EMPOWERING TECHNOLOGY: IT'S A TEAM EFFORT

Stuart Harvey, Digital Innovation Manager, Proserv Controls explains how human inputs, alongside digital solutions, drive performance optimisation.

F1 followers may have scrutinised the disagreement between World Champion Lewis Hamilton and his Mercedes support team following the recent Turkish Grand Prix. A decision by management to change Hamilton's tyres eight laps from the end "seemed" to cost him two places and precious points in the title race.

The team trusted data indicating that his tyres were so badly worn, it risked an imminent blow-out, and actioned the change, seemingly negating Hamilton's own insights as the skilled operator of that equipment. It appeared to be a classic machine versus human stand-off – and the machine won. We'll never know who was right.


Stuart Harvey

The irony is that, for many years, the relationship between Hamilton and his data-crunching backroom team has culminated in multiple trophies as digital technology, allied to human input and domain knowledge, has made for a powerful combination.

Transformative tech

A joined-up digital strategy where technologies such as digital twins and headset tablet computers come together to provide remote monitoring capabilities can positively impact the performance of an organisation and the daily experience of its employees.

An evergreen (or up-to-date) digital twin of an asset, backed by real-time industrial data, acts as one source of truth, a live fingerprint, offering accurate visibility of a system to personnel, potentially located hundreds of miles away yet able to plan immediate remedial action if any set of parameters in the regular function of that equipment is breached.

In an industry where there can be reams of documentation, the digital twin also acts as a receptacle for reports or tests which are available at the click of a button – again representing a bedrock of truth.

A headset computer means just one team member might need to visit a platform and carry out inspections or remediation with other colleagues, and clients, directing or observing via the live video capabilities – bringing up documents on the headset's lens for that technician on site, before attaching the latest update to the digital twin's database.

The scanning technology harnessed to build the digital twin recreates such a precise model of an asset that when an issue like corrosion necessitates the reverse engineering of a replacement piece of pipework, it can be manufactured direct from point cloud datasets eradicating any human error and bringing the reassurance of "right size, first time" to speed up maintenance cycles.

Seven-time F1 world champion and vital Mercedes team member Lewis Hamilton


Proserv technicians inspecting one of the company's digital solutions

Technology, when deployed effectively, presents multiple benefits.

For individuals: remote monitoring means fewer personnel being exposed to potential HSE risks and reduces the need for time and cost intensive travel. For businesses: sophisticated real-time fingerprinting of systems means maintenance can be planned proactively not reactively, while the associated performance enhancements of that process lead to better efficiencies, less downtime, the maximising of the life of equipment – asset optimisation. These are the foundations of profitability.

In the current landscape with organisations alert to the threats from global warming, real-time data generation and evergreen scans of a digital twin of an asset can have significant environmental impacts for energy companies with eyes firmly on a net zero future.

When monitoring is done remotely and not physically, when components last longer and need replacing less often, when more efficient processes mean reduced CO2 gases entering the atmosphere – then carbon footprints and waste generation are heading south.

The human element

Mercedes might have great technology and aerodynamic designs, but they also benefit from having a supremely talented driver, attuned to the characteristics of their vehicle, behind the wheel.

When you have analysts working in concert with asset operators normalising the live data being provided by the digital twin, they will be alert to the fact a bearing in a compressor needs replacing after only 12 months, although it should have a design life of five years, or if a valve is opened and the pressure reading is noticeably different to usual, so through that human interpretation and intervention, proactive action can be enabled promptly.

The combination of domain knowledge with the analysis of live data means system set points (triggering automatic alarms when exceeded) can be recalibrated, reflective of how the equipment really operates and whether that drop in pressure or increase in temperature is truly of concern. The subsequent gains from this are fewer alarm trips for personnel to have to handle while they manage multiple systems, thus reducing their stresses, workload and supporting their welfare.

But ultimately, it is trust that is vital for the powerful combination of digital technology and human engagement to succeed. As a necessity, digital twins and data must remain evergreen, live and totally reliable. If scans of assets are not regularly updated or data is not supplied real-time, then naturally their potential impact, and associated value, are greatly reduced. When new technology is integrated as an augmentation and support to personnel, a widespread culture shift can occur and once there is buy-in, the ingredients are in place for a highly effective digital strategy.