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The Future of Rail Maintenance Is Digital



The rail industry has rapidly evolved in the wake of several exceptionally tough years.

In particular, a growing number of organisations tasked with maintaining critical rail infrastructure are shifting their focus towards digitalising field operations. Doing so is enabling frontline engineers to carry out work orders, complete inspections and conduct repairs as quickly and efficiently as possible. In many cases, they are using rugged mobile technology to achieve this objective successfully.

Digital Transformation Has Moved to the Frontline

Digital transformation isn't a new phenomenon in the rail industry. Many organisations have already

spent significant time and resources implementing technology that is helping transform existing processes to meet resurgent post-pandemic service demand and ever-increasing customer expectations.

However, over the last few years, the focus has shifted from the backend to the frontline. When implemented correctly, advancements in mobile technology are leading to better communication between field teams and management, faster inspection and repair schedules, higher customer satisfaction ratings, and better ROI. A key part of this is the evolution of the frontline landscape itself. New connectivity technologies such as 5G and the Internet of Things (IoT) are completely changing the way technology can be used in these environments.

The Rail Industry Is in a State of Flux

Of course, with change come challenges. In order to

fully capitalise on digital transformation, the frontline workforce needs to become more tech-savvy, which is still a work in progress for many organisations. On top of this, the rail industry is facing a massive wave of experienced field engineers and technicians retiring, resulting in much younger, less experienced (but often more tech savvy) workers taking their place.

The growing importance of digital transformation, combined with the aforementioned challenges, is influencing rail organisations' technology spending in three main ways:

1) Emphasis on Reliability

Rail maintenance and inspection work isn't easy. Often taking place at night, in a wide range of weather conditions, it means digital field devices are regularly subjected to accidental knocks and drops, as well as exposed to the elements. As a result, a growing number of organisations are opting for rugged computing devices rather than traditional COTS (commercial-off-the-shelf) devices.

The need for reliability is also giving rise to two additional trends. Firstly, digital transformation in the field, especially an increased reliance on the cloud and edge computing, is creating a greater need for devices that are always on, instead of merely present. Secondly, with these devices being brought back to the office less often, servicing and issue solving has become more challenging.

In other words, field equipment must be able to tolerate more wear and tear than it did before. If a failure occurs, it could be days or even weeks before field workers can hand it over to IT. With this in mind, the best field tech is typically modular, with vital parts like the battery or storage drive easily replaceable, preferably without tools, so that operation can carry on with little to no interruption.

2) Greater Investment in Devices

With field-based IT equipment less likely to be returned to a central office at the end of each day, sharing devices amongst different groups is becoming less common. This means rail maintenance organisations need to buy more units than previously, so that devices can be issued individually or to specific teams. It also means IT managers are following the lead of their

more deskbound counterparts and starting to offer field employees greater choice when it comes to the best device for their specific needs. For instance, some inspection tasks might require a larger screen with easier-to-read text and a full keyboard for rapid input, while other maintenance activities might be easier to perform with a smaller one-handed device, leaving their other hand free to operate tools.

3) Extending the Reach of Existing Workforces

Some of the same pandemic measures that led to fieldwork becoming less tethered have also led to inspection and maintenance tasks, once performed by pairs or teams, now being done by individuals. This is driving the adoption of field tech with remote cameras and communications, which means frontline personnel can receive assistance and guidance from anywhere in the world, in real-time.

Such technology is proving invaluable in areas where ongoing labour shortages and waves of retirements mean skilled experts have become few and far between. In these instances, digitalising the frontline means organisations can utilise their remaining experts much more effectively by removing the need for them to be physically present at every project where their unique skills are needed.

As digital transformation continues to sweep through the frontlines of the rail industry, field workers everywhere are being given access to the rugged digital tools and solutions they need to optimise their productivity and complete critical tasks quickly. Doing so paves the way for a true evolution in rail maintenance at a time when the industry desperately needs it, resulting in a win-win for all involved.

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GETAC RAIL SOLUTIONS

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