the grid, people knew where they could build, but there were very few restrictions on land use beyond that. Over time, this allowed New York to evolve with changing circumstances: Buildings could be torn down and new ones built, existing buildings could be repurposed. This process of change continues.

At the heart of this adaptability lies the approach to public space the 1811 land use plan enshrined. It left 30% of space for public use; 36% including parks. Unplanned forms of developments, such as favelas, typically have only about 5% of public space. “You can redevelop the

buildings in a favela, but it is very difficult to increase the land area for public space”, as Romer noted.

He sees risks in the lack of planning focus on public space, as this reduces future options: “The lack of a plan will severely constrain the ability to have the public space that lets people move themselves around, move goods around and interact in their city”, Romer warned. Radical redevelopment of cities rarely happens, so decisions about use of public space have long-lasting implications.

## Public space provides options

A lesson for developing cities is to set aside a generous amount of public space for future mobility and other future uses. This is easy before land is developed but gets harder. Governments do well “to protect that public space so it becomes available when it is time to build on it”, counseled Romer. In 1811, the authorities had no knowledge of cars or elevators. But they “had a sense that however we use this space, we’d be better off if we had it.” In absence of a framework, a default for development will emerge, e.g. a favela. Delay is therefore not an option.

A second paradox emerges: With generous public space, there is little incentive to regulate access. But over time people assume a right to free road space. As the city thrives, congestion becomes a problem and a challenge arises - because “you get more and more of everything else, but you won’t get more land.”

The car’s main defect is that it uses too much land – not enough people can be moved in four-wheelers in dense urban environments. Romer suggested that economists’ inclination to slap a price on a scarce good and thus opt for road pricing might be too simplistic, because it runs into the sense of entitlement and creates political problems.

## Permits, not charges

For Romer, permits are “a viable and perhaps a more promising option.” Ideally, permits for the use of public space would be introduced with the

land-use plan. Space would still be ample and prices very low, but their very existence would avoid perceptions of entitlement. As road space becomes more scarce, permits allow decision-makers to avoid the usual narrative of government waging war on cars or seeking extra revenues: “They could be saying: ‘All we’re doing is setting quantities based on capacity. If permits get more expensive, it’s because of your fellow citizens bidding too much for them.’”

Permits could be tailored to give the right to drive every Monday, or on Wednesdays between 10 am and 2 pm. Those highly valuing the freedom of car travel could buy a suite of permits; those using cars for specific purposes could concentrate errands on one day. Permits can also address equality concerns, e.g. by creating ‘drive with no permit’ day some days which are the opposite of what some mayors are trying to do by introducing car-free days.

The challenge today’s emerging cities face is akin to that which New York faced, but on a scale far greater as billions of people are bound for urban areas. Cities will expand rapidly and they will expand the favela way with severely limited public space - unless government actors make choices. They should choose to create options for future residents and leaders, and if they are wise create options involving public space without creating the sense of entitlement for its use that will constrain policy options for future leaders. “This framework of ‘framework and freedom’ is the one we can bank on to keep progress moving in the world”, posited Romer. ■



**Paul Romer**

is Professor of Economics at New York University's Stern School of Business and Director of its Urbanization Project. The Urbanization Project addresses the historic challenge - and opportunity of welcoming an additional 3 to 5 billion people to urban life in less than a century. The project helps existing cities plan for expansion and also fosters the creation of entirely new cities



## International Transport Forum



### **Bertrand Piccard**

is the initiator of the Solar Impulse programme to promote energy-saving technologies by flying a solar-powered aircraft around the world. A pioneer of ultralight flying in the 1970s, Piccard was the first human to fly non-stop around the world in a balloon in 1999 - the longest flight in the history of aviation in terms of duration and distance. A psychiatrist by training, he is also chairman of the Winds of Hope humanitarian foundation and a goodwill ambassador for the United Nations

# “Innovate outside the system”

Bertrand Piccard

**B**ertrand Piccard, pilot, innovator and initiator of the Solar Impulse project, opened the Summit session on “Sustainable Transport for All” with a keynote address highlighting the importance of fostering a pioneering spirit to develop new solutions to pressing challenges.

Piccard noted that the idea behind Solar Impulse, an aircraft that can fly day and night without any conventional fuel, powered only by the sun, is to demonstrate the viability of ideas regarded by many experts as unfeasible. Support for Solar Impulse initially came from outside aviation, while the aircraft industry maintained a skeptical distance. Thus, the carbon fibre fuselage of the Solar Impulse plane - with a wingspan wider than a Boeing 747 but weighing only 2300 kg - was created by a shipbuilder.

For Piccard, this example holds a wider lesson for how policy challenges – whether in transport, energy or environment, are addressed: We ask specialists to find solutions, but they are too specialised to be innovative, thus “if you want to make something completely revolutionary, you have to innovate outside of the system.”

## The pioneering spirit

The key to all innovation is a pioneering spirit. This is defined by the willingness to negate habits, convictions and beliefs – or as Piccard put it: “Innovation is not a new idea, it is an old belief thrown overboard.” It was not the people selling candles who invented the light bulb and not a car manufacturer but an internet entrepreneur who built what for Piccard is the best electric car ever, the Tesla.

A pioneering spirit is important because it focuses on solutions rather than problems and shows opportunities rather than burdens. Piccard criticised as a recipe for inaction the way climate change mitigation is framed in the political discourse as extremely expensive and requiring the broadest possible coalition. “How can you motivate people to find

solutions when you say it is a very big problem that costs a lot?”, he asked. “Let’s turn it around, let’s show what is profitable in the new technologies that can save energy.”

Climate change is only a symptom, Piccard underlined, at the root of the problem is the fact that we burn far too much fossil energy. To address this, we need to introduce clean technologies and save energy. These technologies exist today and can be brought to bear – this is what Solar Impulse wants to show. If all the technologies used in Solar Impulse from the electrical motors via the batteries, the insulation foam or the solar panels were aggressively marketed in the entire world, Piccard estimates that global energy consumption could be halved, and that half of the remainder could be produced from renewable sources.

## “We can reach the impossible”

“If you had an International Conference of the United Nations to identify, promote and bring on the market the technologies that today are profitable to save energy, then you would motivate a lot of people”, Piccard believes. His benchmark are the 20th century explorers, the enthusiasm that propelled them and that they stimulated: “The conquest of space, the North pole, South pole, Mount Everest. All these great feats have shown that we can reach the impossible, they have shown that human beings, when they have a dream, can achieve that dream, fulfill that dream. This is what we have to show today.”

Piccard exhorts governments to dare set visionary goals, such as halving energy consumption of transport or of housing in ten years’ time. Rather than threaten the lifestyle of people by telling them that they have to reduce mobility, the narrative ought to be that clean technology stimulates economic growth, generates new products, creates jobs and opens new markets in the world as the entire world needs these new technologies.

Simply asking people to change today in order to save the planet in 40 years will not bridge the gap. We have to show in the short term what is already working, what is already profitable, what can be done today. “We have to give practical examples for today”, Piccard argued.

## Protecting humankind

To him, the focus on the environment is misleading the public about the nature of the challenge as somehow not being an immediate concern. Rather it should be framed as an existential question: “If we try to shift from protection of the environment to protection of humankind then we will probably motivate more people. They will understand that their future is at stake, their comfort is at risk. Protection of humankind is what we need to do and this is what I wish that politicians would understand.” ■



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# Designing Cities for People

In the Summit masterclass on 'Designing Cities for People', two leading practitioners explored creative approaches to addressing a fundamental challenge of the 21st century: ensuring that cities work for those that live there. In this new, workshop format, Helle Søholt, Founding Partner and CEO of Gehl Architects (Denmark) and Francesc Aragall, President and Founder of the Design for All Foundation (Spain), shared insights on integrating a human-centred approach to transport and urban planning. Sungwon Lee, Vice President of the Korea Transport Institute (KOTI), provided additional input.

The world's population is increasingly concentrated in cities, not least because urban areas offer access to opportunity. But despite their attractiveness, cities are also challenged by inequality and characterised for many by low accessibility. This poses a risk to quality of life. To avoid such a future, urban planning needs to embrace people-centred approaches that understand the diversity of citizens and their needs.

An important change in the thinking of city planners will involve recognition that cities are not single spatial units. They are a collection of spaces with different functions and levels, and public space in particular plays a fundamental role in improving quality of life. Thus cities need to plan for public space to facilitate connectivity, inclusiveness, human interaction and a mode balance in a way that corresponds to social priorities.

Moving toward people-centered urban planning requires a restructuring of the policy making process. Master planning needs to

evolve into a dynamic process, and the role of national and municipal governments will have to be transformed from regulating and approving institutions to bodies that enable and collaborate with citizens to respond to their needs. Projects should no longer be goals in themselves; the goal should be to achieve a functionality that enables attainment of shared values.

Such a change of paradigm brings important challenges. It can be difficult to assess the needs of citizens, and to avoid the needs of one user interfering with those of others. Accounting for socially excluded parts of the population, for which data is even more difficult to get than for the rest, is crucial to ensure planning for all. Here, it can be useful to go beyond traditional statistics. Quantitative variables need to be completed by qualitative analyses such as usage observations and participating initiatives to fully capture dimensions such as quality of life and livability. Tools designed to measure mobility should also include those who do not move and their reasons. In order to obtain the data and the expertise for people-centred planning, authorities could begin by creating institutions dedicated to the questions of life quality, public space, and access for all.

Some cities offer good examples of a people-centred approach. Denmark's capital Copenhagen has become one of the most liveable cities in the world due to the development of pedestrian spaces and bike lanes since the 1960s. Human observation studies carried out since the outset have enabled the city authorities to test success

and legitimise changes to the allocation of public space. Today, Copenhagen boasts more than 100 000 m<sup>2</sup> of pedestrian streets and 80 000 daily walkers. Some solutions adapt to local conditions throughout the year and provide a good example of dynamic planning.

Another example is Chongqing in southwest China, where better lighting in public spaces has successfully improved conditions for minority segments. Also, benches placed at regular spaces now enable the elderly to move over longer distances, with numerous places to rest. In New York, 200 km of bike lanes built within two years met a latent demand from citizens, despite strong opposition initially. Now, 74% applaud the change. Barcelona in Spain introduced crossings co-designed between city engineers and city users as well as inexpensive bus boarding platforms that provide easier access to buses for people while preventing cars from parking at stops.

In Korea, the Cheonggyecheon Stream Restoration Project revitalised a river after demolishing a freeway built on top of it. Despite strong opposition from business, the project has been a success both in economic and mobility terms. Land prices in the area have risen by more than 30%. Ridership of buses and subway has increased significantly, as the stream restoration was coupled with an urban bus reform program and the introduction of an integrated transport fare. The associated drop in car traffic has made it unnecessary to introduce a policy of restricting car traffic and thereby mobility for the population as a whole. ■

## Speakers

Moderator: Mary Crass, ITF

*"Despite the diversity of people and needs, we all experience difficulties in cities"*



**Francesc Aragall**  
President,  
Design for All Foundation



**Philippe Crist**  
Economist,  
International Transport Forum  
(ITF)



**Sungwon Lee**  
Vice President,  
Korea Transport Institute (KOTI)



**Helle Søholt,**  
Founding Partner, CEO,  
Gehl Architects

*"A paradigm shift is emerging in urban planning to make cities more liveable for people"*



# Big Data in Transport: Applications, Implications, Limitations

This session explored innovations through the application of Big Data as well as its limitations and risks. The amount of data produced today is staggering: Today, people uncover as much data in 48 hours as humans have gathered from 'the dawn of civilisation' to the beginning of our millennium. These data have been collected by different institutions from different users and for different purposes. Not only are these data widely available, but our ability to analyse them has increased dramatically. Big Data proponents argue that new insights to dealing with many transport challenges will emerge from exploiting these vast datasets. Others point out that Big Data requires big judgment: Big Data is only useful if policy questions are framed correctly and if datasets are relevant to those.

Today's vast collections of data are not only high-volume and speed, but also high-velocity and high-variety in content. They are obtained from multiple sources, including sensors, video, mobile devices and social media.

Yet raw data has no or little value. The amount and speed of data collection is often greater than the capabilities of organisations to manage it. One challenge is to find the resources and skills and the storage capacity to deal with it. The main problem today is not collecting data but processing it to take full advantage of the information it contains. New technologies and analytical tools have enabled real-time data analysis, allowing immediate solutions for transport challenges. Data is valuable when it creates societal

value through, for example, development of policies to reduce congestion and improve infrastructure performance.

The gains from using big data are significant. It can help governments, businesses and individuals to make more informed decisions. Better data can help transport authorities to understand commuters' behaviour, provide targeted information and identify policy interventions. In fact, the biggest gains from using big data may come from changing user behavior. Singapore, for instance, uses data on local traffic conditions in real-time to determine prices for road tolls. This provides an incentive to drivers to avoid driving during the most congested periods and optimises the use of the road network.

The world is becoming increasingly interconnected and intelligent. Around 80% of vehicles in Europe and North America will be two-way connected by 2018. But the full benefits of connectivity can be achieved only if vehicles are also connected to infrastructure and other service providers. For example, intermodal car navigation proposes not only alternative routes but also alternative modes based on real-time information.

Big data provides new ways of gathering novel information about transport infrastructure from passenger and vehicle movements and allows for a shift from passive approaches to active crowd-sourcing with innovative transport solutions. For example, some GPS systems enable users to inform others about incidents on the roads. This information is transferred to network operators in real-time, allowing for rapid responses to disruptions.

