

## Plenary Session 2

### Contribution of Railway Suppliers to Elevating the Value of Railways



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# Skills Agenda Key to Supply Chain Success

The second Plenary Session at the 2019 World Congress on Railway Research focused on the role the supply industry could play in ensuring development of a customer-focused global railway sector.

Organised by Japan's Railway Technical Research Institute as part of the 2019 edition of WCRR, the second Plenary Session of the congress brought together a globally diverse representation of the rail supply sector. Represented were two of the largest players in global rolling stock production, CRRC and Siemens Mobility, along with the multidisciplinary Hitachi Rail – the former Ansaldo businesses – and Amsted Rail, representing the North American private railroad sector. The domestic Japanese supply industry was represented by J-TREC.

The panel was brought together primarily to address six core questions over the course of just over an hour. These were:

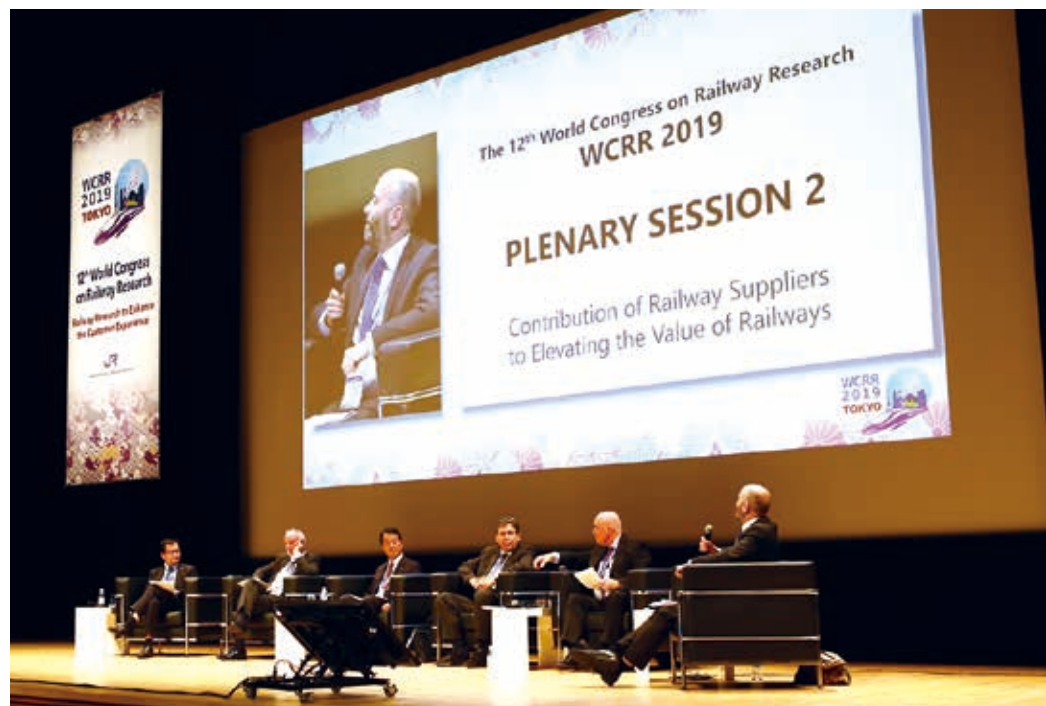
- The cost of railway investment
- Whole-life maintenance of railway assets
- Commercialising research-driven rail innovation
- Small businesses in the rail supply chain
- Consolidation and competition among suppliers
- Mitigating the skills crisis

The first of these topics focused on the need for the supply industry to produce

commercially viable products at an effective price, in recognition of the fact that – with the exception of North America – most global rail spending is at least partly dependent on the provision of public funding. Takao Nishiyama, Executive Vice-President of J-TREC, suggested that in the Japanese market at least, it was difficult to

have truly low-cost rail vehicle production because all orders were essentially 'made to measure', in stark contrast to the heavily modular approach to modern automotive production for example.

Ding Sansan, Vice Chief Engineer at CRRC Qingdao Sifang, argued that the upfront





**Jay Monaco**  
Amsted Rail, USA



**Jürgen Schlaht**  
Siemens, Germany



**Takao Nishiyama**  
J-TREC, Japan



**Maurizio Manfellotto**  
Hitachi Rail, Italy



**Ding Sansan**  
CRRC, China

cost of railway equipment was only a narrow means by which to understand the importance of railway investment. Instead, he suggested that the role of the supply industry should be seen in the wider context of the role railways play in the social and economic development of the country, pointing to China's vast investment in high speed rail over the past two decades as an example. 'We cannot just think of short term benefits of one engineering project', he added.

Turning to the question of the rise of whole life cost analysis in understanding

the true cost of a product, Jay Monaco, Vice President of Global Engineering at Amsted Rail, felt that developing true life-cycle cost-based procurement was 'difficult to achieve', because 'there are still competing budgets, competing departments that are looking to meet different objectives, even if they are in the same company. It's even more difficult, which we face in North America, when we have operators, owners and lessors or shippers that are different from railcar manufacturers yet, who have yet another objective, to reduce the cost, try to win the contracts.'

Nishiyama meanwhile cited the E235 trainsets produced by J-TREC for its parent railway JR East to highlight how real world operating experience could be used to feed into the design process for rolling stock, driving enhanced maintenance procedures, faster cleaning and reduced energy consumption.

