

## **CORE 2018**

### **Speech by Jean-Pierre Loubinoux, UIC Director General**

Dear Colleagues, Dear Friends,

It is a real pleasure and honour for me to be part of this CORE Conference, which I understand is the most important rail technology conference in your country. I really enjoyed taking part yesterday in some of the discussions and tomorrow we will have our own workshop more specially focused on the topic of signalling and telecom issues.

UIC is really proud to be part of the Australian rail industry and has had consistent membership over the past 20 years, in fact since CORE was created.

We have also organised a number of events here – notably the Asset Management Conference in 2017 and in 2013 the World Congress for Rail Research.

I must also say that I'm very impressed with the level of rail investment taking place in Australia – probably more intra-urban than inter-urban for the time being, but I can refer to Sydney Metro in particular which is a major leap in mobility for the city.

Melbourne is also proceeding with large investments with the creation of the Melbourne metro and the level crossing removal programme and I understand from what was decided in Melbourne from the budget that you have a positive sign that other regions will follow.

Brisbane is also undertaking a major investment in the cross-river rail and I'm sure that Perth is well on its way as well.

All these investments represent major challenges and opportunities and although they are using Communications-based train control (CBTC) I'm sure that there are a number of UIC standards that are specified for the structures and operation maintenance that you use daily.

With such massive programmes ahead the industry is really of course well placed and of course access to international expertise in the rail community should be of great assistance.

So let me again try to highlight some of the challenges and opportunities for rail as we see from UIC's point of view:

UIC in a few figures: created in 1922 after the First World War had destroyed all the European infrastructure but created with the aim of interoperability between countries and with a global worldwide approach and already 50 founding members.

Today, UIC has over 210 members, including Australia, covering over 100 countries, representing one million km of infrastructure, 10,000 billion tonne km, 3000 billion passenger km and in particular seven million men and woman dedicated to the mobility of the seven billion people on earth.

We have three values, three pillars of philosophy and three principles.  
The values are: Unity, Solidarity, Universality.

Three pillars of philosophy: Share, Open, Connect

Three principles guiding our actions for the rail operating community: Professionalism, Productivity and Promotion

Primarily we are a technical platform, working in five key areas: Innovation, Standardisation, Transmission of Knowledge, Dissemination, and Strategy & Vision.

This is in conjunction with 200 ongoing projects with the publication of IRSs – International Railway Solutions (of which we have 700) which are voluntary standards used every day by railways around the world.

We also believe that we cannot work alone which is why we have signed over 80 partnership agreements or Memoranda of Understanding with organisations such as the UN, the World Bank, the International Monetary Fund, the Asian Development Bank, the European Bank of Investment, as well as standardisation bodies such as ISO (International Organisation for Standardisation) and IEC (International Electrotechnical Commission).

Our approach to rail is that of an integrated system. I can illustrate it by referring to the “Vitruvian man” by Leonardo da Vinci. In our vision of an integrated vision, the arms in the painting can be compared to the infrastructure and rolling stock (they “sustain” the system), the legs are infrastructure, the heart is the signalling system regulating the blood, the head is the human capital. And all together in a circle you have the system which symbolises the harmony of a political vision.

Beyond being a technical platform, UIC is also an observatory of political and geographical evolution. If transport is by definition the mobility of goods and people, is it evidently a vector of economy and GDP. It can then be a factor of stability and hopefully, peace.

There is one major change that we see happening in this 21st century in the area of semantics. You may have noticed in your daily conversations that we no longer talk about transport, we talk about mobility. And sometimes we don’t even talk about mobility any more, we talk about accessibility. The UN’s definition of transport is precisely “sustainable accessibility”. Similarly, with interoperability – the main reason why UIC was created over 100 years ago. We don’t speak of interoperability any more, we speak of intermodality, which became optimodality, and now the word is modal integration, which goes beyond our own sector.

As a geopolitical observatory, what we see in the world today is not very encouraging. A number of these factors could impede rail development: instability in the Middle-East, which is at a crossroads between east and west routes; uncertainty in Egypt which is the link with the Suez Canal and between the Mediterranean and the Indian Ocean; crisis in West Africa, the spread of terrorism; tensions in Russia, Ukraine, Europe, Chinese ambitions, financial crisis over the last 10 years. All this is leading to geographical fragmentation, political diversity, economic disintegration and national illusion.

This could limit or stop rail developing and the opposite is happening. Why? Because rail is the interoperable link between regions and countries. Rail covers long distances and has a high level of investment with a long-term return on investment. Rail needs a stable space and time matrix.

But to quote Louis Armand, former CEO of UIC, who said “Rail will survive the 20th century to become the mode of transport of the 21st century.”