Using big data in the freight sector is more challenging because of the complexity and number of actors involved in the supply chain. The Single Window concept is not really operational today despite obvious benefits from more coordinated movement of goods through the use of available data.

Data privacy and the ownership of data are controversial and multifaceted issues. Several stakeholders can be identified, including transport users (both as data objects and data users), commercial entities (involved in aggregating or using data) and regulators (using and regulating the use of data). If data are collected for creating value for users or society, people will be more willing to share their information. If it can be shown that using data can create value for users and the data is accessible to users, privacy and ownership issues will become secondary. But regulation is still needed and the role of government is critical. Yet legislation is often obsolete by the time it is rolled out in view of technological developments. The focus of legislation should thus be in regulating principles rather than specifics. ■

## The Panel

Moderator: Conny Czymoch, Journalist

*"Big Data is helpful in understanding and in changing commuters' behaviour"*

*"We have Big Data, but we need to convert that into simple messages"*

*"If you don't know how you'll make use of the data, throw it out. Data is not valuable without a question"*



**Tuck Yew Lui**  
Minister of Transport,  
Singapore



**Denis Choumert**  
Chairman,  
European Shippers' Council



**Eric-Mark Huitema**  
Global Managing Director,  
Smarter Transportation,  
IBM



**Louis Lévesque**  
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# Climate Change Adaptation and Extreme Events

**E**xtrême weather conditions are behind many transport network failures. These are frustrating for travellers and shippers and can entail large costs, but they rarely have long-term consequences. This is because transport networks are generally robust to historic climate patterns and are designed to account for a range of expected extreme events. Yet the frequency, scope and scale of future extremes is uncertain due to climate change. Investments made today may not deliver expected outcomes due to premature failure, or eroded performance and existing assets may experience much higher than expected maintenance and repair costs.

This session explored how adequate network performance during extreme events can be ensured in a changing climate and how an adaptive policy framework can be designed that moves from contingency planning to managing uncertainty.

The transport system faces new and large uncertainty from climate change, but this challenge should be put into the context of other transport-related uncertainties such as demographic changes or technology development.

Climate models are the one way in which the chain from emissions to impacts can be approximated and these tools have greatly improved in successive generations. These models, however, do not usually produce adequate outputs for asset design as they

cannot reflect uncertainty that is deep and impossible to capture using standard statistical methods.

Methodologies to address deep uncertainty regarding localised climate and extreme weather impacts exist and should be deployed for new projects even though they may involve more up-front work. These methodologies are based on stress-testing asset designs and network operations using multiple scenarios that cover the range of plausible futures. Asset managers can then select the most robust options for the widest range of plausible future climate-related stresses. This may involve selecting options that would fail simple optimality tests in terms of a median scenario.

Addressing uncertainty requires interdisciplinary dialogue. Engineers need reliable design values, even for uncertain parameters, and an idea of safety margins to be incorporated. Where the climate expert sees uncertainty the engineer sees a number, and different perceptions require dialogue. Uncertainty also requires more alert and flexible asset owners. They can address climate change by shortening the design life for new assets to avoid becoming locked into inappropriate designs and allow for improved predictions of future climate conditions over time. Another approach is to focus on services enabled by assets. This perspective could result in networks where some assets are designed to fail safely but where services can be rapidly restored

- via advanced design, pre-positioning of materials and quick reconstruction methods. Building enhanced redundancy into networks is another response. Demand-side management will play an increased role in coping with supply-side volatility. This has impacts on the tools used to design transport policies and networks, including the need for more exchange between the public and private sectors.

There is a need to build on existing vulnerability assessment practices, e.g. relating to crashes and meteorological events. The challenge is to assess transport services at a macro level, in order to catch interdependencies and multimodal aspects, while building vulnerability analysis from the micro level, looking at the ways in which assets and asset components might fail. In view of limited resources, the focus should be on assessing the criticality of key assets and co-sited infrastructure, and trying to understand which component failures would cause significant or lasting disruptions. This is a feature of the climate change adaptation policies in France, Germany and at federal level in the United States, among other places.

Climate change adaptation policy should not limit itself to transport infrastructure but look at the interdependences between transport, energy and information technology infrastructures. Transport services should also be considered, as should logistic facilities such as distribution centres and freight terminals where these

## The Panel

Moderator: Pat Cox, Journalist

*"Finding ways to effectively target our spending is critical"*



**Xavier Delache**  
Coordinator,  
National Climate Change  
Adaptation Plan for Transport,  
France

*"The objectives of transport policy are changing radically. Appraisal should also change"*



**Stéphane Hallegatte**  
Senior Economist,  
World Bank



**Alan McKinnon**  
Head of Logistics Department  
and Dean of Programs,  
Kühne Logistics University



**Gordana Petkovic**  
Senior Principal Engineer,  
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**Felix Stenschke**  
Head of the Directorate  
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and Digital Infrastructure,  
Germany



**Butch Waschin**  
Director,  
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are vulnerable nodes in supply chains because of their location or design. The nature of logistics operations and the design of freight vehicles can influence the extent to which transport infrastructure needs to be climate-proofed. If, for example, logistics providers were to invest in more robust vehicles and build more redundancy into their systems, it might be possible to reduce the required expenditure on infrastructure adaptation.

Much of the climate-proofing of infrastructure and wider adaptation of the built environment to climate change will be logistics- and carbon-intensive. It will therefore offset some of the planned carbon savings from mitigation efforts in the transport and logistics sector. One such effort is shifting freight to lower carbon modes, such as rail and inland waterways. Climate-proofing these greener transport networks may prove to be more carbon-intensive and expensive, in which case some of the net environmental benefit of switching mode may be eroded in the short term.

Where a risk audit reveals that a logistics system has high exposure to climate change, it can be difficult for a company to decide on the response, given uncertainty about the probability and intensity of the climate impacts. Some companies may simply outsource more of their logistics, effectively off-loading the climate risk to others. The ability of a carrier to withstand and/or react to extreme weather events may become

an important competitive differentiator in the logistics sector but it is still unclear how markets will adjust to transport systems becoming increasingly disrupted by meteorological forces. ■

# Transport for a Changing World

## Thinking Beyond the Trends – Shaping Responses

Several factors of change have an impact on transport today: Climate change calls for actions to reduce emissions as well as for adaptation measures. Information and communication technologies modify the way users make their mobility choices. Growing trade flows necessitate a re-organisation of maritime transport, with associated environmental issues. Urban development offers new opportunities for public transport.

All these challenges call for a revision of transport policies, noted Frédéric Cuvillier, France's Secretary of State for Transport and 2014 President of the ITF, in his opening remarks.

Changes lead to social risks, Cuvillier said. Transport therefore has to be linked to a social dimension. Present developments should not endanger cohesion, but safeguard better access. "Means of transport are the expression of the dignity of a country", Cuvillier said calling for transport to remain affordable.

While transport is affected by global megatrends such as climate change, demographic shifts or digitalisation, it has an impact on these trends as well. Mobility is no longer a purely technical issue, it has become a societal issue, with mobility becoming a determinant of value-creation in societies. Infrastructure is important for growth. Alexander Dobrindt, Germany's Minister for Transport and Digital Infrastructure, pointed out that future wealth will be determined by flows: Flows of goods, flows of people and data flows. Dobrindt identified three pillars necessary to enable these: "We have to maintain infrastructure, expand infrastructure and interconnect infrastructure."

Transport has changed the world over the past centuries, noted José Viegas, Secretary-General of the ITF, and called for transport not only to adapt,

but to aspire to be a force for positive change on the globe. New forms of motorised mobility are an example of this. A shift from car ownership to vehicle sharing and ride sharing reduces costs, increases access and releases public space for pedestrians and bicycles. This calls for redefining the objective of urban mobility, and here policy choices need to be made.

Likewise, autonomous driving will lead to a drastic improvement in road safety with fewer casualties and thus less pain in society. It will also release time that can be used productively. New technologies increase productivity in transport, but it may also have a negative impact on employment in the sector, highlighting the need for "a new social deal" (Viegas).

Professor James K. Galbraith in his keynote underlined the importance of implementing effective standards as the essence of practical administration in transport. Effective standards foster trust, enable markets to function, safeguard fairness and lead to green and inclusive growth. Galbraith sees a role for the International Transport Forum in bridging the gap between research results and political decision-making, ensuring the standards needed are combined with a practical approach.

"Rising inequality, like rising blood pressure, can prefigure a crisis and is a warning sign", Galbraith warned. Some call for extreme measures, such as an annual global tax on market capitalisation. But as one would avoid aggressive medical intervention where possible, extreme measures to address inequality should be foregone in favour of practical, tested approaches such as social insurance, minimum wages, public provision of goods such as education, healthcare and a reasoned control of finance.

Trading nations in particular are susceptible to global trends and must respond to them.

Modern free trade agreements are important in this respect. The recent EU-Canada free trade agreement, for instance, will cover all sectors including transport, noted Canada's Minister of Transport, Lisa Raitt. Her colleague from New Zealand, Gerry Brownlee, added that for small and remote countries like his, connectivity, intelligent systems and resilience matter. New Zealand enhances its connectivity via liberal air services agreements. An action plan on intelligent transport systems is facilitating uptake of new technologies. Systematic development of transport resilience is a remedy to natural disasters such as the 2011 Christchurch earthquake that wiped 20% off New Zealand's GDP.

Designing better transport policies for better lives is one of the roles of the OECD, the organisation's Secretary-General Angel Gurría recalled. In view of the global economic crisis and the complexities societies face from ageing, urbanisation to climate change, a new paradigm for transport policy is paramount, underlined Gurría. For instance, the economic development of big cities in emerging economies presupposes strong transport systems. Yet good transport systems with direct connections and real-time passenger information presuppose, in turn, digitalisation. The digital revolution must happen everywhere, in all modes of transport and all regions.

Public support is a precondition for equity and innovation where economic viability is absent, and the role of the public sector in financing infrastructure is important. Public-private partnerships are key in this respect. Moreover, investment in infrastructure has effects on climate and the environment, a reality which calls for a strategy. The role of regulators and watchdogs is to ensure a level playing field. ■

### The Panel

Moderator: Michael Portillo, Journalist

*"Means of transport are the expression of the dignity of a country"*

*"We have to maintain infrastructure, expand infrastructure and interconnect infrastructure"*



**Gerry Brownlee**  
Minister of Transport,  
New Zealand



**Frédéric Cuvillier**  
Secretary of State for  
Transport, Maritime Affairs  
and Fisheries,  
France



**Lisa Raitt**  
Minister of Transport,  
Canada



**Alexander Dobrindt**  
Federal Minister of Transport  
and Digital Infrastructure,  
Germany



**Angel Gurría**  
Secretary-General,  
OECD



**Jean-Marc Janailac**  
President and CEO,  
Transdev

# Integrating Transport Networks for Sustainable Growth and Development

Network planning often suffers from lack of coordination between neighbouring jurisdictions and levels of authority. Boundaries to responsibilities are sometimes blurred, either overlapping or leaving gaps, impeding investment and undermining the delivery of a seamless operation. Fragmentation can result in high costs where journeys cross these boundaries or require transfers between modes, and coordination often hinges on the negotiation of revenue-sharing agreements. Creating a policy framework that links local decision making to national goals can facilitate financing of investment.

This session examined the integration of transport networks, including such challenges as establishing a coherent, effective institutional framework for local and regional coordination of transport services. It looked at steps governments can take in coordinating transport planning and infrastructure investment to ensure a coherent and integrated approach on a national scale and enhance greater regional cooperation.

The transport system involves multiple modes across space and thus affects a multiplicity of areas, users, and governments on local, national or regional levels. Lack of coordination among the many actors involved results in inefficiencies and poor use of resources. The need for institutional coordination across space and function is critical to developing an integrated and comprehensive transport system.

In China, for instance, a massive infrastructure programme over recent decades created new air, port, road and rail infrastructure, with millions of new kilometres of road and rail built across vast expanses of country. That each mode has been managed by a separate ministry has

led to important barriers to developing a clear strategy. Recently the government, recognising the importance of integrated planning and management, has created a single transport ministry with responsibility for all modes.

In an urban context, the challenges of coordination across multiple institutions and levels are evident in Latin America, where over 80% of the population lives in cities. Transport systems in major cities like Mexico City or Sao Paulo can stretch across as many as 50 municipalities, each led by mayors with potentially differing political agendas. Also, most infrastructure development takes place over longer time periods, while politicians' mandates are limited. This introduces a further dimension: Coherence is important not only across space and function, but also across time. In this light, the success of the BRT (Bus Rapid Transit) in Latin America, for instance the Transmilenio project in Bogota in Colombia, is not surprising: One of the BRT's characteristics is that it takes less than three years to develop, making implementation within an electoral cycle feasible. Political opportunity is thus a main ingredient for transport integration.

In view of scarce resources it may be difficult to implement broad transport improvements. But the introduction of partial solutions like the BRT in Bogota or the MRT in Jakarta, without upgrade for complementary modes, will lead to rising inequality and a differentiation of development opportunities in a city. These developments can create social pressure that, in turn, could stimulate more holistic solutions to transport problems.

With the growth of international trade, supply chains are getting ever longer and the concept

of transport network integration cannot end at a city's or a country's borders. International agreements are needed to help connect different types of infrastructure. These must be technically compatible (the 'hard' dimension) and follow a reasonable set of rules and regulations in terms of tariffs, standards or other aspects (the 'soft' dimension). Efforts to improve both on a regional level are especially strong in Europe, with the commitment of the European Commission to create, for example, a single railway market. This huge project requires multiple initiatives in terms of interoperability and other common rules and regulations. These are already established in international road, maritime or air transport markets, with, for example, common dimensions of ships and aircraft.

