

Rugged and resilient technology

Xplore Technologies asks if established approaches and future-tech acceptance can work together in rail

The intensity and concentration of rail, freight and intermodal activities on our small islands – a relative economic powerhouse internationally – puts significant pressure on rail operators to improve logistics precision. So too does the daily obligation of maintaining track, rolling stock, and managing people as customer demands fluctuate.

But whatever the UK rail industry could throw at Xplore Technologies would never be more than a fraction of what its equipment copes with in other global rail markets.

Xplore has designed and manufactured built-for-purpose rugged mobility solutions for extreme working environments such as transportation and the military for over two decades. Its tablet PCs and handheld computers have established an industry-wide appreciation of a must-work-at-all-costs standard of build.

Xplore is also the leading provider of rugged mobility equipment in the rail freight sector across the Americas. According to the Association of American Railroads, this region's rail operation is an annual 2.2 billion tonnes, 140,000 miles of track, 610 route behemoth – 500 million tonnes of freight is intermodal. It is not a

surprise that rail operators are slowly but increasingly becoming acquainted with rugged mobile computing technology, whether handheld, or bolted to a forklift, crane or train.

As a reminder, the UK has, according to the Government, around 115 million tonnes of freight moving around 10,500 miles of track. There is, literally, no room for manoeuvre in the UK, making what our rail industries get right so much more impressive.

But, could it be even better? The rail industry is notoriously and occasionally correct in its resistance to change. After all, change has been at the heart of some of the rail industry's biggest failings. But, equally, change has taken rail into operational and efficiency territory it didn't realise it could achieve.

Two freight modes

Compare rail and road freight. They've run in parallel for decades, but it's a rare truck or van driver who doesn't have at least a tablet PC, but more likely a handheld mobile device, to manage and monitor his or her schedule and keep track of every participant and element of the delivery or project process.



Steve Priestley, VP Xplore

But rail? It's still very much remains a paperwork-reliant business. That needs to change. Fortunately, rail operators like Mexico's Ferrovial have already proven the business application for rugged mobile computers and demonstrated the efficiency gains that can be made on the locomotive and in the intermodal.

Rugged tech devices resist failure from being dropped, soaked, and abused. Built-in durability and performance capabilities are just a few reasons why the total cost of ownership (TCO) for a rugged mobile computer over a minimum three to five-year period is far lower than a 'consumer grade' tablet or smartphone in a protective case that one might buy from a tech or mobile retailer.

Texas-based Xplore recently moved its EMEA team into a new Farnborough HQ, Steve Priestley, the company's UK-based International Sales Vice President said: 'On the face of it, consumer grade tech may appear to be a cost-saving in an industry where cost-saving is key. But independent research says rugged mobile computers make a financial and operational difference, and our team is starting to take that





scanner, is immensely useful and practical when it comes to asset management, for instance.

Meanwhile, the limits of the new Xplore L10 rugged tablet-based platform will be difficult to find. The 10.1-inch Gorilla Glass-screened tablet has been tested to withstand six feet drops, and practically any environment likely to be encountered in rail: high and low operating temperatures, risk of gas, dust or fluid ingress. It also has the option of a hard handle with a built-in barcode scanner.

So where would rugged tech fit in to the future of rail? Network Rail's Governance for Railway Investment Projects (GRIP) is a prime candidate for more tech inclusion, and, it being rail, rugged may be a valid



consideration.

But day-to-day staff management and safety is a key area: biometric clocking on and off shifts, and monitoring rest periods to keep on top of fatigue management which can sometimes be a considerable challenge when contractors finish a shift with one company then go to work a shift on another, putting themselves in considerable danger.

Priestley concludes: 'In parallel, on-line walks, staff records, everything on track – repairs, Japanese Knotweed, vegetation, signals, everything is recorded, but usually on paper. There's masses of paperwork – could ultra-reliable rugged nudge rail into more efficiency? Maybe not overnight, but the reliability of rugged will hopefully mean that 'we've always done it this way' and 'we should consider using more tech in the future' are equally accepted approaches.'

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message to the UK rail industries.'

According to VDC Research, rugged tablet PCs cost half as much as non-rugged when it comes to TCO. The initial acquisition cost of rugged is higher, but operational cost is significantly lower – usually fifty per cent, often better.

But, Priestley adds, 'that's just a part of it: rugged equipment is not just more robust all round, it also abides by standards, guidelines, rules and regulations relating to usage in challenging or hazardous environments.'

'A consumer grade device in a protective case may look the part – and the few rail industry staff and management who use mobile tech often use such equipment – but it is simply not constructed to resist the knocks of life in the field.

'Drop a consumer-grade device, and there is more chance it will fail than survive. Drop a rugged, and there is far more chance it will continue to operate than to fail.

'Now, while it's vastly inconvenient for your personal handheld or tablet to fail, imagine the knock-on both in terms of operations and management if the day's maintenance or staffing schedule, freight management or monitoring, or incident management updates are lost because of equipment failure.

'And this is in the context of a rail industry under immense scrutiny, and a freight sector which is becoming ever-busier given the volumes of goods flowing into, around and out of a country in the grip of a fast-growing online retail and delivery market.

'But it doesn't stop at drops: rugged equipment is designed to keep working normally in extremes of heat or cold, minus twenty to positive sixty degrees. Consumer grade will simply fail: try leaving a smartphone on the seat of your van in even

mild sunshine. It will overheat and shut down.

'Then there's everyday usage issues you don't think about until it's a problem: using a touchscreen wearing gloves in the rain, the constant vibration of a tablet mounted in a locomotive, open ports and screens that come into frequent contact with oils and hazardous gasses, or exposure to blowing dust. Rugged tech is designed from the inside and out to work in those circumstances.

'Consumer grade rarely if ever does. Rail often means working outdoors: rugged tech screens can be adjusted to be far brighter, meaning glare and sunshine are not an issue, unlike consumer grade. Plus, consumer grade devices are not properly certified for safe use in hazardous locations, which describes many rail operations transporting hazardous cargo.'

Resilient technology

But with the UK rail industry steaming through environments ranging from exciting HS2-driven technologies to coping with the challenges of, as the UK Government puts it, 'our Victorian railway', Xplore says adoption of the most resilient of technology, rugged, could because of its reliability, help drive all manner of workflow efficiencies.

Priestley adds: 'It's true the rail industry has adopted rugged to an extent and is doing just fine without wholesale adoption of mobile technology. But if there's a weak link in the chain when tech is deployed, then consumer-grade masquerading as rugged is it, and it's just a matter of time before a minor accident in the form of a drop or an exposure to fluid causes a significant issue.' Xplore has two key rugged products that will be of great interest to the rail industry: the six-inch screen M60 Android handheld, which, when specified with a barcode