Rail is indeed a survivor. Going back to the industrial revolution in the 19th century when rail survived thanks to the Stephenson’s steam engine, the metallic structures of Eiffel; it survived the oil crisis revolution thanks to electrification and then high-speed technology – and later on the information technology revolution.

And now in the 21st century we are in what the American economist Jeremy Rifkin is calling the Digital Revolution. We will of course survive because we are smart, automated and sustainable! We will also survive because we have some fundamental values: safety, safety, safety – as well as capacity, sustainability, high speed, heavy haul, research and development, we generate GDP and job creation wherever we grow.

To take one example in the US – when following the 1929 crisis President Roosevelt developed the inter-state highway plan in the 1930s. Then during the crisis in 2010 President Obama developed the inter-state high railways (the Job Act) – which seems to be continuing. In California alone the high-speed project – in which UIC is a peer review consultant – will create 70,000 jobs over the next 20 years.

Many other developments are planned around the world, many backed by financial institutions which have signed MoUs with UIC. We have the GCC project in the Gulf States, projects in Turkey, Africa, Russia, Argentina, Australia and many more. This is the anticipation that is needed for the expected growth that is needed for higher levels of mobility.

Indeed at world level growth is expected. If you just follow the OECD forecasts for 2050 there is reason to be optimistic. Freight, mobility, all modes together will increase their traffic fourfold, with longer distances by approximately 15%, with a shift from the North Atlantic to the North Pacific, with intra-continental growth in Africa by seven, in South-East Asia by four. In the passenger business the expected increase is 50% with a boom on intra-urban mobility – as two billion people will be urbanised in the next 10 years.

In developing countries, the deficit in urban infrastructure is equivalent to 6% of their GDP and the real investment is half a per cent so you can measure the needs and the gaps that need to be filled. In comparison in Europe it is 1%, in Japan it is 2% and obviously with the projects that I mentioned in my opening words it is growing fast in Australia.

So what is at stake here is crucial and we need to adjust more quickly and together, taking into account five essential factors: social and economic challenges, environmental constraints, modal integration, management of interfaces between intra-city and inter-city mobility and higher expectations from a rapidly changing market.

All of this is not just words but is sustained by figures – again if you follow the OECD market research and expectations the investments by 2050 will be at around 11 trillion dollars. All this at world level is not incredible, but what is unprecedented is that rail will represent 40% of this investment, which is approximately five trillion dollars in the next decades, and this will be spent on the renovation of older infrastructure inherited from our forefathers, the construction of new links, high speed projects (of which there are currently 12), the

management of greater capacity and completing the missing links to create long-haul corridors between continents.

The two main drivers will be optimal management of capacity, and sustainable development. Indeed, rail is a less polluting mode of transport, and based on the COP figures the transport sector represents almost 25% of CO<sub>2</sub> emissions; however rail itself only represents 1%. And by 2050 CO<sub>2</sub> emissions are predicted to grow by 300%. So rail is a fundamental piece of the sustainable development goals puzzle.

So a new transport mix is needed with a vision of logistics chains for accessibility, with rail as the backbone in a new social and economic business model. I refer to it using the acronym SICICoM: Sustainable, Integrated, Connected, International Chain of Mobility.

Let us now focus more on rail. Even if in the short term the perspectives for rail are not so brilliant especially for freight in Europe, but in the long-term at world level freight rail traffic will increase by eight and passenger traffic by 12, which means an average growth of 2 – 3% per year and this is sustained by the investment forecast in the manufacturing industry who anticipate a development in their rolling stock of 4%.

What therefore are our main challenges and opportunities? I can see five.

The first is: Complementarity

There is not enough space, money or time to continue the modal competition as we have seen in the last part of the 20th century. Logistics chains are prevailing and stations or freight hubs are the new key interfaces between road, air and maritime routes.

UIC is organising a number of major global conferences on high-speed, signalling, freight, heavy haul, and this is one of our constant messages: we must integrate our modes to better serve our markets.

Two: Corridors – east-west and north-south

In Europe some of you may know of the Ten-T network, which was originally invented by UIC and developed by its members and the European Commission and there are new ones under consideration.

There are others in the world – you have no doubt heard of the Trans-Siberian, the OBOR – One Belt One Road, which is the new Silk Roads (including rail) between eastern and western markets.

Trade between east and west represents around 1000 billion dollars a year; however rail's market share represents just 1%, so there is tremendous potential for rail to link east and west in less than 15 days compared to the 35 or 45 days it takes by ship. Of course we will not replace the shipping liners with our even longer trains, but there is growth there for all the markets and for rail capacity to link these markets more quickly and especially for high value goods which have stock value in transport.

Other corridors include the Saudi Land Bridge, linking the Red Sea to Egypt and the Mediterranean. In Africa it has started in Djibouti but is planned to go as far as Dakar. In Spain there will be a link from the Atlantic to the Mediterranean. And there are a number in South America, in Argentina and Brazil.