In Africa, specifically the MENA region, measures have been introduced to increase the transparency of the cost and financing of transport services. For example in Morocco, if a local authority seeks access to the aviation network, only a portion of the necessary investment will be covered by federal taxes, the remainder must be raised by the community. This approach facilitates better use of public funds and creates incentives for further investment through increased transparency. Another example is the Northern Corridor in East Africa linking Kenya, Uganda, Rwanda, Burundi and the Democratic Republic of Congo, where the introduction of a common axle load for rail links across multiple countries represents a major achievement. ■

## The Panel

Moderator: Melinda Crane, Journalist

*"Transport will become a strategic development tool"*



**Mohamed Najib Boulif**  
Deputy Minister of Transport  
Ministry of Equipment,  
Transport and Logistics,  
Morocco

*"Inclusive growth through inclusive transport"*



**Rüdiger Grube**  
CEO and Chairman  
of the Management Board,  
Deutsche Bahn AG



**Marc Juhel**  
Sector Manager Transport,  
The World Bank



**Jorge H. Kogan**  
Senior Advisor to the Vice  
President of Infrastructure and  
Head of the Transport Group,  
Development Bank of Latin  
America (CAF)



**Bixin Zhu**  
Vice President, China  
Communications Construction  
Company (CCCC)

*"Transport improvements have been one of the key ingredients for Chinese progress"*

# Adapting the Vehicle to a New Society

The automobile has proven to be one of the most transformational transport technologies ever. Slightly more than a century after its invention, however, there are signs that car use has stabilised or is declining in many historic markets. Automakers are deploying new technologies to meet customer requirements but will the industry's business model remain relevant? Where car demand is growing, especially in developing countries, growth in car ownership poses formidable challenges related to space constraints, congestion, crashes and pollution. Can the car reinvent itself to meet changing expectations and constraints posed by high-density urban conglomerations?

This panel's discussion focused on four areas: the deployment of new drivetrain technologies and related vehicle production and use ecosystems, the potential impact of a stepwise rollout of autonomous driving technologies, the linkages of these technologies with shared-use business models and issues relating to the regulatory framework and consumer trust.

Changing consumer expectations are driving the development of new technologies and services, such as commercial deployment of advanced electric cars. These have stimulated innovation in the vehicle drivetrain, but also in the production process and the use phase. This systematic approach has led to 50% less CO<sub>2</sub> emissions during production and to cars that help their drivers select faster or less expensive modes of transport depending on conditions.

Motorisation will grow alongside income growth. In terms of technology, most cars on the globe will be very similar to those driven today - in fact, many will still be the same vehicles on our roads today. It is thus premature to expect large global safety gains from the penetration

of semi-autonomous and fully autonomous technology in the world fleet. In much of the world, there is a primary need for the deployment of basic, safe infrastructure before the safety potential of new vehicle technologies comes into play. Most of the world's infrastructure is essentially of the same type as 50 years ago. The same cannot be said for our vehicles and this gap must be reduced.

Semi-autonomous vehicles are likely to become commercially viable in less than a decade and fully autonomous vehicles will be on the market soon thereafter in developed countries. Barriers are no longer principally technological but related to vehicle manufacturers' appetite for risk, notably their willingness to face uncertainty regarding liability during the early deployment phase.

Constraints are also related to consumer trust in both autonomous driving technology and its regulatory environment. Consumer acceptance of new vehicle technologies will evolve along with other developments in society. How autonomous driving will develop is not only a function of technological progress in that area, and predicting the future of autonomous vehicles without taking into account other, often dynamic factors – for example consumer expectations in terms of privacy – is likely to be misleading.

Human drivers are quite safe in certain environments but they are prone to make poor decisions in many circumstances. Human error is a contributing factor in most vehicle crashes that could be greatly reduced through the introduction of semi-autonomous and fully autonomous driving. Self-driving technologies will need to be rolled out in a stepwise manner, in environments and for uses that allow consumers to gain first-hand experience while minimising the potential impact of technology failure. Thus in the near-term, the focus will be on deploying

driver-assist and danger-warning functions in order to ease the driving task and make it safer. This focus will shift in the medium term to the conditional deployment of autonomous driving in specific cases such as driving in congestion and driving in vehicle "platoons" or road trains.

Most business models related to connected and autonomous vehicles assume use of these technologies in cars largely owned and used much like today's fleet. This may be an optimistic assumption. Use cases will likely evolve alongside the commercial deployment of advanced technologies. The real disruption from autonomous driving may well be in the way we use these vehicles to get around our cities more than the way in which we drive our cars. Vehicle manufacturer business models will shift from selling cars, buses and trucks to selling 'travel time well spent'. This focus on the user experience beyond the driving task could result in entirely new markets – markets that traditional vehicle manufacturers will have to share with new entrants.

Should autonomous driving vehicles be deployed on a large enough scale to significantly reduce crashes, the insurance industry will face considerable upheaval and have to fundamentally adapt its business model to a much safer driving environment. The regulatory framework for shared-use services and autonomous driving will also evolve. The difficulty will be to provide a sufficiently flexible framework so as to not stifle innovation, but provide certainty for market actors.

New vehicle technologies should not discount road users who only infrequently interact with autonomous vehicles. Pedestrian, cyclist and motorcyclist safety must become part of the DNA of new driving technologies or they will face public and regulatory backlash. ■

## The Panel

Moderator: Conny Czymoch, Journalist

*"Big Data is the fuel of the connected vehicle"*

*"Speed and acceleration are not the only way to define the enjoyability of the driving experience"*



**Andreas Mai**  
Director,  
Smart Connected Vehicles  
Cisco Systems, Inc.



**Jean Todt**  
President,  
Fédération Internationale  
de l'Automobile (FIA)



**Kazuhiro Doi**  
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**Olof Persson**  
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**Bryant Walker Smith**  
Center for Automotive Research  
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University



**Helmut-Joseph Schramm**  
Head of Production  
of Electric Vehicles  
BMW Plant Leipzig, BMW

# Constructing Supply Chains of the Future

Recent years have seen a shift of economic mass to emerging economies. This rebalancing has largely been driven by weak performance of the advanced economies rather than by more domestically oriented development in the emerging economies. As a result, supply chain configurations are becoming increasingly volatile and growth on traditional trade routes such as the North Atlantic is reduced. At the same time, new business models are spurning customer-driven supply chains, leading to the emergence of small distribution centres located closer to customers. The volatility and uncertainties of today's economic environment and expanding global supply chains require coordinated efforts to optimise network configurations and inventories to synchronise global supply and demand.

This session explored the future of supply chains. It examined the effect of changes in the global economic activity on investment and trade flows, and looked at implications for the international freight transport.

Freight transport and logistics are the backbone of international trade. Trade and freight transport performance is a strong determinant of national economic competitiveness. Performance is linked to a number of factors including legislation, international agreements, hauler and shipper performance and technology.

Barriers to trade exist in several stages of the supply chain. Transport infrastructure and logistics are determinant cost factors through their impact on delays. Goods face a series of other cost factors such as lengthy and unpredictable border crossings, corruption, market access restrictions and customs compliance requirements. Higher quality trade logistics, in turn, are positively, significantly and

robustly associated with higher trade levels. A 10% increase in the logistics performance of an exporter can result in up to 70% increase in bilateral imports, according to an OECD study.

The geographical centre of economic activity is gradually shifting to further east and south as a result of GDP growth in Asia. Population and income growth will also affect production and consumption patterns – and international trade and supply chains. Economic growth in emerging regions increases the need to improve freight infrastructure to meet growing trade demands. In the United Arab Emirates, significant port and road infrastructure developments are taking place, doubling national port capacity by 2020. But trade facilitation does not always require investments in hard infrastructure. Soft measures for harmonised technical and market conditions are crucial for linking countries so that infrastructure can serve its trade purpose to the full. For instance, the United Arab Emirates has recently joined the International Road Transport (TIR) convention that provides common customs and border procedures.

More broadly, standardisation of procedures across the supply chains can reduce trade costs as effectively as investments in infrastructure. In Indonesia, the development of a Single Window customs system enables smoother movement of goods across borders. It combines all customs information, increasing also the transparency and accountability of the customs clearance process.

The role of better information is crucial. Only 20% of actors in the supply chain today have necessary information available to run their businesses effectively. Big Data has a potential to improve the situation by helping to identify areas where interventions are needed. Information can

also help fight corruption through making data transparent for all actors involved.

The logistics industry relies on highly skilled workers. Trade unions, governments and companies need to work together to train a new workforce in logistics. The industry is rapidly changing and the skill set required tomorrow may be very different from today. Skilled labour is an essential element for the success of future supply chains.

As cities grow and become even more important than today, the importance of last mile delivery is reinforced. The first mile is often neglected, however: Around 30% of perishable goods are lost in the first mile due to insufficient infrastructure to deliver essential agricultural products from the fields to the factories.

For sustainable development, carbon savings are needed in the logistics sector. The industry has a vested interest in improving the efficiency of operations as this will result in savings, improving the profitability of the industry. Harmonising the CO<sub>2</sub> emissions reporting will allow better monitoring and benchmarking.

Collaboration and co-optation, for example to optimise loads and reduce empty running of trucks, can have significant impact on the carbon footprint from the logistics sector. Collaboration is needed not only between companies but also between all stakeholders, different jurisdictions and governments to share best practices for sustainable solutions. ■

## The Panel

Moderator: Melinda Crane, Journalist

*"Standardisation is the key for future supply chains"*

*"Big Data is the competitive advantage of the future"*

*"Coordination is easy to say but very difficult to implement"*

*"To us the two most important miles are the first mile and the last mile"*



**Abdulla Bilhaif Al-Nuaimi**  
Minister of Public Works,  
United Arab Emirates



**Dorothee Bär**  
Parliamentary State Secretary,  
Federal Ministry of Transport  
and Digital Infrastructure,  
Germany



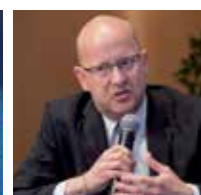
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Vice Minister  
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**Markus Rosemann**  
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**Chris Tyas**  
Group Head of Supply Chains,  
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# Transport Outlook: Scenarios to 2050

The ITF Transport Outlook publication relies on scenario tools developed by ITF economists to examine development of global transport volumes and related CO<sub>2</sub> emissions and health impacts. This analysis is intended to support policy makers in shaping the future of transport policies. The purpose of this workshop, held over lunch on Day 1 of the Summit, was to present preliminary findings and discuss them with interested experts, with a view to further refine the modeling tools.

Global population is forecast to increase to 9.1 billion by 2050, while the share of urban population in total world population will grow from 50% to 70%. With population and economic concentration growing in urban areas, transport policies will be increasingly shaped by solutions in cities.

Economic performance, in turn, evolves along different paths in different parts of the world with potentially large structural changes and impacts on trade volumes and the geographical distribution of trade flows. The OECD estimates that one third of world trade will take place between non-OECD countries by 2050, compared with 15% today. This will have a significant impact on international freight and supply chains.

Global CO<sub>2</sub> emissions from inland passenger and freight transport will grow around 100% by 2050, according to ITF calculations. In developed economies, CO<sub>2</sub> emissions remain at current levels or decline slightly as a result of ageing population, technology improvements and peak demand. Emissions will increase much more in non-OECD economies where most economic and population growth will take place - especially in China and India, where emissions are to rise around 500% by 2050.

A new international freight model, developed by ITF, assesses the impact of changes in future trade flows on international freight. The model builds upon international trade flow projections

up to 2050 developed by the OECD Economics Directorate for 25 different world regions and 25 commodities.

According to new estimates, maritime transport will remain the main mode for international freight transport in 2050. However, road freight is expected to grow significantly (40%) if no alternative infrastructure is introduced. The average haul distance will also increase by nearly 20% as a result of shifts in major trading partners.

Preliminary results suggests that the North Pacific will surpass the North Atlantic as a major trade link by 2050. As a result of increasing trade between Africa and Asia, there will also be a significant increase in freight volume in the Suez Canal and in the Indian Ocean. One of the most significant observations is the growth in inland freight on all continents, especially for intra-Asia and Africa. This has potentially significant negative environmental impacts.

The domestic transport component linked to international freight represents about 10% of the total international trade related freight volume, representing also a significant share of the total freight volume circulating within a countries. All these trends require targeted policies to mitigate the impact this growth in terms of transport externalities while ensuring economic growth.

The Outlook's urban module for passenger transport, developed by the ITF, allows for the creation of long-term policy scenarios and the simulation of related travel, mobility, modal shares, CO<sub>2</sub> emissions, pollution and health impacts. The module is currently being expanded from Latin America to include India and China.

First insights on motorisation trends in India show an importance of two-wheeler vehicles, similar to Southeast Asian countries. In comparison with developed Asian countries, India has reached same level of two-wheeler

motorisation at much lower income stages with no sign of levelling off. For four-wheeler motorisation, data suggests more intensive development than for South Korea. By the time it reaches middle and high income levels, India will have at least as many cars and many more two-wheelers as many other countries.

Indian motorisation trends reflect development in urban centers. Important differences are found both in the intensity and the income threshold at which motorisation grows. The shift from two to four-wheelers also seems to take place at diverse rates in different cities.

The most recent addition to the Outlook's urban model has been the inclusion of pollution and health impacts. The transformation of future transport activity scenarios into pollution and health impacts has been carried out by the International Council for Clean Transportation (ICCT), which was also present in the panel during this session. The results show that the same policies can play out differently, and even in the opposite direction, when looking at different negative impacts of transport activity. In particular, climate and health analysis should not be dissociated and the idea that meeting objectives for one will automatically achieve improvement for the other needs to be abandoned.

