



Innovation in Britain's Railways
Railway Industry Innovation Awards
Mark Carne, CEO Network Rail
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Thank you for inviting me speak here at the Rail Industry Innovation Awards.

It is really important we champion innovation in the rail industry and there are some great examples here today which I am looking forward to celebrating with you.

And this is part of a great tradition of British innovation that we can trace back through history. Railways drove the industrial revolution in the 19th century, starting when George Stephenson first used steam engines to replace horse power in moving cart-loads of coal to the shipyards.

And from this came a series of firsts – including the first passenger railway – which triggered a social revolution as profound as the digital revolution we are experiencing today.

A lot has changed in transport since then. And it is an extraordinary credit to the industry and its original innovators, that 175 years later, railways are such an extraordinary success. Over the last 20 years, the number of people travelling by rail in this country has doubled, while in the last decade we've reduced the cost of running the infrastructure by 40 percent. Today, we're Europe's fastest growing railway, we're investing more in our railways than any other country in Europe.

And we're Europe's safest railway, driven by innovation – such as TPWS and automatic train bourn track inspection. In ten years we've reduced broken rails from over a thousand a year to less than a hundred. Safety is something that passengers take for granted, but we never do. Chronic unease are the bywords I live by to ensure we are never complacent.

While we are right to be proud of our successes, we also now face major new challenges - and opportunities.

We already know that the passenger growth we've seen is putting serious strain on the network in many places today – and yet we can foresee passenger growth doubling again in 25 years. We have a significant responsibility because we know that better railways drive economic growth, housing and jobs. The railways have played a vital role in our country's history. We have a vital role in our country's future too.

It's a great opportunity, but I do not think that this growth is by any means inevitable. There are threats that could undermine this growth, undermine the contribution that rail can play towards economic growth. There is the threat from competing transport choices. Just think about the changes we're likely to see in the future. Within the next 20 years, new technology change will be profound. We're already seeing the shift from a car being the second biggest purchase families make, to people hiring a car when they need at the tap of a smartphone.

And we're not far from those cars driving themselves. This is another seismic social change. When I was 17, I couldn't wait to get my driving licence, my first car. I come from a

generation who love cars. But, despite remaining a fan of cars on country lanes on summer days, I can't wait for the day I no longer need to drive on congested motorways. I will be first in line for an autonomous car. And maybe this generation will be last to even need a driving licence. That degree of change is coming.

Another threat is inertia. Just taking too long to adapt and change. Take an A380 aeroplane. It has almost as many condition monitoring sensors on one aeroplane as we have on the whole of Britain's railway network. Accelerating technological advances mean people are expecting more from transport systems. Choice, convenience, speed, value for money. And we must listen to their needs and expectations.

Just as we have before, our response must be to innovate. We must be bold and take advantage of new technology. And you are the champions that are leading the way within our industry.

Innovations by people like you mean that in the not too distant future, I fully expect we will be offering ticketless, 24-hour train services into major metropolitan centres. Brand new trains are arriving at record numbers, providing more seats, with air conditioning and wifi. HS2 will shrink our country – connecting the economy in profoundly different ways. Think about the opportunity that these innovations offer passengers.

And take the digital railway. Modernising the way we control trains with 21st Century signalling that exists today. You probably already know that I strongly believe that we need to accelerate the transition to a digital railway so we can unlock the latent capacity of our network. We can run more trains, faster, more reliably, cheaper, safer and at less environmental cost. This is what passengers expect of us. The Government have signalled, excuse the pun, their support for digital railway with a £450 million acceleration fund last autumn. We are making progress.

I also strongly believe in the power of competition to drive innovation and improved performance. That is at the heart of our devolution within Network Rail – allowing smaller businesses to innovate and find better ways of meeting the needs of their customers.

And we also need to encourage competition in the delivery of projects. That is why I commissioned Professor Hansford to carry out a review into the barriers that prevent third parties building on our railway. Competition is good.

The franchise system in this country has driven innovation within train operations. That is one of the reasons why the government subsidy for railways in the UK is among the lowest in Europe. But our franchise system will also need to evolve so that the urge to innovate is as powerful in the middle of a franchise as it was in the franchise bidding process.

I know that across our industry we share a fierce determination and duty to do the right thing for our customers. We have great people in our industry from the ballast to the booking office to the Boardroom. We have great people right through the railway. This is a growing industry and with more opportunity for people than we have ever had in the past. But we have to change and we need to bring our workforce with us. As leaders, as innovators, we need to show that modernisation brings opportunities not threats.

We can do that if we involve people, listen to their ideas on how we innovate, and deliver it together. To get the best from our workforce, our culture and behaviours matter as much as our structures and processes. There is now a proven correlation, across multiple sectors and geographies, between diversity and inclusion on the one hand, and innovation and high performance on the other.

On International Women in Engineering Day, I want to stress that diversity and inclusiveness are absolutely fundamental to the kind of culture that we have to have. Our industry is far too male dominated and we have to redouble our efforts to encourage girls at school to take up technical subjects and eventually to become the engineers our industry, and our country, needs. In Network Rail we have made great progress through systematically addressing gender balance as a business priority, but there is much more to do.

In my view, there is no doubt at all today that Britain's railways are a success story. The passenger growth that we've seen over the last 20 years, the transformation and passenger experience, the improvements in safety, the improvements in reliability are there for all to see.

However, it is also true that the passenger experience today does not always meet the expectations that passengers rightly have, and it's clear that we must do more together as an industry to respond. You are the innovators. You are the ones who refuse to accept the status quo. Driving change. Finding new ways to improve. The future of the rail industry depends on you. I salute you all. Thank you very much.