




perpetuum

TESTIMONIALS

“Perpetuum has proven to be a reliable RCM supplier who delivers cutting edge technology that will help us improve our operation and service to our customers even further. The investment fits well with our strategy to be in the forefront of digitalization and continuously striving for efficient and cost effective maintenance”

Arvid Fredman, Fleet Manager X2 for SJ

“The wheelset and bogie condition monitoring, as we are doing here with Perpetuum, is part of an ever larger Eversholt Rail policy of moving its maintenance methodology towards a data driven and real time operation that will increase availability and reduce cost for our valued clients, like London Southeastern”

Andy Course, COO, Eversholt Rail

“This is an industry-leading solution; a first for the rail industry that incorporates the use of a vibrational energy harvesting powered system to measure traction motor bearing degradation and report it as a single index, Motor Health Index (MHI). The successful implementation of the technology on other projects means that it can be expanded to monitor other systems on the train”

Dave Smale, Engineering Director, KeolisAmey Docklands

“Enabling service trains to report ‘live’ information back to the maintainer about changes in the condition will provide the necessary time to mitigate delays, limit the dependency on measurement trains and increase the safety for track inspection teams. Real time condition monitoring of the track would also enable a fundamental change in the way the whole system interfaces are managed between operators and infrastructure managers”

Simon Taylor, Systems Manager LNW, Network Rail



OUR STORY...

At Perpetuum, our goal is to advance and transform railway and fleet management, improving the efficiency, safety and quality of rail services helping to transform the future of our railway and how it is operated.

We are a global leader in the provision of information to maximise the safety and reliability of the railway and reduce costs. Our award winning, self powered, wireless sensing technology, combined with vibration engineering expertise and rich analytics, provides real-time information, enabling our customers to truly optimise railway operations.



TECHNOLOGY AND APPLICATIONS

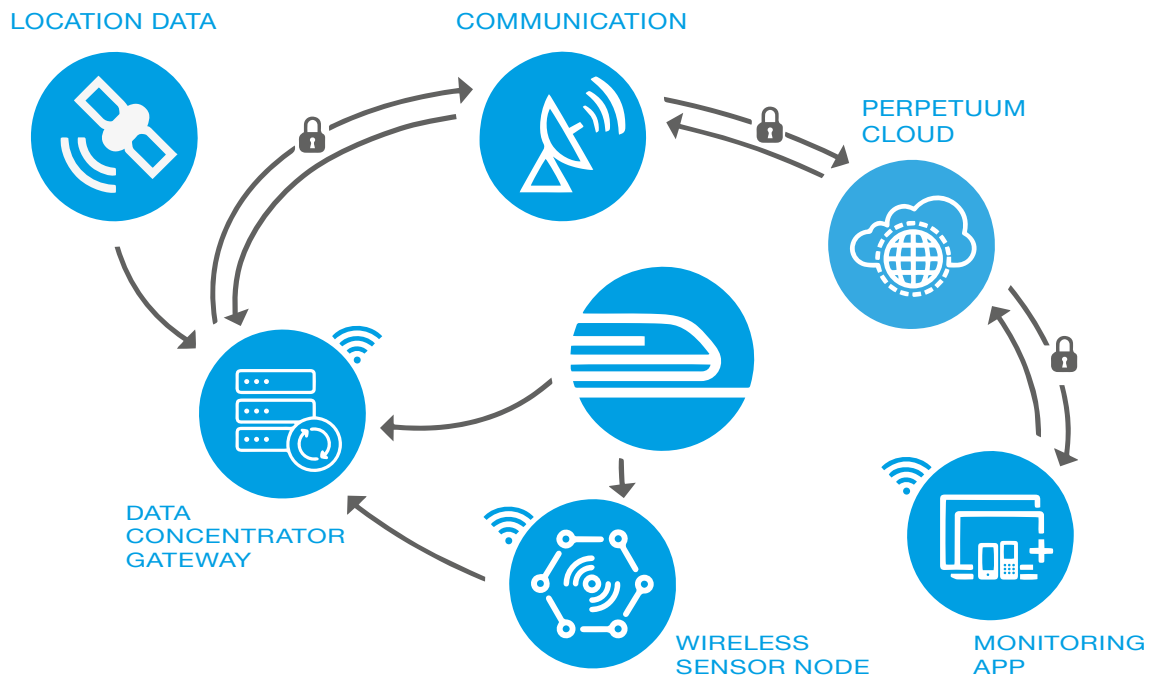
At Perpetuum, we give you the ability to provide true value for money to your customers and greater availability of rolling stock by delivering crucial data about your assets to you directly, enabling you to offer a superior end-user experience.

Our vibration energy harvesters and wireless sensor nodes can be used to monitor valuable equipment and assets within the railway industry (passenger, freight and infrastructure).

Our breakthrough technology and analytics, coupled with simple installation allow you to make a step change in rolling stock performance and infrastructure maintenance capability. By employing a self-powered system, change can be made with minimal interference to availability and customer demands.

Not only can we help to achieve improvements in reliability and safety, dramatically reducing operational and maintenance costs, but also reduce disruption and the likelihood of costly in-service breakdowns.

WIRELESS CONDITION MONITORING PROCESS



Our service-focused experts configure the powerful data our sensors transmit, helping asset managers achieve cost savings and greater safety benefits.

The combination of deploying revolutionary technology and harnessing its powerful analytics to the benefit of our customers makes our proposition unique.