The analysis shows that, in the case of Latin America, increasing the share of public transport in urban mobility will only bring significant health benefits if coupled with regulations that assure improvement in the bus technologies used. It also suggests that the growing role of two-wheelers in urban mobility can be positive in terms of CO<sub>2</sub>, congestion and affordable mobility but only if regulated to avoid negative health impacts. ■

## Speakers

Moderator: Stephen Perkins, ITF



**Jari Kauppila**  
Senior Economist,  
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Unit, International Transport  
Forum (ITF)



**Luis Martinez**  
Transport Analyst,  
International Transport Forum  
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**Aimée Aguilar Jaber**  
Economist,  
International Transport Forum  
(ITF)



**Cristiano Façanha**  
Roadmap / Brazil Lead,  
The International Council  
on Clean Transportation  
(ICCT)



# Transport Innovation Talks



## Richard Harris, Xerox Corporation

Richard Harris is Solution Director at the Xerox Corporation, where he has worked on the Merge project, which he presented at the Transport Innovation Talks. Merge is a smart parking system that uses data from meters and street sensors to feed information about parking rates and directions to free spaces to cell phones and navigation systems. It also allows payment by cell phone. Critically, Merge uses smart pricing algorithms to adjust parking rates based on demand, creating an incentive for drivers to use a different mode or to park further away. The need to circle around looking for parking is reduced, less time is lost and congestion reduced. Merge, which has been in operation in downtown Los Angeles since June 2012, was awarded the ITF's 2014 Promising Innovation in Transport Award.



## Carlo Ratti, SENSEable City Laboratory

An architect and engineer by training, Carlo Ratti directs the Senseable City Lab at the Massachusetts Institute of Technology (MIT). He has co-authored over 250 publications, holds several patents and his work has been exhibited at the Venice Biennale, MoMA in New York City and MAXXI in Rome. In 2012, Wired Magazine listed him among '50 people who will change the world'. At the Transport Innovation Talk, Ratti presented several projects. HubCab is an initiative that uses Big Data to unravel the complexity of travel patterns. By connecting billions of data points it establishes how many people want to go the same route and thus the potential 'shareability' of rides. Translated into a transport system based on sharing, 40% less cars would be needed in a city. Combined with autonomous vehicles, 4 out of 5 cars in cities would become superfluous. MIT plans to create the first entirely self-driving community on Sentosa Island off Singapore. Two other projects Ratti presented were the Road Frustration Index (RFI), which uses GPS, cameras and sensors inside the car to quantify and analyse factors that lead to driver stress, and SkyCall, a drone that is linked to a smartphone app and can guide humans to their desired destination, e.g. a particular room on MIT's campus.



## Eric Rodenbeck, Stamen Design

Eric Rodenbeck is the founder of San Francisco based Stamen Design. He has worked at the frontier of data visualisation and interactive mapping since 2001, and his work is in the permanent collection of the Museum of Modern Art in New York. At the Transport Innovation Talks, Rodenbeck focused on how visualisation can extract meaning from data. Data visualisations are often question-generating rather than for answer-providing tools. But they can be used in an exploratory way that generate not just insights, but new kinds of insights. Rodenbeck presented two recent projects: Stamen turned billions of data points representing individual sales on the NASDAQ computerised stock exchange into patterns that reveal how sales robots generate profits from market movements. In another project, Stamen collected data on San Francisco's controversial private transit systems, operated by some Silicon Valley firms for commuting employees and collectively known as "Google bus". As the operators were unwilling to share data about their service, Stamen relied on social media and field workers to identify bus stops, routes, schedules and user numbers. Stamen then created a map which presents the private bus network as if it were a public transport system where transit from, say, the Google bus to the Apple bus were possible – thereby stimulating the public debate about benefits and drawbacks of private versus public transit systems.



## Corey Owens, Uber Technologies

Corey Owens is Head of Global Public Policy at Uber Technologies, a software platform that connects consumers with transport options in more than 80 cities around the world. At the transport Innovation talks, Owens presented the case for using Big Data and technology to enable users to choose personalised forms of mobility that meets their needs and not be tied to using their own car (which is expensive, bad for the environment or not safe, e.g. after drinking alcohol), public transport (which is inflexible and may not be available) and traditional for-hire transportation such as taxis (which may be unreliable and can offer sub-standard service). Uber proposes to use technology to more efficiently match demand and supply, using existing infrastructure – the cars already on the streets and their drivers – by matching them with people who are looking for a quick way from A to B. This is also beneficial for drivers: Data-driven visibility of what happens in the city allows drivers to make seek out new business; security for drivers is also improved because of digital payments. This is also good for government, as the absence of cash makes tax fraud more difficult. Not least, with 40% of traffic circling looking for parking, maximising the use of existing assets can help reduce congestion.

# The Workforce for a New Transport Future

Labour markets around the world are undergoing profound change, including within the transport sector. Growth in jobs has been strongest for skilled professionals. Skill shortages persist across transport sector employment. In ageing societies workers are retiring later. Labour mobility, immigration, and labour market integration contribute significantly to economic growth in many countries, but also present challenges to be managed. The integration of professional female workers has been significant for labour markets; however gender inequalities persist and much potential remains to be unlocked.

This session focused on the challenges to improving skills and opportunities for the transport workforce. Lead questions for discussion included the following: What are the key skills shortages and how can skilled workers be retained in the sector? What actions are most effective in achieving gender balance in transport? What needs to be done now in terms of education and training to prepare for the future? And what will automation in transport operations mean for employment, skills and the safety of workers?

Attracting and retaining workers in the transport sector will require more than training investment programmes and appealing wages. Young people are often discouraged to enter transport jobs by difficult working conditions. For instance, experience in the maritime sector indicates that young people will be attracted if on-board facilitation is provided, e.g. for communication services.

Nevertheless, meeting workforce needs will require significant investment in training to

address existing skill shortages and adapt to the evolution of the sector. Training investments can be provided by different sides of the transport sector. Companies may decide to invest in training to address the specific needs of their activity. However, they would do so only if they are able to seize the return of this investment, by retaining their workers and offering them opportunities to be promoted. UPS invests USD 500 million annually in training and has developed a culture of promotion from within. In Germany, 80% of the management-level staff started from a front-line position.

Where this is not possible, the skill shortage requires government intervention. Canada has implemented a programme of apprenticeships, financed via grants. In the United States, the Obama administration is addressing the problem of the high percentage of retiring transport personnel through the Grow America Act, whereby grants totaling USD 245 million will be provided over the next years for collaboration, registered apprenticeships and incentives.

Across the different transport modes, the labour issue plays out in different ways. In aviation, entry to the profession is highly regulated and based on licensing. The high cost associated with obtaining the necessary licenses used to be covered by the public sector. Today, high training costs have to be assumed either by prospective employees or employers, which discourages employment. Characteristically, a shortage of pilots exists in most regions of the world, with the exception of the United States.

The consequences of inadequate training can be fatal, as the Air France accident on the Rio-Paris route indicates.

In the rail sector, skill requirements were traditionally of a technical nature, but are becoming more and more service-oriented. This implies a shift in focus towards commercial and business competencies. Another important challenge for the rail sector will be to acquire skills demanded by the integration of information technologies.

Structural and cultural barriers can make it difficult for women to embark on a career in transport. Women are often not attracted to these traditionally technical jobs and working conditions in some parts of the transport industry are also not appealing. The challenge is therefore to attract and retain women in a sector that will face increasing labour shortages. Promising initiatives to achieve a better gender balance in the transport sector have been launched. The Women Leadership Development Programme at UPS offers female employees from around the firm to come together and discuss issues of common interest and strengthen connections. In the maritime sector, the obligation to have a dedicated contact person for harassment issues in each company to whom women can refer has been introduced.

The United States and Canada collaboration to create a "Women in Transportation" Task Force within the Asia-Pacific Economic Co-operation (APEC) drew on research evidence suggesting a positive correlation between increased empowerment of women at all levels of the workforce and enhanced economic competitiveness, growth and sustainability. ■

## The Panel

Moderator: Conny Czymoch, Journalist

*"Untapped talent is found in two pools of candidates: the youngest demographic and women"*

*"We have to showcase why transportation is a great opportunity"*

*"Our 'secret sauce' is our people"*



**Lisa Raitt**  
Minister of Transport,  
Canada



**Eduardo Chagas**  
General Secretary,  
European Transport  
Workers' Federation  
(ETF)



**Jean-Pierre Loubinoux**  
Director General,  
International Union  
of Railways  
(UITC)



**Daniel Azéma**  
Director of Cabinet  
of the Secretary-General,  
International Civil Aviation  
Organization  
(ICAO)



**Susan Kurland**  
Assistant Secretary  
for Aviation and  
International Affairs,  
U.S. Department of  
Transportation



**Cindy Miller**  
President Europe,  
United Parcel Service  
(UPS)

# Towards Better Use of Existing Infrastructure

The usage of transport infrastructure is characterised by periods of excess capacity punctuated by peaks of excess demand. Even when demand is at its highest, transport systems could conceivably carry many more people and goods, however, they are constrained by their ability to absorb more vehicles.

Given the difficulty in expanding existing infrastructure or financing new infrastructure, how can authorities and the private sector maximise the efficiency of existing infrastructure? Regulatory frameworks may help or hinder the optimisation of transport system capacity and will need to be flexible to allow innovative use of existing infrastructure. Existing infrastructure may need to be repurposed for other uses as well – under what conditions might this happen and what is good practice?

In a context of data availability issues, regulatory challenges, and uncertain technology developments in the future, this session considered tools to improve the efficiency and sustainability of infrastructure as well as metrics and guiding principles that can help authorities harness the potential for more efficient use of infrastructure. Panelists discussed how governments and the private sector are preparing to meet changing infrastructure needs and what scope there is for repurposing existing infrastructure.

Infrastructure expansion is not the only option to increase mobility possibilities. The current economic crisis may limit available budgets for new infrastructure as well as the ability of users to pay for it. Also, space is limited especially in

large agglomerations and in countries with high population density. There is room to enhance the use of existing infrastructure, but such improvements are connected to certain preconditions, such as the availability of data on infrastructure, traffic and user behavior.

Smartphones, tablets and navigation systems reveal the movements and preferences of users and make such data on traffic and transport demand available, and in real time. But there are ethical, practical, and regulatory issues related to sharing and use of this data. Generational change might make the question of privacy less controversial in the future, since younger people already accept sharing data through social networks.

The greater availability of data gives rise to a host of new possibilities with regard to better use of existing infrastructure while their implementation requires coordinated efforts from several actors. Connected vehicles will allow autonomous or cooperative driving, such as the Dutch automated vehicle initiative in which cooperative driving is combined with autonomously driven vehicles. This equips the driver with a broader overview of choices, increases safety and the capacity of existing transport connections. Additionally, interaction of the vehicle with infrastructure enables options like smart parking. In the freight sector, vehicle technology allows for example for optimising routing, improving fuel efficiency and increasing capacity by platooning of vehicles.

Active traffic management provides another application for data-driven infrastructure optimisation. Innovative solutions such as the use of hard shoulder for cars at the most

congested times in the United Kingdom can significantly improve the capacity of the existing road infrastructure. In the United States, a highway 'zipper' system allows the change of the traffic regime on a highway under traffic with the use of a movable barrier.

The increased availability of real-time data on user behaviour also allows the development of new strategies, aimed at influencing user preferences with the goal of directing them 'off the peak'. In the Netherlands, for example, more than 300 interrelated measures have been put in place in cities and regions with the goal of reducing peak hour traffic jams by 20%. These measures include tax incentives, e-bike campaigns and options for flexible working. Financial support through the project is temporary, but about 40 % of users keep their behaviour after the support stops.

Maintaining the service level of the existing infrastructure is also an essential ingredient of better use. Political and budgetary constraints can interfere with an optimal level of maintenance. In this context, concession agreements or Public-Private Partnerships can help lock in the expected performance of infrastructure, especially when the capacity of existing infrastructure is almost reached, and possibilities for further expansion are limited.

Dynamic congestion or user pricing can help in improving the utilisation of infrastructure but is politically challenging. When using this approach, it is important to provide alternative choices for the users to reduce consequences in terms of social inequality. ■

## The Panel

Moderator: Elisif Elvinsdottir, Journalist

*"We haven't given enough thought to how the digital revolution will change the public's travel behaviour"*

*"Road pricing is clearly the future. In some parts of the US parking is priced differently on different sides of the road. That's how granular it gets"*

*"People who live in cities know the problems and know how to handle problems"*

*"It has been demonstrated that economically viable projects have been socially accepted"*



**Patrick McLoughlin**  
Secretary of State for Transport, UK



**Sérgio Monteiro**  
Secretary of State of Infrastructure, Transport and Communications Portugal



**Scott Belcher**  
President and CEO, ITS America



**Rick Parod**  
President and CEO, Lindsay Corporation



**Jan-Bert Dijkstra**  
Programme Director, "Optimising Use", Ministry of Infrastructure and the Environment, The Netherlands



**Fadi Selwan**  
Executive Vice President, VINCI Concessions

# Creating Liveable Cities in a Changing Urban Landscape

**W**ith growing population and economic concentration in urban areas, cities are increasingly shaping quality of life. The World Health Organization reports that currently more than half of all people live in an urban area, and this is forecast to reach 60% by 2030. One in ten city dwellers lives in conurbations of over 10 million people but this is changing rapidly. Urban transport policy will determine how well cities balance rising demand for mobility with promoting equitable, inclusive and sustainable economic growth. This session examined the challenges of developing urban transport policies that will support these objectives while dealing with change on a scale never previously experienced. Lead questions included: How is the increasing importance of cities shaping national transport policies and investment? What policies are needed to optimise transport’s environmental, safety and health impacts in cities? How far can congestion be managed with limited new infrastructure provision and what congestion management models have proved effective? How can transport policy be successfully integrated into urban planning, land-use, housing policy and how can cities be designed to minimise the need for motorised transport?

