

This month

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Don't fear change, embrace it

MUCH of last month's UIC conference in Paris on GSM-R was devoted to the situation in Europe, where interference and lack of capacity have become important issues. There were also several presentations on the much-debated evolution of GSM-R. However, only a small amount of time was allocated to speakers to discuss developments outside Europe and consider wider issues, which was a pity because it is always good to be exposed to new thinking.

Nevertheless, several speakers were able to assure GSM-R users that solutions are either available or being developed to solve the interference problems, which have taken the shine off a system which on the whole has improved railway telecommunications immeasurably (see my report on page 33).

There were also soothing words about the way forward for GSM-R. The break-neck pace of change in the wider telecommunications world, with the advent of LTE for example, threatened to make GSM-R obsolete overnight. Naturally, this caused consternation in railway boardrooms, where senior managers were aghast at the prospect of having to write off their considerable investment in GSM-R. Assurances from suppliers that they will continue to support GSM-R until the mid-2020s did not appear to assuage fears.

But now a strategy is emerging to adapt and evolve GSM-R, for example by changing from circuit to packet switching. Alstom demonstrated for the first time ERTMS over internet protocol (IP) as part of GPRS

experiments. The UIC has launched the Future Railway Mobile Communications Standard (FRMCS) project to provide the basis for the development of a successor to GSM-R. The European Railway Agency will be inviting feedback soon on how GSM-R is performing so that the mistakes of the past are not repeated. A key feature of the evolution will be the ability to use existing infrastructure thereby preserving investment.

As deployment of GSM-R is nearing completion in Europe, the emphasis is now switching to other parts of the world, where it is possible to take advantage of the latest technology because railways in these areas are adopting GSM-R much later than their

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European counterparts and have not yet made such a large capital commitment to it.

Mr Norman Frisch of Huawei claimed that GSM-R is struggling to compete with more modern systems outside Europe. He said Turkey is prepared to switch to LTE when the standards for railway applications are agreed, while China's Shuo Huang Railway (SHR) - a 588km heavy-haul line - has installed the world's first 4G LTE network on a railway as a pilot project (IRJ August p24). SHR was drawn to the reduced complexity of installing and operating LTE compared with GSM-R or other systems, its high capacity, and its greater resistance to interference.

Mr Olivier André of Alcatel-Lucent urged delegates to think about the bigger picture and to look beyond the direct needs of ERTMS. He said costs will only be reduced if things are done differently. He highlighted the current Systum research project in France to develop a new multi-service and broadband LTE-based communication system for urban guided transport based on a single open and standardised technology. He wondered whether there were opportunities for similar research within the FRMCS project.

We are already starting to witness ERTMS and CBTC being installed side-by-side on major urban rail projects in cities such as Istanbul (Bosphorus link), London

(Crossrail) and Paris (Line E) where only CBTC can deliver a fully-automatic high-capacity railway. We could well see a merging of the two systems, at least until ETCS Level 3 is available, which could have serious implications for the future of ETCS and GSM-R.

Mr Darel Wust, managing director of 4Tel, Australia, challenged a lot of preconceptions. He said Australian railways use private GSM-R networks in the major cities, the Telstra 3G public mobile system for the interstate network which was beefed up by adding 90 railway-specific sites, and UHF-FM narrowband radio as a common mode. Wust argues that railways are wasting

billions of dollars by failing to make use of public networks which are far more reliable than railway-specific networks.

He believes that spectrum will become very expensive in the future, so railways must secure it now, and he urged railways to build up their IT skills as communications engineers will become increasingly scarce and expensive to hire.

Wust said people often confuse harmonisation with interoperability. "Harmonisation, the preferred railway approach, lowers standardisation and deployment risks but creates monopoly rents and stifles innovation," Wust told delegates. "Interoperability is demanding on standards and certification but allows trade-offs and innovation."

He said interfaces rather than systems should be standardised to allow the use of proprietary systems to aid innovation. After all, the internet and mobile telephone networks are the biggest open networks on the planet but they are not harmonised as people are free to use whatever type of computer or mobile device they choose.

Railways are right to consider the costs and benefits of embracing new technology, but they do not have the power to control the pace of change. New technology could make rail transport more attractive and competitive, so it is vital that the rail industry finds ways to make the best use of it.

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