

Case Study

Railway transport and engine driver's behavior



This delivery company operates more than 250 railcars and dozens of lorries to transport goods within Spain and France.

Challenge

The Company does not know where all their assets are nor the exact mileage of the rail cars. This lack of knowledge is impacting not only proper usage but also maintenance costs, as they are forced to sometimes perform unnecessary service. Maintenance costs are also influenced by frequent repairs due to huge wear on the brake system caused by harsh braking by engine drivers. The Company suspects that drivers often ignore the braking start signs, but does not have any relevant proof of it, so they can't take preventive measures. Moreover, driver behaviour is suspected of causing damage to the goods being transported and to the railcars themselves; for example, when coupling at the wrong speed, railcars' bumpers are damaged.

Another challenge is that the Company can't properly inform their end customers about the location of their goods, so their operations center is overloaded with calls and emails from customers. This inability has a bad impact on the overall perceived quality of transport.

Needs

- ▶ Verify the suspicions of regulation non-compliance by its engine drivers, such as ignoring the braking start signs, which causes great wear on the brake system
- ▶ Gain greater insight into goods transport to reduce operating costs, including the location of all assets and their usage
- ▶ Check the coupling speed and impacts – railcar coupling must be performed at a maximum speed of 5 km/h and a maximum shock of 4G
- ▶ Better inform its customers about when they can expect their goods in order to deliver increased customer satisfaction and reduce operating costs associated with customers' shipping and delivery inquiries
- ▶ Provide its customers with a transport quality guarantee through which the customer can see that there was no transport event leading to any freight damage



Request

- ▶ Portable devices
- ▶ Remote configuration (OTA) of sensor settings
- ▶ Non-disposable sensors or units
- ▶ A multiple-language system



Solutions and Results

The Trexee solution provides the capability to monitor:

- ▶ Impacts during transportation, from handling on the Company's premises (including railcar coupling conditions) up to goods handover to the customer
- ▶ Railcar travel distances with exact locations to identify railcar location, and features the ability to inform the customer about the expected arrival time of goods at a specified location
- ▶ The engine drivers' driving style with exact data on where and how brakes were applied, including map data display
- ▶ The deployment of the entire Trexee ecosystem supplied the delivery company with important data on the transport of its goods and, in particular, on the engine drivers' driving style and behaviour.



These facts have been identified

- ▶ Special modules with sensors provided valid data that accurately determined the engine drivers' behaviour and determined the location of intense braking, not only upon arrival at a station, but away from it as well. The values were set per the Customer's requirement to match the realities of the railways in Spain and France. About 40% of braking was done later than it should have been.
- ▶ Railcar coupling was over the maximum speed and shock limits 67% of the time.
- ▶ The Trexee system regularly provided the delivery company's customers with information on transport status and delivery notifications. It also allowed regular administration to the existing customers, thus reducing the burden of operators. There was a 30.8% decrease in customer calls requesting delivery details per month.



Summary

The special sensor modules provided valid data which helped improve the internal processes, simplified the external process monitoring, and made the entire process more effective. Thanks to the accurate measuring of values working together with event GPS data, it was possible to supply findings and quickly apply necessary improvements. The Trexee system features 16 language versions, so all European branches can access their data in their mother languages without placing any unnecessary burden on the operator.