Urbanisation offers important opportunities for economic development when coupled with the creation of a framework for urban life that can encourage the good interactions that density and connection allow whilst limiting the bad. To do so cities need to use different tactics during the two main phases of their growth: In the early phase when most of

their growth comes from increases in the built area, a good framework defines and protects a generous allocation of public space that will eventually be used to build the arteries of the transport and utility systems. In the later phase of intensive growth, a good framework ensures that the public surface space, which becomes relatively scarce, is not allocated to low-value uses.

Important implications are that densification strategies should not overlook the need to allocate adequate public space for pedestrian and motorised access. Failing to do this will constrain good planning options later on and limit the ability to change the function of public spaces to cater for changing demands. Failure to allocate public space proactively as cities expand is disastrous as the unplanned will become the de facto and the land use patterns that result will be irreversible.

Achieving efficient use of road space is an important role for transport policies. In this respect, as cities around the world have grown and developed two things have become clear: As levels of private motorisation increase and road space becomes scarce, congestion levels make it unsustainable to maintain free access to roads. Restrictions to private mobility, however, need to be coupled with improvements in public services and opportunities to use non-motorised modes so that urban transport systems can meet the growing mobility demands.

Various cities around the world have now introduced some kind of road charge for private vehicles. For example, London and

more recently Milan have implemented charging schemes that have proven effective in reducing congestion levels. Milan managed to exit the list of the ten most congested cities in the world after implementing this policy. In Moscow, the introduction of parking charges of just 1 euro per hour has made it possible to reduce congestion in the city center by 20%.

In the case of London, the implementation of congestion charging has been coupled with important expansions and improvements in bus and rail services, in order to provide the population with high quality alternatives to using cars. In Moscow, parking policies have been accompanied by park and ride facilities that allow cars to be left outside the city center and other modes of transport to be used inside this area. In Milan, a second phase of the congestion charge system will be to reconvert the public space taken from private mobility into new pedestrian areas.

In Mexico City some changes in the prioritisation of public space have been put into effect with the construction of the Metrobus system. This comprises five lines of protected bus lanes for high volume service, accompanied by the introduction of bicycle lanes and pedestrian streets in some areas of the city. However, the administration recognises significant changes still need to be made since in the current configuration private vehicles account for 30% of trips while occupying 90% of the road and pavement space. The objective set is to completely reverse the pattern and assign

## The Panel

Moderator: Melinda Crane, Journalist

*"I don't believe in this mad Silicon Valley model where everyone moves about in automated cars. Public transport is the backbone for access in cities"*

*"Freedom is not the right to own a car but access to a range of choices in how to get around the city"*



**Ketil Solvik-Olsen**  
Minister of Transport and Communications, Norway



**Peter Hendy**  
Commissioner, Transport for London, UK and President, UITP



**Cristián Bowen**  
Vice Minister of Transport, Ministry of Transport and Telecommunications, Chile



**Helle Søholt**  
Founding Partner, CEO, Gehl Architects



**Rufino León Tovar**  
Minister of Transport and Roads, Mexico City



**Pierfrancesco Maran**  
Deputy Mayor, Mobility, Environment, Subways, Public Water, Energy City of Milan



**Evgeny Adamov**, Deputy Head, Department for Transport and Road Infrastructure Development, City of Moscow

priorities in the following order: pedestrians, bicycles, public transport, delivery vehicles, and last, private road vehicles. The package of policies includes integrating tickets for public transport, reorganisation of the street space according to mode priorities, expansion of public transport services and transforming the transport culture to achieve healthier interactions between citizens.

All these changes call for rethinking allocation of limited public funds in a way that corresponds to the policy objectives of shifting priorities between modes. The government of Norway, for example, considers that in order to limit congestion, public investments will have to be made to ensure that a large share of the growing transport demand in urban centers – experiencing historically high levels of population growth – are met by public transport, cycling and walking. The government has guaranteed the funding of public transport by providing state investment subsidies that cover 50% of the costs of expansion. Similarly, the City of Milan will be using cross-subsidies to allocate funds collected from congestion charging for investment in subway lines and a bike system.

Changing perceptions of rights is very challenging when it comes to transforming pricing structures, the reallocation of public space and the re-prioritisation of public funds between transport modes. Effective communication strategies highlighting the benefits, and including meaningful public consultation, are vital for political acceptance

of these policies and projects. In Milan, the introduction of congestion charging was preceded by a positive referendum vote. In Moscow, the acceptance of the policy was increased by concessions including parking spaces for city center residents. An important part of ensuring the success of a project is to communicate to the public quick wins in its early stages.

The government of Chile now puts particular stress on considering transport user opinions to come up with better tailored solutions. The Ministry of Transport and Telecommunications has a User's Division that conducts citizen dialogues and quality of public transport studies. Gehl Architects, who have advised a range of city planners around the world, among them Mexico City and Moscow, stress the need to produce and use people-centred data. Their approach focuses on the wishes and needs of users in designing public space to provide access in the city. The case of Copenhagen is a good example of how this methodology has made it physically and politically feasible to turn a car dominated city into one with large shares of pedestrian and bicycle mobility.

Finally, efficient urban freight is an important element not only for enhancing urban competitiveness but often a matter of national and international capacity to meet demand for goods without unacceptable environmental impacts. The Mexico City government has worked with the local chambers of commerce to establish better designed schedules for deliveries in the

city and has allocated some routes that are exclusive for this purpose. In the newly approved mobility law for Mexico City there is particular stress on the improvement of last-mile delivery, to be carried out by light vehicles with clean technologies. ■

# Shaping Transport for a New Energy Future

Transport energy consumption is changing rapidly. In 1970 transport accounted for 45% of world oil consumption; today the figure is 62% and demand has doubled to 2.2 billion tonnes of oil equivalent (toe) per year. In advanced economies, transport accounts for 94% of oil consumption. Substitution with other energy carriers has begun, with over 90 000 pure electric vehicles sold in 2013 worldwide. Oil accounts for just over a third of CO<sub>2</sub> emissions from combustion. If climate change targets are to be met the transport sector will have to decarbonise radically; the European Commission has set a target of reducing CO<sub>2</sub> emissions 60% by 2050, with no more conventionally-fuelled cars to be used in cities. Meeting such targets will require continued rapid improvement in the fuel economy of conventional vehicles and development of large markets for alternative vehicles, along with a parallel shift to carbon-free production of electricity, hydrogen and other alternative energy carriers.

This session considered the prospects for development of commercial markets for electric vehicles, the potential for hydrogen and other alternative energy carriers and those policy interventions most likely to unlock transport from an unsustainable energy future in a context of uncertain economic growth, uncertain fuel prices and uncertain technology costs.

CO<sub>2</sub> emissions from combustion need to be stabilised around the year 2020 if the 2 degree global warming ceiling targeted by the IPCC is to be respected, but are set to rise 70% by

2040 according to the International Energy Agency (IEA). Meeting the 2 degree goal is still possible, but the longer mitigation of emissions is delayed the more difficult it will be.

Improving the efficiency of the energy system as a whole is the most important part of the response, and moderating demand will make it more feasible for renewable energy sources to meet demand. Improving the efficiency of conventional vehicles will make the biggest emissions reductions in the transport sector in the short and medium term. The Global Fuel Economy Initiative (GFEI), in which both IEA and ITF participate, targets a 50% improvement for new vehicles worldwide by 2050, simply by maximising the deployment of technologies already developed.

Electric vehicles, both battery-electric and fuel cell powered vehicles and a spectrum of hybridisation, will be a major part of the long term response. In many countries the development of the market for battery-driven electric vehicles has been slower than anticipated, but nevertheless more rapid than the take-off of hybrid cars in their early days. Where battery-electric car systems have been successful it was decisive government intervention that made the difference. Ireland has prioritised the charging network and now has public stations in every town and every 60 km along highways. Estonia has double this coverage. The electricity grid coverage is extensive in most countries so this is neither particularly difficult nor expensive; in Germany 900 stations would be needed for network coverage every 60 km at an estimated cost of only EUR 44 million.

Estimates for the incremental electricity demand from complete electrification of the transport sector range from just 3% of current demand in Norway to 20% in Ireland, depending on the structure of supply and demand and assumptions on how and when vehicles are charged. This would be an annual increase of 2% at the high end during the transition if all charging occurs in peak demand periods. If all charging was done off peak there would be no additional demand and downward pressure on electricity prices as better network optimisation would be possible with more evenly spread demand.

In Norway the Nissan Leaf battery electric car has been the top seller among all cars consistently since mid-2013, and the all-electric Tesla is the top selling luxury car. While fragmented and unpredictable incentives are a barrier to electric mobility in many other places, the Norwegian government has provided stable tax incentives over a long period, with electric vehicles exempt from value-added tax and registration tax. Other incentives are also provided, including free bridge and tunnel tolls and permission to use bus lanes in congested traffic. Special "EL" number plates make electric vehicles visible and have also enhanced consumer perceptions of the viability of owning an electric car. The large range of attractive electric vehicles now on sale, which look like the conventional vehicles they compete with, has also been a chief factor.

Electric car sharing schemes have played an important role in changing perceptions and behaviour with regard to electric vehicles in

## The Panel

Moderator: Conny Czymoch, Journalist

*"Government has to create an integrated framework for a sustainable energy system, not just regulate each little bit"*

*"It now seems entirely possible that more or less the entire fleet of passenger cars could turn electric in Norwegian cities"*

*"It was government deciding it needed to be done that made the difference for electric cars"*



**Klaus Bonhoff**  
Managing Director (Chair),  
NOW GmbH



**Didier Houssin**  
Director, Directorate of  
Sustainable Energy Policy  
and Technology,  
International Energy Agency



**Gunnar Lindberg**  
Managing Director,  
Norwegian Institute  
of Transport Economics



**Bertrand Piccard**  
Initiator and Pilot,  
Solar Impulse



**Senan McGrath**  
Chief Technology Officer,  
Electricity Supply Board  
(ESB), Ireland

other markets, starting with France. Electric scooters are also an important part of the clean mobility system, for air quality as well as CO<sub>2</sub>, as demand for two-wheelers has the potential to explode in rapidly developing economies as well as in developed cities where car use is constrained.

Detailed research from Norway reveals the pattern of electric vehicle ownership. Early adopters were clustered around bus lanes and tolled infrastructure, revealing the importance of free use as an incentive. It has since spread to the point where these incentives could probably be removed, while the basic tax exemptions remain essential to the competitiveness of electric cars in the Norwegian market.

A range of technology options are likely to be needed to achieve a zero emission fleet. Hydrogen fuel cells offer additional power and on-board storage, particularly useful in buses and trucks and for addressing range issues. Hydrogen refueling in just three minutes is possible with the latest technology, and the storage potential of hydrogen - for use in industry as well as in transport - can be valuable in balancing electricity systems dependent on intermittent renewable power generation; electrolysis can relieve stress on the grid.

Other storage options can also be surprisingly effective, including thermal storage in glycol or mineral salts. Dallas airport, for example, buys off-peak electricity to cool glycol which is used during the day to run the entire air-conditioning system of the airport with zero

CO<sub>2</sub> emissions as the off-peak electricity is generated by nuclear power.

Decarbonising electricity production is a key priority. With 100% coal-fired power production electric cars produce around 130 gCO<sub>2</sub>/km and are bettered by efficient petrol and diesel cars. Norway has the advantage of close to 100% hydropower production but even with average European electricity, electric cars produce only about 70 gCO<sub>2</sub>/km on a 'well to wheels' basis.

Pioneers will make much faster progress than we expect on electric cars, e-planes and other transport innovations. Governments are likely to be slower to create the regulatory framework needed and need to be pushed if they are not only to react to crises. ■

# Sustainable Transport for All:

## Planning for Greener and More Inclusive Transport

Providing sustainable transport for all will require innovation in technology, in planning, in management and in the way we use data. The purpose of transport systems is to connect people to each other and to opportunities for business, work and leisure. For low income groups, transport to work can consume a significant proportion of earnings, making transport supply an important component of public policies to enhance equal opportunity. In cities, integrated land use and transport planning is critical to facilitating access to workplaces, services and housing. Street design determines ease of access on foot and by bicycle, modes used by the great majority of trips at least for the first and final legs of the end-to-end journey. Mass transit systems are essential to the functioning of large cities, and affordability has to be reconciled with sustainable funding.

This session examined how transport can provide more equal social opportunities, how to put the user experience at the centre of transport planning and to do so by providing more sustainable transport solutions.

Revolutionary innovation requires ideas from outside. The first people to believe in the idea to fly a solar-powered plane around the world were not from aviation. The carbon fibre for the Solar Impulse 2 plane, which gives it the weight of a car despite the wingspan of a jumbo jet, was developed by a shipbuilder.

The perhaps best electric car today was invented by an internet entrepreneur, Elon Musk, founder of Tesla.