Number three: We must be an actor of the digital revolution

In the next 15 years digitalisation will probably add around 10 to 15 trillion dollars to global GDP. So the challenges for us are through the Internet of Things, artificial or augmented intelligence, block chains, big data. And we have to improve our productivity, security and services. This will be done through information, ticketing, predictable maintenance, satellite tracking, new signalling and telecom equipment – and I will say more tomorrow about GSM-R, the Future Radio Mobile Communications System, which is a world standard. With this new connectivity all these areas will perform better, with customers becoming actors and vectors of their changes.

Number four: Sustainable Development and the challenges for rail

Even though rail is already quite sustainable, a few years ago we signed a global declaration with our members with the quantified objective of reducing by 50% the volume of CO2 emissions and to increase by 50% the capacity of electrification and therefore to reduce energy consumption and make it cleaner. Also to double the market share, which means shifting from road to rail where it is more relevant.

We have now gone beyond the stage of mitigation. We are not at the stage of adaptation and need to build more resilient systems of transport. Remember: road congestion costs 1% of GDP in North America, 2% in Europe. Remember that 3.5 million people die from pollution every year, and all the added benefits from our products combined between UIC and UITP are equivalent to 100 trillion dollars of savings compared to business as usual.

So this is actually a virtuous circle of investment for rail for those who doubt their return on investment. The economies saved by the development of rail greatly surpass the level of investment needed for the mobility of goods and people.

That is something I keep repeating to financial institutions and that is one reason why they have increased their railway departments and why they are asking UIC to help them benchmark the possibility of developing railway projects around the world.

Number five: Boosting research

There are a number of research programmes in Europe and there is one developed by the European Commission called Shift2Rail investing one billion euros in rail projects. UIC has a research programme called the International Rail Research Board (IRRB) and here the collaboration with research centres and universities is very important and I'm happy to mention here that we are partners with ACRI and soon with RIT so thank you for being a platform of dissemination for research for the whole sector.

The main objectives of these five challenges are to double infrastructure capacity, increase by 50% the viability of rolling stock equipment, and to decrease by 50% life cycle costs.

To cut a long story short, all this must come under a vision and I will try to summarise this vision into a study that we have developed with the United Nations and it consists of five "I"s, five "C"s and five "c"s. The strategy is the five "I"s. The first is *Infrastructure*. There is no mobility without infrastructure. The Romans invented it and we are continuing to do the same. Infrastructure is the key to mobility. The second "I": rail infrastructure needs

*Investment.* According to current studies, the current level of investment is not enough to sustain the expected growth of the economy at world level – it should be doubled.

Third “I”: good investments need good *Innovation* and here we have to work – not only work within ourselves as we have done over the last two centuries but we need to open the pyramid and work more closely with other sources of creativity and rapid creativity. These are the start-ups which can even find money through crowd-sourcing and fundraising.

Innovation needs *Intelligence*. Intelligence is not just us any more – we can transmit what we have learned. Intelligence is the younger generation in universities. We have to help the development within the universities of MBAs in rail transport – which is not to be considered as the loose cannon but also as the backbone of future mobility for maybe not them but their children; because as you know any rail project spans three generations.

And finally the last “I” which you are probably expecting: *Integration*. Now all strategies need a plan of action. This is the five big “C”s. The first C is the *Client*: they are the drivers and what we do is for them. The second C, which is very topical in this 21st century is the *City*, or smart cities as they are commonly called in conferences. In these growing cities there isn’t just one centre but many centres – where do we put our centres of gravity for intra-urban and inter-urban mobility. When we have done this we need the fourth “C” between the centres: *Corridors* – corridors of mobility to increase capacity. And then you have to do this with the fifth “C” which is *Complementarity*.

Now all this in a digital context and now here come my five small “c”s. In this world of big data we need to *collect* them, then *correct* them, then *connect* them, then *communicate* with them, and then the fifth “c” which is probably the most important of my speech which is that with all of this we need to *create*.

As we always have to keep some dreams in our hopes I will dream that even with artificial intelligence all around, human minds and actions will always be stronger than any other system – whether it be technical, economic, political or ideological.

And let us remember that beyond our own sector of activity and industry that – and as I said two billion people on earth will be urbanised in the next 10 years; that two billion people on earth have no access to any mode of transport, to go to university, to hospital, to buy or sell what they need. And two billion people on earth live with less than one dollar a day – in a world which will have another two billion people in the next 10 or 20 years. In this world where already today one billion of them have no access to water or electricity.

So let us dream together that we can modestly contribute to improve social and economic growth around the world with our “SICICoM” approach (Sustainable, Integrated, Connected, International Chain of Mobility) and our concern that the future will only be what we make of it and if we can remember the lessons that the past has taught us.

Thank you for your kind attention.