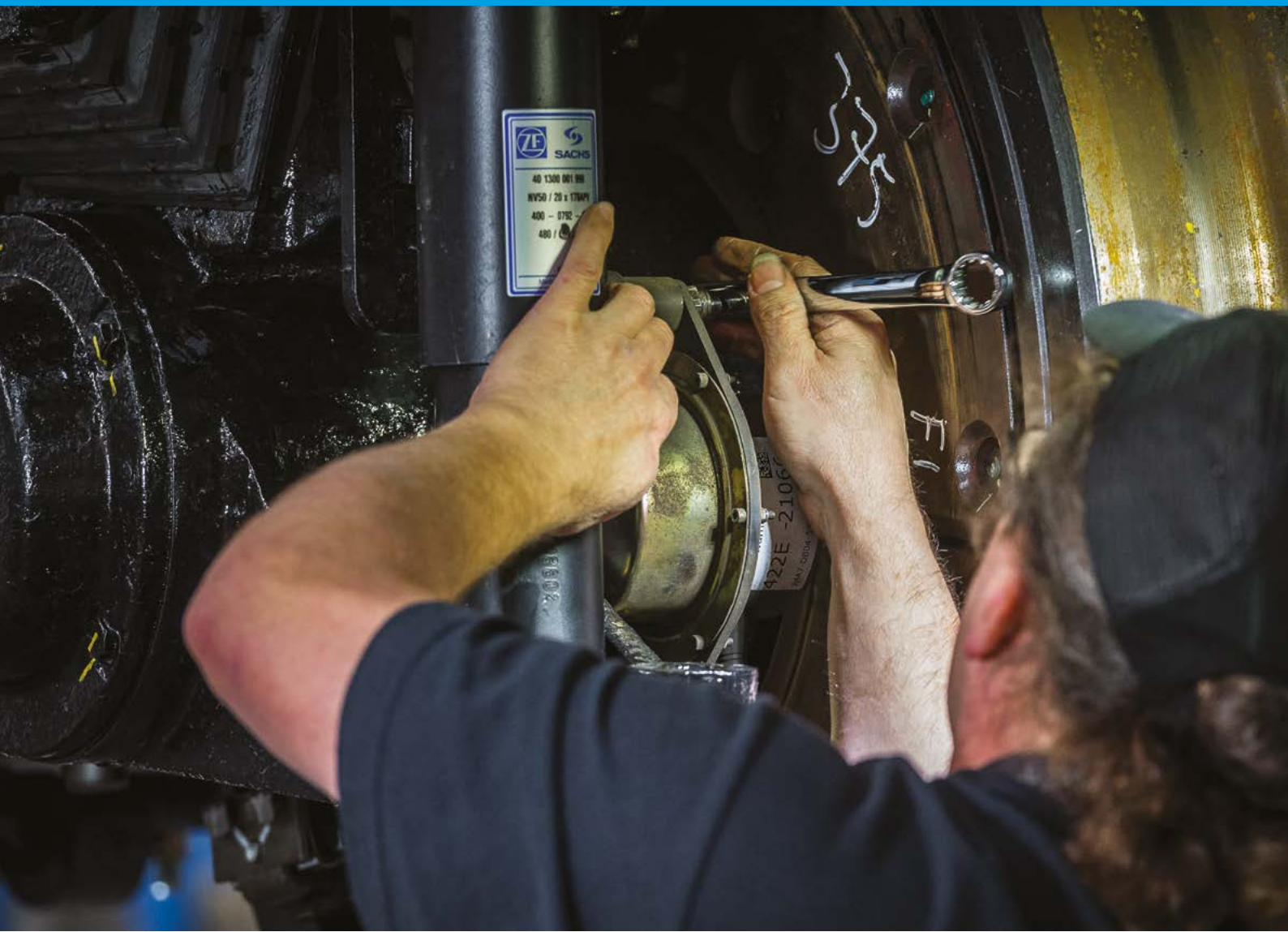
Our solutions are designed for use in demanding environments.

TRANSFORM YOUR RAILWAY AND FLEET MANAGEMENT

Our patented electromagnetic-energy Harvesters convert mechanical energy produced by vibration to electrical energy, which in turn powers the Wireless Sensor Nodes. These Nodes transmit real time data back to the desktop or mobile device of the asset owner.

Our solutions are reliable, configurable, maintenance free and cost effective. The energy harvester is designed to last over 100 years without maintenance and the sensor nodes 20 years, easily outlasting other battery-only powered systems. This proven, fail-safe technology is also quick and easy to install.

- Our wireless sensors are self-powered, with no batteries or wires.
- We currently have more than 10,000 sensors in service (Jan 2018)
- The ability to monitor wheels, bearings and track from the same sensor.
- Our sensors can also be used to monitor other rolling stock assets such as gearboxes, traction motors, final drives and wheel condition.



WIRELESS SENSOR NODE SPECIFICATION:

- Acceleration: Range +/- 200g, 500Hz bandwidth, 1000Hz/2000Hz data rate, 3 axes, sensitivity +/-0.05g.
- Wireless communication with on-board gateway.
- Vibration Summary data based on a 4 second vibration sample every 1 minute.
- Temperature: -40°C to 85°C. Continuous (whilst powered) 1-minute temperature log transmitted.
- IP 68 protection.
- Weight approximately 2kg.



DATA CONCENTRATOR GATEWAY



WIRELESS SENSOR NODE

DATA CONCENTRATOR GATEWAY SPECIFICATION:

- Location: Dual Band GPS/GLONASS global positioning for location, direction and speed.
- Remote data transmission: 2G/3G/4G data modem (requires a data compatible SIM card with SMS enabled).
- 110V DC, or 24V DC external power supply.
- EN50155 compliant power supply (RIA 12 compliance available). Max 1A curve 2 MCB recommended.
- Local connections for diagnostics and network available.

LOCATIONS

The Perpetuum headquarters are in the UK, we have sales teams in the United States and Australia and have sales partners across the world in; Japan, India, Poland, China and Germany.



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