While the technologies to shift to renewable energy are advancing, political leadership is needed to get them to market. Emphasising big problems that require massive investment and broad coalitions leads to inaction. Shifting focus from protecting the environment to protecting humankind and stressing growth based on sustainable technologies works better. Showcasing what can be achieved with existing technologies through projects like Solar Impulse can foster a pioneering spirit and act as a catalyst.

The challenge of urban motorisation requires a pragmatic regulatory approach, such as combining CO<sub>2</sub> emissions standards with low-emission zones. Innovative concepts for last-mile freight delivery are needed, built on cooperation between the public and private sectors.

The management and planning of transport systems has relied on historical data. The availability of real-time data creates new opportunities for traffic management, controlling goods movement, managing parking and improving road safety. Real-time data can help use infrastructure more efficiently, but it also presents privacy challenges. Policy-makers can support innovators by establishing frameworks that makes big data publicly available for new

services whilst protecting personal data. Business experience shows that regulation is enacted when industry-driven innovations are brought to market. Governments should actively foster private-sector innovation, ensuring that regulation enables rather than prevents innovations reaching the market and by providing subsidies that will mobilise private capital.

Combatting climate change requires a holistic approach. Bringing the ministries of transport, energy and industry together and setting specific targets top-down can activate investment by addressing the current lack of coordination and reducing risk.

21<sup>st</sup> century challenges require a switch in thinking from mobility to accessibility. To ensure inclusiveness and social equality, transport should be seen in terms of providing access. The phenomenal urbanisation in rapidly developing countries calls for transport systems which safeguard access to employment and services for people living on the periphery. At the same time, rural access remains vital and consultation is important in order to identify peoples' needs and devise solutions.

Yet planning has focused on the notion that poor populations live on the periphery. This is not necessarily the case: In Delhi in India, slums are hidden in the central parts of the city, precisely because this provides affordable access – by walking or cycling –

### The Panel

Moderator: Elisif Elvinsdottir, Journalist

*"Pioneering spirit means daring to throw away old beliefs and habits; it wasn't people selling candles that invented the light bulb"*

*"Mass transit is the essential backbone for accessibility in rapidly developing cities"*

*"We badly need governments world-wide to take measures to limit CO<sub>2</sub> emissions. If governments are useful for something, they are useful for that, for creating the regulatory framework we need"*

*"We have to start of thinking transport in terms of providing accessibility and that is what really leads to more inclusive and sustainable transport"*



**Bertrand Piccard**  
Initiator and Pilot,  
Solar Impulse



**Tyrrell Duncan**  
Director,  
East Asia Transport Division  
Asian Development Bank



**Vincent Kobesen**  
CEO,  
PTV Group



**Jean-Dominique Senard**  
CEO,  
Michelin Group



**Anders Brännström**  
Chairman of the Board,  
Volvo Research and  
Educational Foundations  
(VREF)



**Geetam Tiwari**  
MoUD Chair and Professor for  
Transport Planning,  
Department of Civil Engineering  
Indian Institute of Technology Delhi



to employment. Experience with self-organising systems indicates that this is optimal, necessitating a re-consideration of transport planning in line with peoples' actual choices, and thus planning for mixed development.

Banks tend to finance mass transit systems which generate revenue streams, rather than infrastructure projects for pedestrians or cyclists. To counter this bias, new indicators for valuing infrastructure should be developed. The role of governments in giving priority to inclusive projects is of central importance.

Focusing on access, sustainability and inclusive transport renders discussion of how to reduce car congestion obsolete. For instance, dedicated bus lanes provide high volume, low cost transport but increase congestion when they take road space. Yet the increase is temporary as travel patterns adjust and secondary to the primary goal of improving access. ■

# Open Ministerial Session



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*The Transport Transformation: Innovations that are Changing Transport and How Policy Needs to Respond*

# Ministers on Transport for a Changing World

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|---|---|---|---------------------|
| <b>Declaration from Ministers on Transport for a Changing World</b> | <b>Open Ministerial Session: The Transport Transformation</b> | <b>Ministers' Roundtables on Rail Competition, Airport Expansion and Mega-ships</b> | <b>Family photo</b> |
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# Declaration

## from Ministers on **Transport for a Changing World**

Global transformational change is a characteristic of our age. Demographic trends including ageing of societies in many mature economies and a growing share of younger people in a number of developing and emerging countries is altering the population profile of nations and of global society. Massive urbanisation is concentrating economic activity in rapidly expanding urban regions around the world. Major trade flow changes are reconfiguring supply chains throughout the world. Climate change and issues related to fuel supply remain significant policy challenges. New technologies and digitalisation are creating previously unthought-of possibilities. These and other megatrends are impacting the mobility of goods and people in ways that need to be understood today in order to shape responses that will remain valid in a changing world.

While adapting to these global economic and societal phenomena, transport itself is also a driver of change, as innovation in the sector opens new frontiers. In this way, transport is itself defining new landscapes of opportunity for a greener and more inclusive economy and society.

In this environment of transformation, policy-makers are facing greater levels of uncertainty in decision making, with the speed, nature, intensity and timing of change in recent years occurring beyond what has been expected. Further, with increasing interdependencies of countries and regions, the global effects of policy decisions must be considered. The reality of governing in this interconnected world requires greater emphasis on international and regional cooperation as well as information sharing, and suggests that policy makers should work together more effectively to adopt common policy responses.

We, the Ministers responsible for transport in the member countries of the International Transport Forum, met in Leipzig, Germany on 21-23 May 2014 for our Annual Summit under the theme of "Transport for a Changing World", to seek mutual understanding of the global trends that impact transport policy, and to align our responses to those challenges.

With this our common perspective and working in partnership with all transport sector stakeholders, we:

- **recognise** the importance of creating a transport policy environment that not only accommodates change emerging from these global economic and societal megatrends, but also enables the transport sector to innovate in ways that promote green and inclusive growth;
- **affirm** the need to invest in capacity-building to better inform decision-making; and
- **renew** our commitment to pursue transport policies that contribute to economic resilience and growth, environmental protection and social inclusion and foster innovation in our changing world.

### Recalling:

- the Key Messages for Ministers from the 2008 Summit on *Transport and Energy: The Challenge of Climate Change*<sup>1</sup>;
- the Key Ministerial Messages from the 2009 Summit on *Transport for a Global Economy: Challenges and Opportunities in the Downturn*<sup>2</sup>;
- the Key Messages from the 2010 Summit on *Transport and Innovation: Unleashing the Potential*<sup>3</sup>; and
- the Key Messages from 2011 Summit on *Transport for Society*<sup>4</sup> as well as
- the ongoing development of a set of global Sustainable Development Goals within the United Nations Rio+20 process, highlighting transport as an important component of the post-2015 agenda.

<sup>1</sup> Ministers made reference to Key Messages for Ministers from 2008 Summit on *Transport and Energy: The Challenge of Climate Change*

<sup>2</sup> Ministers made reference to Key Ministerial Messages from 2009 Summit on *Transport for a Global Economy: Challenges and Opportunities in the Downturn*

<sup>3</sup> Ministers made reference to Key Messages from the 2010 Forum on *Transport and Innovation: Unleashing the Potential*

<sup>4</sup> Ministers made reference to Key Messages from 2011 Summit on *Transport for Society*

### Adapting to Changing Demography and Lifestyle

#### We:

- **note** the significant impact on demand for access and mobility brought about by a rising world population - with ageing societies in many countries and larger shares of youth in others. With this in mind,
- **recognise** that transport users are becoming more diverse in both lifestyle and mobility choice. To more clearly ascertain how transport should adapt to this diversity, we encourage better monitoring and assessment of the impacts of these socio-demographic trends on mobility behaviour and demand.
- **re-iterate** the importance of effective cooperation among all levels of authority to ensure that transport systems in cities and regions provide access to services and amenities and mobility solutions for the rapidly expanding populations in urban areas around the world.
- **reaffirm** our commitment to systematic consideration of the safety and accessibility of older and disabled people in all transport and land use policies and planning.
- **are mindful** of the challenges to the transport sector workforce in relation to skill needs and availability as well as gender inequalities, and remain committed to develop and implement policies that promote skill formation in the transport workforce and equity in employment opportunities throughout the sector.

### Maximising Value from a Shifting Economic Balance

#### We:

- **acknowledge** the impact on supply chains of shifting economic balance and resulting global trade flows, as well as the need to adjust transport operations and infrastructure to those changes.

# nging World

- **affirm** that trade and freight transport performance are strong determinants of national economic competitiveness, and improving logistics performance is a core element of this.
- **recognise** that the volatility and uncertainties of today's economic environment and expanding, ever-more complex global supply chains require coordinated efforts to optimise network efficiency and reliability.
- **support** initiatives that focus on creating more efficient and effective supply chains and help to ensure seamless and free movement of goods. In this respect,
- **encourage** better cooperation among transport modes to enhance intermodality and optimise use of available network capacity.
- **re-affirm** the need for integrated border management processes to reduce delays and simplify customs procedures, as well as for coordinated risk-based approaches to customs and security inspections among countries to expedite border-crossing.

## Combatting Climate Change and Meeting Energy Needs

### We:

- **recognise** the persistent challenge to transport policy that climate change presents, in spite of focused efforts in many countries to reduce transport's contribution to greenhouse gas emissions and CO<sub>2</sub> in particular.
- **reiterate** that if greenhouse gas emission targets are to be met, the transport sector will have to pursue significant decarbonisation. Meeting such targets requires a strategic policy approach – within and across modes, with emphasis on environmentally friendly modes and at all appropriate levels of government – to significantly improve energy efficiency and reduce transport-related carbon emissions.

- **underline** that many carbon-reduction policies have strong co-benefits in terms of the reduction of harmful levels of air pollution, enhanced health, improved road safety, congestion mitigation and more reliable transport system performance, as well as economic growth through advances in technology and productivity improvements.
- **re-affirm** the need for an integrated package of transport and fiscal measures, including support for technological innovation, to continue to improve the fuel economy of conventional vehicles and development of large markets for alternative vehicles, along with a parallel shift to carbon-free production of electricity, hydrogen and other alternative energy carriers. In this context,
- **re-emphasise** the role that transport demand management – alongside the promotion of traditional and innovative forms of collective transport, walking and cycling, and better integration of land use and transport planning – can play in reducing energy consumption and mitigating transport-related carbon emissions.
- **commit** to pursue efforts for adaptation to adverse impacts of climate change, while persisting with energy efficiency and carbon mitigation initiatives.
- **acknowledge** the importance of international negotiations underway in relation to combatting climate change.
- **take note** of the increasing evidence of extreme weather events and the potential impacts of a changing climate on transport systems around the world. With these in mind, we highlight the risk to the safety and security of our citizens and investments if vulnerabilities in transport systems are left unaddressed.
- **encourage** countries to increase their resilience against extreme weather by identifying and assessing potential risks and opportunities, sharing good practice and considering climate change risk and uncertainty in planning and decision-making.

## Harnessing New Technologies

### We:

- **welcome** the benefits to transport brought by advances in Intelligent Transportation Systems (ITS) and Information and Communications Technologies (ICT), particularly in terms of enhanced connectivity, productivity, accessibility, safety and security, and environmental performance, and affirm that these new technologies can significantly improve the overall performance of the transport sector.
- **recognise** the importance of harnessing the potential provided by ITS and ICT to enable more effective use of current infrastructure and transport services, better inform decision-making by producers and consumers of transport services, and encourage behavioural change.
- **underline** the need to put in place strong and transparent privacy safeguards for personal data.
- **promote** further research into ground-breaking technologies to improve energy efficiency, reduce air emissions, and improve safety.
- **encourage** international partnerships and collaboration with industry and civil society and on national and global levels to evaluate and demonstrate the effects of these new technologies while optimising resources and sharing good practice.
- **call** for development as appropriate of international standards for implementing new technologies alongside agreed safety and privacy protocols, and remain committed to their development in recognised international transport organisations.



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# Open Ministerial Session

## The Transport Transformation: Innovations that are Changing Transport and How Policy Needs to Respond

This Ministerial meeting, held in open session, focused on three lead questions: How is industry initiative transforming transport? How is the mobile world converging with mobility? And what are the key policy challenges of keeping pace with this changing world? The Open Ministerial included perspectives from three private sector leaders representing the automotive industry, ITS and railways.

Innovation is transforming the world of transport literally under our very feet. The subject of the means of transport is changing as innovative transport solutions are implemented, such as autonomous driving vehicles. With ever more data available, individual decision-making possibilities in transport are expanding, putting the power to decide on how and when to get from A to B into the hands of transport users, but also providing policy makers with previously unavailable information and tools to support their decision making.

Olof Persson, President and CEO of AB Volvo, emphasised the central importance of Information and Communication Technology for the future of transport. "Most transport systems today are efficient in theory", Persson said, "but many are not utilised to their full potential." This is where IT offers huge opportunities. Persson showcased examples of vehicle platooning and full electrification of public transport, noting that in both cases a strong and close cooperation between policy makers and private sector was required, notably with respect to pilot projects. This co-operation, to Persson,

has four important dimensions: First, it has to be taken into account that transport networks usually involve infrastructure, which is in the public domain. ICT solutions in the vehicles only cannot be utilised to full potential if smart infrastructure is not introduced in parallel.

**"As a symbol of human civilisation, transport never ceases to innovate"**

**Guang Xu,  
Chief Engineer of the Ministry  
of Transport, China**

Second, consistency and stability in policy making is a crucial element in the viability of the private sector's innovation business case. Third, the regulatory framework needs to keep track with the developments in the technology. Moreover it has to be sufficiently flexible to allow the introduction of innovations without requiring too much adjustment of the regulatory framework. Finally, while customised solutions are possible, the global harmonisation of technical and other standards is a necessary ingredient for a global success story with regard to transforming transport. It is here that the role of political leaders is most important.

