SURVEY Industry Watch

Making best use of digital technology

In conjunction with our recent interactive debate on 'The Digital Future', we asked our panel of senior executives where digital products and services would bring the greatest benefits.

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Concepts such as 'digitalisation', 'Industry 4.0' and the 'internet of things' are starting to impact on almost all industry sectors. But where will the growth of digital technology have the greatest impact on the value chain for railways and metro operators?

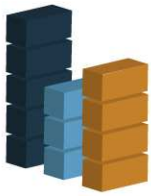
The use of digital technology in the rail sector is not new. Signalling engineers have been using electronic interlockings for more than 30 years, and communications-based train control systems such as ETCS are taking this a step further. Automation has become increasingly common in the urban rail sector, with driverless metros in many cities. Microprocessors are used in onboard equipment, while the use of robotic manufacturing techniques is widespread.

As the technology continues to evolve and investment has to be prioritised, we asked our survey panel to rank a list of products and services on which 'digitalisation' might have the greatest impact. The result shows a clear emphasis towards customer-focused applications.

'Ticketing and mobility platforms, offering seamless travel and payment' was seen as the area where digital technologies offer the greatest benefit, being selected by almost 36% of respondents with an average ranking of 2·29. Almost on a par with this result is 'customer information, such as real-time journey information, tracking and tracing', which achieved an average rank of 2·43. Real-time traffic information via apps is becoming increasingly widespread, but there is huge potential to improve the accuracy of travel time predictions, particularly in the event of disruption. The provision of 'joined-up' multi-modal information will also enhance the customer experience when travelling by rail as part of a door-to-door trip. And this also applies in the freight sector with real-time tracking and tracing of time-sensitive consignments.

The third-ranked area for digitalisation was 'traffic management, including train planning, signalling and train control', with an average ranking of 2·75. No less than 25% of our respondents put this category in top place, with another 25% ranking it second. In a continuously-connected world, the ability to capitalise on digital technologies to maximise operational efficiency and boost capacity to handle more complex traffic flows is a very valuable step foward.

RAIL SUPPLY INDUSTRY WATCH



To find out more about the survey and apply to join our panel, visit the RSIW website at: **www.railsupplyindustrywatch.com**

The impacts of digitalisation are expected to be lower for both 'asset management and maintenance' and 'automated train operations', with an average rank of 3·82 and 3·89 respectively. While the condition-based maintenance of vehicles and infrastructure and the provision of driver assistance systems will undoubtedly improve the operation of railways, such products and services are perceived to have a lower impact on the industry's value chain.

As well as the predetermined categories, our respondents offered two alternative suggestions where digital technologies might impact on non customer-facing aspects of the rail sector. One suggested that 'lower component costs through advances in manufacturing technology' would have the strongest impact on the value chain. The other anticipated 'greater integration of manufacturing within organisations and the supply chain resulting in digital ecosystems from manufacturing to user'.

Even though digitalisation is expected to have the largest impact on the railway's own customer-centric products and services, the manufacturing and supply processes should not be neglected. Asset management looks certain to change significantly, as maintenance regimes switch from fixed intervals to 'just-in-time' interventions based on the predicted condition of the assets. This has the potential to reduce maintenance costs for both vehicles and infrastructure by about 20% within the next decade.

Looking at the standard deviations of the survey results, it is evident that the highest ranked category (A) and the second-lowest (D) have the highest standard deviations of 1·31 and 1·44 respectively. This implies a difference of opinion about the level of impact on ticketing and mobility platforms as well as on asset management and maintenance. The remaining categories show a relatively small standard deviation, the lowest being for customer information.

Digitalisation and the internet of things will be an important aspect in the evolving competition between transport modes. Despite the different rankings in our poll, both rail operators and the railway supply industry need to leverage digitalisation along their entire value chain in order to safeguard and improve the competitiveness of rail transport and improve its modal split.

UNIFE Director General Philippe Citroën believes that 'the future of digitalisation needs a holistic approach, with the supply industry, infrastructure managers and operators working together to develop innovative, coherent and customer-friendly solutions'. He points out that UNIFE 'is actively co-operating with the European Commission on a number of initiatives that will boost the implementation of the European Digital Agenda', adding that digital technology will play a prominent role in the five Shift2Rail innovation programmes for rolling stock, traffic management, infrastructure, IT and freight, 'as well the European Commission's initiatives to further promote the deployment of ERTMS'. ■

A Ticketing and mobility platforms, offering seamless travel and payment.

B Customer information, such as real-time journey information, tracking and tracing.

C Traffic management, including train planning, signalling and train control.

D Asset management and maintenance, including condition-based maintenance of vehicles and infrastructure.

E Train operations, in the narrower sense, such as automation, driverless operation or driver assistance systems.