### From research to real-world operations

Asked how the supply industry could help get academic research ideas adopted commercially, Maurizio Manfellotto, Chief Executive of Hitachi Rail Italy, felt that 'true co-production with the customer' would be key. This applies to new technology both in rolling stock and infrastructure; he cited the example of a partnership with the technical university in Milano and state railway group FS which led to the development of the ETR400 Frecciarossa high speed trains, which were jointly supplied by Hitachi and Bombardier Transportation. 'We will now work with our main customer, Trenitalia, to look at how we work to develop the next generation of regional trains as well as the potential for hybrid traction.'

One potential challenge facing the supply chain is the management of the relationship between small businesses, the





operation between directly competitive companies' where innovation takes place 'collectively, up to a certain point.' However, he recognised that it was 'not easy' to meet all the requirements of the European Union to join Shift2Rail.

### Combatting the skills shortage

Manfello reflected on his company's experience where the former Ansaldo STS and AnsaldoBreda businesses were acquired over the past couple of years by Hitachi. 'The main issue is not the name, but the people', he believed, adding that 'we need to deliver more trains and

start-up community and the large system integrators. Jürgen Schlaht, Vice President for Innovation Management at Siemens Mobility, noted that his company 'did not produce its own subcomponents', which means co-operation with smaller players was fundamental. He also praised the work being done under the European Union-backed Shift2Rail innovation programme, of which Siemens is a founder member. 'There is no doubt Shift2Rail has been a success so far, but it has only been working for three years', and he felt that a much longer period of return on investment was inevitable in rail. 'It takes maybe 12 to 15 years to get benefits of pure research seen on the tracks', Schlaht said.

The panel was asked if the recent global trend towards consolidation in the supply chain, typified by large merger deals, would help lead to a more customer-focused railway, or could it be a hindrance to innovation? Ding Sansan pointed out that within the vast CRRC group, each subsidiary company was highly competitive, with a high degree of corporate independence. This means that, in his view, the focus on innovation and customer service can be upheld, 'ensuring we have a balance between competition and co-operation across the group.'

'A certain amount of consolidation is not necessarily a negative thing', felt Monaco, especially if standards and interoperability is maintained across the industry. 'A lot of times in the past, people have sort of shied away from research and development

activities, because there wasn't a payback. That is what happens when you have too many suppliers in a given segment, it can actually cause harm to the industry.'

According to Schlaht, the Shift2Rail programme 'has helped deliver co-

JM  
Amsted  
Rail

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JS  
Siemens

TN  
J-TREC

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MM  
Hitachi  
Rail

DS  
CRRC

**The role of the supply industry should be seen in the wider context of the role railways play in the social and economic development of the country.**

technology in a shorter time, and we must get products approved faster.' This in turn puts pressure on the pool of engineers and other skilled staff available to suppliers, he felt. 'In addition, we must have the new generation of staff with much greater understanding of digital technology – we must embrace Industry 4.0.'

Asked if his company was fighting in a highly competitive market for talent where skilled staff had the choice to work in numerous other industrial sectors, Manfellotto replied 'no. One issue we have is the salaries in rail are in my opinion not enough.' Furthermore, he felt that 'although the initial attraction of rail supply careers is not maybe the same as aviation or automotive', once people had experienced the sector, they tended to find rewarding careers over the long term. 'I feel that to address this challenge, we must convince people earlier, especially children at school', he added. On this theme, Hitachi also intends to establish a joint technical academy bringing together universities in Japan, Italy and the UK, the three countries in which the company has its largest rail presence.



Schlaht echoed Manfellotto's view that the 'rail industry is changing.' 'It is no longer a business which is all about heavy steel and concrete – it is as much about artificial intelligence and innovation in software.' He also felt that the sustainability and environmental benefits of the rail business could give the sector an advantage over other industries when it comes to recruiting younger people, for whom green issues are widely held to be a greater concern than for older generations.

Amsted rail 'makes heavy use of internships, and also co-op programs with local universities, which is really worked out well', added Monaco. 'I would advocate that to anyone in the room. Once we get them in and show them that we are really actually doing things that are cool as opposed to what they thought railroads were all about before, they have a different perspective. And we have been able to retain a good percentage of the people we have brought in by doing that.'

Nevertheless, there was consensus among the panellists that there must be 'synergy' between skills so that traditional railway disciplines are not overlooked. 'It is not simple to achieve such a balance, recognising that most railways have a huge amount of legacy equipment still in

operation', acknowledged Manfellotto.

Both Manfellotto and Schlaht felt that the liberalisation of the rail industry, especially in Europe, was also yielding more opportunity for suppliers to become directly involved in the maintenance of rolling stock fleets under so-called whole-life maintenance agreements. This in turn means the supplier is no longer just a manufacturer, it must also address the full lifespan of the fleet, working much more closely with the operator. 'I am a frequent rail traveller and of course I expect the train I am using to be clean, and for the toilet and air-conditioning to be working properly. So it makes sense for the supplier to be involved in this direct relationship with the customer', he added.

During the panel's concluding remarks, Jay Monaco urged suppliers to 'embrace technology and the changing nature of the rail industry so that you can attract and retain the next generation of people.' Jürgen Schlaht reiterated that 'the rail sector has a bright future in era of sustainability and "flight shame"', while Takao Nishiyama of J-TREC felt the supply chain's priority was 'to keep costs down but quality high.'