The optimisation of the transport system through the use of IT in vehicles and infrastructure could reach even higher levels by having access to and using real time traffic data. Today, it is already possible to create predictive models of congestion based on real-time models, such as weather forecast, for days or even a week ahead, noted Bryan Mistele, President and CEO of INRIX, Inc. With big data becoming available in real time, it is now possible to look at traffic information globally and correlate it with other factors. For instance, there is multiplier link between GDP growth and congestion, with a 2% growth of GDP correlating to 6% growth in congestion and vice versa.

"Traffic congestion is a leading economic indicator. Hedge funds buy our data to predict economic activity," explained Mistele. An expansion of data-driven solutions, which need no specific a priori regulatory framework or government support since they follow demand, is subject to 'data democratisation', i.e. the pooling and sharing of transport data, for instance between the public and private sector. Mistele acknowledged privacy concerns are a potential issue but expressed his conviction that these can be overcome by ensuring anonymity and using aggregated data.

Congestion will become an even more relevant topic than it is today, given the expected scenarios on urbanisation over the next decades. Latin America is a prominent example of this megatrend, with about 80% of the population expected to be living in cities in the next decades. In this context, Lutz Bertling, Chief Operating Officer and



# The Transport Transformation: Innovations that are Changing Transport and How Policy Needs to Respond

Open Ministerial Session

President of Bombardier Transportation pinpointed two important aspects which influence the spreading of new technology: Countries looking for new transport solutions should focus on defining the problem and let the private sector offer the best solution – often, this is not the case. “If you ask for a metro, what you will get is a metro”, he cautioned. “Don’t specify the solution, specify the problem.” And in the tendering phase, the selection criteria employed by governments should shift from the current focus on acquisition price to broader criteria that also consider life-cycle costing and even the total cost of ownership.



**Guang Xu,**  
Chief Engineer  
of the Ministry  
of Transport,  
China

Guang Xu, Chief Engineer of China’s Ministry of Transport reported that his country had accelerated transport reform in recent years, since China is confronted with challenges ranging from environmental degradation, exhaustion of natural resources, rapid urbanisation, and traffic congestion to air pollution. With the transport sector being an important driver of development, there is increased pressure for its further

## “It is essential that we continue this dialogue because it opens new perspectives.”

**Frédéric Cu villier,**  
Secretary of State for Transport, France

transformation and upgrading. For the Chinese government, scientific innovation is the central strategy to reach this objective. There have been great achievements in areas such as building infrastructure, introduction of new energy vehicles or improved transport management integrating ITS and multimodal transport.

As an emerging economy with a rapid pace of advancement, China anticipates availing itself of the excellent platform the International Transport Forum offers to strengthen co-operation, draw on advanced experiences from other countries, accelerate innovation and promote the transformation of its transport sector. The government has identified smart, green and safe transport as the current and future development goal. Now efforts focus on deepening the implementation of this innovation-driven development and accelerating scientific innovation capacity. “We need to identify and intensify scientific innovation by promoting integrated transport systems, enhancing transport infrastructure modernity, building low-carbon transport systems, promoting modern logistics systems and improving

safety and emergency response capacity”, said Xu, concluding that “as a symbol of human civilization, transport sector never ceases to innovate.”



**Nikolay Asaul,**  
Deputy Minister  
of Transport,  
Russia

Russia’s Deputy Minister for Transport, Nikolay Asaul elaborated on the theme of better use of data as a common thread running through the presentations from the business leaders. “We could reduce congestion by up to 10% on the basis of good information only”, he noted. “The public transport systems need to become more convenient.”



**Olof Persson,**  
President and CEO of AB Volvo

### Volvo

The Volvo Group manufactures trucks, buses, construction equipment and marine and industrial engines. It also provides financing and services. Volvo Group employs c. 110 000 people, has production facilities in 19 countries and sells in 190 markets. Net sales in 2013 amounted to c. SEK 273 billion (EUR 30.3 bn). The Volvo Group is a publicly-held company headquartered in Göteborg, Sweden, and led by President and CEO Olof Persson.



**Bryan Mistele,**  
President and CEO of INRIX, Inc.

### INRIX, Inc

A leading provider of traffic information, INRIX is helping people more easily navigate their world. The company collects and aggregates traffic-related information from nearly 100 million vehicles, covering 1 million miles of roads in North America and 1 million kilometers in 28 European countries. Customers include Ford, Toyota, Microsoft, MapQuest, Navigon and ADAC. INRIX is led by President and CEO, Bryan Mistele.



Russia as the bridge between Europe, the Pacific and China is expected to play a growing role in world transport as haulage operators try to optimise their logistics chains. In this context, the North-East Passage in the Arctic, the shortest maritime route between Europe and China promises to offer increased efficiencies. The route from Shanghai to Hamburg through the Arctic is 6 400 km shorter than through the Suez Canal and the Strait of Malacca, reducing travel time by up to 30 days. In view of a fuel consumption of ocean vessels of up to 60 tonnes of fuel a day, the economic benefits can be considerable.

Russia is maintaining a fleet of ice breakers to keep the Northern Sea Route open and in 2013 a total of 619 vessels used the arctic passage. Russia has developed its version of the Global Positioning System, called GLONASS, for use on this route and in December 2013 launched an emergency system for ship accidents based on GLONASS. This system has proven in a number of pilot projects to be compatible with European e-call system and it can increase efficiency and safety significantly.

Morocco's Deputy Minister of Equipment, Transport and Logistics Mohamed Najib Boulif pointed out that it is not always easy from a political point of view to get support for new technology from the electorate. "The companies that drive innovation need to give [politicians] arguments that we can use in our conversations with the end users so they understand it is to the benefit of society and their own benefit when we introduce a new form of transport."



Mohamed Najib Boulif, Deputy Minister of Transport, Morocco

Policy-makers are also often in a paradoxical situation where the different modes compete with each other, rather than seeking complementarity and optimal balance. Regarding the funding of projects, public money must be spent wisely and it is not always obvious how to set up funding in a way that supports the development aspect of transport investments while also giving the supplier a bottom line.

Reacting to Vice-Minister Boulif's intervention, ITF Secretary-General José Viegas noted that regarding competition versus complementarity, both are needed to provide choice: "Whenever you provide a single option, too many people will feel left out." But this also entails the challenge to include economic and regulatory signals which induce people to choose in a way that individual preferences align with societal interests. Regarding the economic impact of transport investment, Viegas, while agreeing with Lutz Bertling's suggestion to consider the total cost of ownership, suggested going beyond that and considering economic impact in a way that includes an evaluation of indirect and

catalytic effects. Methods for doing this exist and provide not perfect information but "a reasonably good perspective of the choices."



Frédéric Cuvillier, Secretary of State for Transport, Maritime Affairs and Fisheries, France

In conclusion, Secretary of State Frédéric Cuvillier for the outgoing Presidency of France stressed the importance of meetings like the Annual Summit: "It is essential that we continue this dialogue because it opens up new perspectives." ■



Lutz Bertling, Chief Operating Officer and President of Bombardier Transportation

## Bombardier Transportation

Bombardier Transportation is a global leader in the rail industry, covering the full spectrum of rail solutions from complete trains to sub-systems, maintenance services, system integration and signaling. Led by President and Chief Operating Officer Lutz Bertling, Bombardier Transportation employs 38 500 people at 63 production and engineering sites in 26 countries and 19 service centres across the world. The rolling stock installed by Bombardier exceeds 100 000 rail cars and locomotives worldwide.

# Ministers' Roundtables

The Ministers' Roundtables are designed to allow Transport Ministers and other political representatives to have direct dialogue with key transport players from industry and international organisations. They are confidential, non-public discussions within an intimate room setting allowing open and dynamic conversation. Three Ministers' Roundtables were held during the International Transport Forum's 2014 Summit on Transport for a Changing World.



# Competition in Rail Transport

**A**t this Ministers' Roundtable on the first Day of the 2014 Summit, elected officials from around the world engaged in a frank discussion of issues centering on competition within the rail sector with leaders from the rail industry: What competition is suitable for rail transport? How can competition in the rail market be introduced, taking country-specific circumstances into account? And how can greater competitiveness in tendering processes be encouraged and what strategies can be put in place to deter the exercise of market power and anti-competitive behavior - while also deterring cherry-picking in public transport? Finally, how can competition be better measured and monitored? And does competition help to create a workplace that is attractive to qualified rail workers?

Background to this exchange of views was provided to the Fourth Rail Package proposed by the European Commission in 2013. This supports introducing and encouraging open competition in domestic rail markets for both passenger and freight, as well as international and domestic services. The package's aim is to create more accessible rail markets for qualified operators and enhanced services and other benefits for rail users. Yet it is also encountering some difficulties at political level to ensure non-discriminatory market access.

Many countries have tried to establish mechanisms for introducing competition in rail to vitalise the market and increase efficiency. Competition takes different forms in different countries: rail competition based on the principle of vertical separation between infrastructure management and transport operation enables

different rail operators to compete against each other "in the market". Horizontal competition between alternative routes or adjacent markets takes place in markets, while still maintaining vertical integration, if there is sufficiently strong demand.

Competitive tendering is often used to introduce 'competition for the market'; however, it is challenging to design and execute this well. Some countries retain a monopoly system, perhaps with a desire to achieve economies of scale and/or to ensure stable operation without extra transaction costs. Policies might have to be developed differently, both for passenger and freight services, if competition takes a different form. De facto, rail is a natural monopoly, entailing extremely high fixed costs which can hinder market entry and exit. ■



## Participants

Moderator: Michael Portillo, Journalist

Left to right: **Henry Posner III**, Chairman, Railroad Development Corporation – **Hyung-ku Yeo**, Vice Minister for Transport, Korea – **František Palko**, First State Secretary, Ministry of Transport, Construction and Regional Development, Slovakia – **Michael Robson**, Former Secretary General of European Rail Infrastructure Managers and Managing Director, Robsons' International Railway Consultancy – **Lisa Raitt**, Minister of Transport, Canada – **Mohamed Najib Boulif**, Deputy Minister of Transport, Ministry of Equipment, Transport and Logistics, Morocco – **Lutz Bertling**, President and Chief Operating Officer, Bombardier Transportation – **Valentin Gapanovich**, Senior Vice President, JSC Russian Railways – **Jean-Pierre Loubinoux**, Director General, International Union of Railways (UIC) – **Michael Portillo**, Broadcaster and Journalist, former Member of Parliament and UK Minister for Transport (moderator) – **Jean-Marc Janailac**, President and CEO, Transdev. Not pictured: **Bambang Susantono**, Vice Minister of Transportation, Indonesia



## Expanding Airport Capacity

**T**his Ministers' Roundtable convened Ministers and sector leaders to review international experience in reconciling planning and environmental constraints with demand for airport capacity and the potential benefits in terms of productivity and growth from developing international airline services.

Air traffic demand is steadily on the rise and forecasted to increase even further. At the same time, airport congestion calls for optimising the use of airport capacity and, where necessary, for airport expansion. Nevertheless, expanding airport capacity in large metropolitan areas is challenging: community agreements on noise constrain growth at existing airports; land prices can be prohibitive for relocating airports; most new sites require extensive investment in surface transport links to city centres; in multi-airport regions, options for expansion at the airports are to an extent interdependent, complicating assessment of whether to build new runways.

Many major airports are hubs for network carriers at the same time as serving a large local market. The complementarity between these functions may be a prerequisite for viable network operations, suggesting that distributing services over multiple airports instead of expanding the main hub would be costly. Hub airports and their network carriers often compete with hubs in neighbouring regions. The strategies of network carriers and potential new entrants to this part of the market need to be taken into account in assessing future demand for airport capacity. The requirements of low-cost and other point-to-point carriers are equally important, but different.

Against this background, the Ministers' Roundtable explored to what extent and in what ways optimising airport capacity could help alleviate the problem of airport congestion and what benefits for airport capacity can be expected of programmes such as SESAR in Europe and Next Gen in the

United States. Another focus was the best way to establish optimal capacity allocation for, and complementarity of, airports in regions with several airports. Last but not least, Ministers and industry representatives reflected on how authorities can reconcile the various stakeholders' conflicting interests in the best possible way. ■

### Further reading:

Expanding Airport Capacity in Large Urban Areas. ITF Roundtable Report 153 (April 2014)

Available via [www.internationaltransportforum.org/jtrc/aviation](http://www.internationaltransportforum.org/jtrc/aviation)

### Participants

Moderator: Pat Cox, Journalist

Left to right: **Katherina Reiche**, Parliamentary State Secretary, Federal Ministry of Transport and Digital Infrastructure, Germany – **Hyung-ku Yeo**, Vice Minister for Transport, Korea – **Patrick McLoughlin**, Secretary of State for Transport, UK – **Bambang Susantono**, Vice Minister of Transportation, Indonesia – **Temel Kotil**, CEO, Turkish Airlines and President, Association of European Airlines – **Marc-André O'Rourke**, Executive Director, National Airlines Council of Canada – **Thomas Woldbye**, CEO, Copenhagen Airports – **Pat Cox**, Journalist and former President of the European Parliament (moderator) – **Angel Gurría**, Secretary-General, OECD – **Maksym Burbak**, Minister of Infrastructure, Ukraine – **Daniel Azéma**, Director of the Cabinet of the Secretary-General, International Civil Aviation Organization (ICAO) – **Magnus Heunicke**, Minister for Transport, Denmark – **Tuck Yew Lui**, Minister for Transport, Singapore – **Young Ung Kim**, Vice President, Incheon International Airport, Korea – **Anjijs Matiss**, Minister of Transport, Latvia. Not pictured: **Lisa Raitt**, Minister of Transport, Canada – **Susan Kurland**, Assistant Secretary for Aviation and International Affairs, U.S. Department of Transportation – **Abdulla Bilhaif Al-Nuaimi**, Minister of Public Works, United Arab Emirates (UAE) – **Gerry Brownlee**, Minister of Transport, New Zealand

# Mega-ships and their Impact on Port Development and Safety

The size of vessels has steadily increased since containerisation was first introduced in the 1950s. Container vessels are larger than ever before, and container trade routes and services are changing in response. Major work on global maritime infrastructure, such as the Panama Canal, has already been initiated in response to this trend, and may have impacts on global trade patterns and maritime strategy in many countries. On a global scale, the transport network has grown in complexity and interconnectedness, and the arrival of larger container vessels on trunk routes will have a cascading effect on secondary routes which must absorb the displaced shipping capacity.

