

# An opportunity to commercialise rail connectivity

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*Adrian Tarozzi, Sales and Marketing Director at evo-rail, discusses the business's 'market disrupting' 5G technology - and explains how the delivery of connectivity could go from cost on the balance sheet to profit opportunity*

The rail industry has a problem with connectivity. For many years, operators have spent hundreds of millions of pounds on a service that doesn't meet passenger demand - and is universally disliked. First Group was no exception - and, in 2017, it realised that something had to be done. Working as evo-rail, the transport group set out to create a rail-specific technology that would deliver fast, reliable connectivity, simply and safely.

And, after a five-year development process, we've launched rail-5G - superfast Wi-Fi that provides up to one gigabit per second on moving trains. This incredible technology has already begun to disrupt the global rail connectivity market, making passengers think differently about what they should expect to experience and access during their journey - and encouraging operators to consider how they could

commercialise the delivery of connectivity.

#### A step change in the passenger experience

It's a world away from the poor onboard Wi-Fi passengers have become accustomed to. At present, mobile connectivity, purchased per-Gb by TOCS, is the default. We've flipped that model on its head and are inviting rail operators to invest in our transformative technology (which was developed with the University of Bristol).

It's remarkably easy to deploy. Rail-5G is transmitted by a series of pole-mounted antennas beside the track. Antennas at the front and rear of a train receive this ultra-high bandwidth via directed beams, which move with the vehicle, maintaining a connection. Powering existing Wi-Fi systems, it delivers up to one gigabit per second. The result: onboard internet that is up to 50 times faster than today's mobile connection.

While the industry has invested millions in this existing mobile technology, any gains have been small and slow to materialise. Today, many passengers simply don't bother to connect onboard, assuming that the Wi-Fi will be broken or non-existent.

From the outset, evo-rail was determined to deliver a real step change in the customer experience, providing the kind of fast, reliable connection that passengers enjoy at home or in the office. This connection will allow them to do exactly what they want during their journey – whether that's catch up on work, enjoy leisure time, or keep children entertained. It's set to complement, rather than replace, the existing mobile network, filling gaps as part of a blended solution. It's also scalable, meaning that it can meet passenger demand both now and in the future.

And, as rail-5G is rolled out and customers realise that they can stream 4k videos in tunnels, we expect their reaction to be one of amazement; this technology simply hasn't existed before. In future, it will become ubiquitous, with rail travellers enjoying reliable, high-speed Wi-Fi that enables them to make the most of their time onboard.

#### Better connectivity benefits train operators

For evo-rail, enhancing the customer experience was always a priority – not least because we knew it would get people buying train tickets. The pandemic led to a well-documented decline in passenger numbers – and, while they are recovering well, we're not out of the woods yet.

Our goal was to ensure that journeys could be productive and enjoyable, making rail travel a more desirable option for the public. We recognised that this would be a particularly effective way of capturing business travellers, who have been slower to return to the network. Ultimately, it's about getting people back on trains – and rail-5G is another tool in the industry's toolbox.

And our technology isn't just an enabler of high-speed connectivity – it could also make money for train operators. Evo-rail will help them to commercialise the delivery of connectivity, turning it from a cost on the balance sheet into a profit opportunity. This might mean charging passengers, onboard system

providers, and content companies when they reach their free Wi-Fi limit or selling and serving ads to customers. It's a completely new model, and one that could generate additional revenue for TOCs.

And it's not just about profit opportunities. A low-power, low-impact solution, rail-5G is cheaper to develop, deliver, operate, and maintain than existing technologies – meaning it could help operators to make cost savings.

It will also create digitally connected trains, allowing our clients to make fast, data-driven decisions and save money around maintenance. TOCs can even opt for solar-powered poles, selling carbon credits back to the grid in the event that these units over-generate. The value creation opportunities are numerous, and the potential benefits, huge.

Asking operators to think differently

To realise them, rail operators must think differently about how they deliver connectivity on the network. While they're convinced by our technology, they have concerns about mitigating the commercial and operational risk of change. How, they ask, can they secure buy-in from stakeholders?

For evo-rail, bridging this credibility gap is straightforward. As rail experts, we have an in-depth understanding of safety, governance, and the UK's infrastructure. We're delivering these services on our own network, and to customers whose concerns and frustrations we share. This all means that they can have confidence in us – and our technology.

We developed our technology in collaboration with Network Rail, working to ensure it complied with rigorous policies and procedures. They were an indispensable partner, and have played a key role in our first operational UK rollout, for South Western Railway.

Ultimately, this is about challenging the rail industry – asking it to evaluate its current approach, and consider doing things differently. As a sector, we tend to take the lowest-risk option – but, if we're to meet passenger demand both now and in future, we must get ahead of the curve.