The emergence of mega-ships requires governments to respond in several ways. The arrival of mega-ships in ports will generate larger and more concentrated flows of containers in ports and their hinterland. As bigger ships are introduced (mostly for

container vessels and cruise ships), risks of various natures are more than proportionally increased; along with specific safety, security and rescue concerns, insurance coverage is also becoming problematic. Currently more than 10 000 containers are lost overboard each year: due to their size, the difficulty of securing the load is increased for mega-ships, and lost containers raise safety issues for smaller vessels. Pollution hazards also increase as, for example, gigantic vessels carry larger quantities of fuel.

In this context, the Ministers' Roundtable on mega-ships and their impact, held on Day 2 of the 2014 Summit explored what long-term approaches should be considered in relation to promoting sound policies at port level - regarding port strategies including port capacity expansion and competition, coordination efforts with ship operations and hinterland transport, and the roles of various other actors. Participants also discussed

safety and security concerns raised by the size of mega-ships. Recent shipwrecks show that some structural weaknesses may also affect new vessels. Are self-regulation and careful monitoring of the vessels' maintenance sufficient? What policies and regulatory interventions are needed and how can they be made complementary - for example, in regard to crew training, speed reduction in certain zones and container weight monitoring. Finally, what opportunities exist to improve existing Flag Ship practices?

#### Further reading:

Port Investment and Container Shipping Markets: Roundtable Summary and Conclusions (ITF Discussion Paper, March 2014)

Available via [www.internationaltransportforum.org/jtrc/maritime](http://www.internationaltransportforum.org/jtrc/maritime)



#### Participants

Moderator: Pat Cox, Journalist

Left to right: **Marco Simonetti**, Vice President Maritime Terminals, Contship Italia Group – **Ketil Solvik-Olsen**, Minister of Transport and Communications, Norway – **Susumu Naruse**, Secretary-General, International Association of Ports and Harbors (IAPH) – **Jürgen Wüpper**, Permanent Representative, Orient Overseas Container Line Ltd (OOCL), Germany – **Pat Cox**, Journalist and former President of the European Parliament (moderator) – **Dorota Pyć**, Undersecretary of State, Ministry of Infrastructure and Development, Poland – **Frédéric Cuvillier**, Secretary of State for Transport, Maritime Affairs and Fisheries, France – **Paolo Costa**, President, Venice Port Authority – **Denis Choumert**, Chairman, European Shippers Council Organisation – **Ryuji Masuno**, Vice-Minister for International Affairs, Ministry of Land, Infrastructure, Transport and Tourism, Japan – **Esben Poulsen**, Vice Chairman, International Chamber of Shipping (ICS) and Executive Chairman, Enesol Pte. Ltd., Singapore





1. Marlies AMANN-MARXER, Minister of Infrastructure, Environment and Sport, Liechtenstein; 2. Miran SEČKI, Slovenia; 3. Susan KURLAND, United States; 4. Anrijs MATISS, Minister of Transport, Latvia; 5. Lisa RAITT, Minister of Transport, Canada; 6. Patrick McLOUGHLIN, Secretary of State for Transport, UK; 7. Magnus HEUNICKE, Minister for Transport, Denmark; 8. Alexander DOBRINDT, Federal Minister of Transport and Digital Infrastructure, Germany; 9. José VIEGAS, Secretary-General, International Transport Forum; 10. Frédéric CUVILLIER, Secretary of State for Transport, Maritime Affairs and Fisheries, France; 11. Gerry BROWNLEE, Minister of Transport, New Zealand; 12. Doris LEUTHARD, Federal Councillor for the Environment, Transport, Energy and Communications, Switzerland; 13. Sérgio MONTEIRO, Secretary of State, Portugal; 14. Maksym BURBAK, Minister of Infrastructure, Ukraine; 15. Ketil SOLVIK-OLSEN, Minister of Transport and Communications, Norway; 16. Jassim Seif Ahmed AL SULAITI, Minister for Road and Transportation, Qatar; 17. Lüfti ELVAN, Minister of Transport, Maritime and Communication, Turkey; 18. Dorothee BÄR, Parliamentary State Secretary, Germany; 19. Valérie VERZELE, Belgium; 20. Nikolay ASAUL, Deputy Minister, Russia; 21. Abdulla Bilhaif AL-NUAIMI, Minister of Public Works, UAE; 22. Sigurbergur BJORNSSON, Iceland; 23. Ryuji MASUNO, Vice Minister, Japan; 24. Vladislav KONDRATOVIČ, Vice Minister, Lithuania; 25. Carlos ALMADA LOPEZ, Undersecretary, Mexico; 26. Eva MOLNAR, UNECE; 27. Bambang SUSANTONO, Vice Minister, Indonesia; 28. Karel DOBEŠ, Deputy Minister, Czech Republic; 29. Dorota PYĆ, Undersecretary of State, Poland; 30. Edmond HAXHINASTO, Minister of Transportation and Infrastructure, Albania; 31. Mohamed Najib BOULIF, Deputy Minister, Morocco; 32. Cristián BOWEN, Vice Minister, Chile; 33. José Luis IRIGOYEN, World Bank; 34. Hyung-ku YEO, Vice Minister, Korea; 35. Amarjargal GANSUKH, Minister for Road and Transportation, Mongolia; 36. Evgeni ROGACHEV, First Deputy Minister, Belarus; 37. Ziya Arzuman MAMMADOV, Minister of Transport, Azerbaijan; 38. Vasile BOTNARI, Minister of Transport and Road Infrastructure, Moldova; 39. Minna KIVIMÄKI, Finland; 40. Joaquín DEL MORAL, Spain; 41. Lutz BERTLING, President and COO, Bombardier Transportation; 42. Olaf PERSSON, President and CEO, AB Volvo; 43. Vincent KOBESSEN, CEO, PTV Group; 44. Jan-Bert DIJKSTRA, Netherlands; 45. Hans BRÄNDSTRÖM, Sweden; 46. Tom O'MAHONY, Ireland; 47. Joseph CALLUS, Malta; 48. Guy STAUS, Luxembourg; 49. Ebsen POULSSON, ICS; 50. Enrico FINOCCHI, Italy; 51. Gilbert KONZETT, KAPSCH TRAFFICOM AG; 52. Anti MOPPEL, Estonia; 53. Patrick OLIVA, Michelin; 54. Guang XU, China; 55. Pierre FILLET, Total; 56. Pat COX, Moderator; 57. Umberto DE PRETTO, IRU; 58. Marc JUHEL, World Bank; 59. Sungwong LEE, KOTI; 60. Henry POSNER III, Railroad Development Corporation; 61. Jean-Pierre LOUBINOX, UIC; 62. Paulo COSTA, Venice Port Authority; 63. Libor LOCHMAN, CER; 64. Bryan MISTELE, INRIX

# Speakers' List

**Evgeny Adamov,**

Deputy Head,  
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Infrastructure Development,  
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**Aimée Aguilar Jaber,**

Economist,  
International Transport Forum (ITF)

**Nikolay Asaul,**

Deputy Minister of Transport,  
Russia

**Abdulla Bilhaif Al-Nuaimi,**

Minister of Public Works,  
United Arab Emirates

**Francesc Aragall,**

President,  
Design for All Foundation,  
Spain

**Daniel Azéma,**

Director of the Cabinet of the  
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Civil Aviation Organization (ICAO)

**Dorothee Bär,**

Parliamentary State Secretary,  
Federal Ministry of Transport  
and Digital Infrastructure,  
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**Scott Belcher,**

President and CEO,  
ITS America, United States

**Lutz Bertling,**

President and COO,  
Bombardier Transportation,  
Germany

**Klaus Bonhoff,**

Managing Director,  
National Organisation Hydrogen  
and Fuel Cell Technology (NOW),  
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**Mohamed Najib Boulif,**

Deputy Minister of Transport,  
Ministry of Equipment,  
Transport and Logistics,  
Morocco

**Cristián Bowen,**

Vice Minister of Transport,  
Ministry of Transport and  
Telecommunications,  
Chile

**Anders Brännström,**

Chairman,  
Volvo Research and Educational  
Foundations (VREF),  
Sweden

**Gerry Brownlee,**

Minister of Transport,  
New Zealand

**Maksym Burbak,**

Minister of Infrastructure,  
Ukraine

**Eduardo Chagas,**

General Secretary,  
European Transport Workers'  
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**Denis Choumert,**

Chairman,  
European Shippers' Council  
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**Paolo Costa,**

President,  
Venice Port Authority,  
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**Pat Cox,**

Moderator, Journalist and former  
President of the European  
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**Melinda Crane,**

Moderator, Chief Political  
Correspondent, Deutsche Welle-TV

**Mary Crass,**

Moderator, Head of Policy and  
Summit Preparation, International  
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**Philippe Crist,**

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**Frédéric Cuvillier,**

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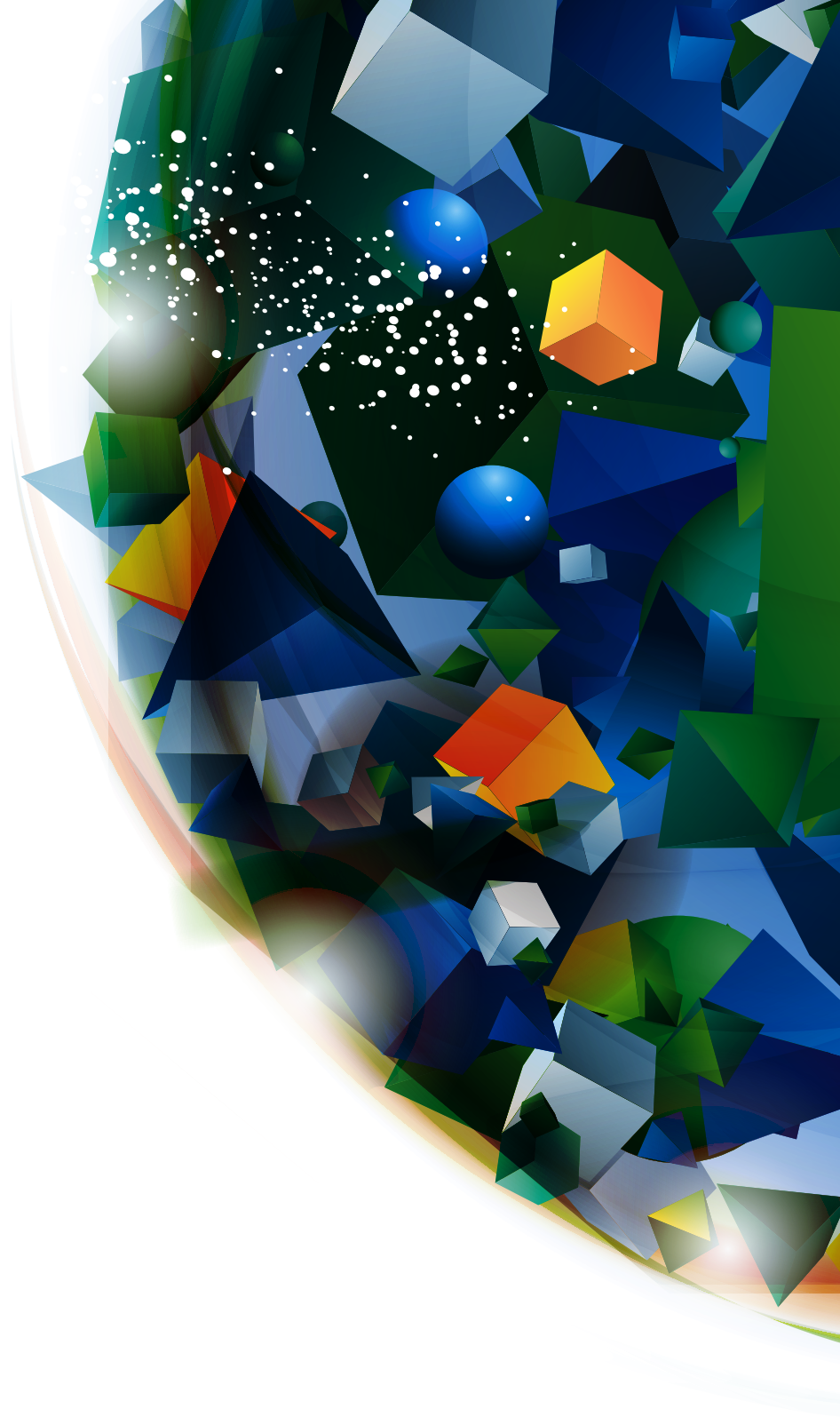
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