



CASE STUDY

Belgium’s Walloon Region aims for a world first with its weigh-in-motion network deployed by Yvan Paque-Tein Technology

Wallonia has 868km of motorways at the intersection of three major European corridors, giving rise to exceptionally dense road freight traffic. Overloaded trucks cause significant damage to roads, and today’s WIM network enables automatic detection of heavy vehicles which violate the regulations. Now it’s expected homologation will be a world first.

Dense road freight traffic

Two of the three European corridors in Wallonia are on a south-north axis and take traffic towards the ports of Antwerp, Rotterdam and Amsterdam - from Italy and Spain to Northern Europe. The third crosses Wallonia, carrying traffic from the UK to Eastern Europe.

Back in 2013 road freight traffic was estimated at 15.9 billion tonne-kilometres. It has grown by 1.4% since 1995 and shown a significant increase in the number of light-duty vehicles (vans).

Infrastructure and competitiveness correlation

Modernizing infrastructure is a major challenge for the socio-economic development of Wallonia, which is the guiding principle of the government action ‘Plan Infrastructures 2016-2019’.

Priorities include the use of new automated technologies and procedures to alleviate the work of verification, verbalization, processing of remittances,

remedies and the recovery of fines, but also to increase the effectiveness of the controls necessary to keep road users safe.

Overloading spells danger!

Overloading of heavy goods vehicles on public roads, mainly motorways, is the cause of major deterioration, which results in significant repair costs for the region. An overload of 30% causes up to 2,000% additional deformation (rutting, pebble projection, etc.) of motorway surfaces and can also cause vehicle imbalance, bringing the probability of a fatal accident from 1 to 2.7.

Until 2015, trucks in Wallonia were visually inspected by police patrols on motorways and overweight trucks were sent to a static weigh station for

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legally certified weighing. This laborious procedure enabled just one in every 10 offending vehicles to be ticketed and fined.

WIM Wallonia in two stages

“The Public Service of Wallonia (SPW) awarded Yvan Paque-Tein Technology the two-phased turnkey deployment of the weigh-in-motion (WIM) system in

operation today,” explains Jérôme Fripiat of Wallonia’s Department of Road Safety, Traffic and Telematics (SPW).

The installation of the network of five gantries capable of performing normal speed weighing of truck traffic is now complete. The gantries are located on the main motorway arteries and pre-select or filter overweight vehicles of 3.5t and above. These are then subjected to a police check at the nearest static station.

“The accuracy of the WIM stations is very good,” confirms Jérôme Fripiat. “The rate of ticketing rose to about eight out of 10 offences during patrol hours. The performance of the interception teams is clearly increasing. And although the police operate in three rotating teams on the motorways it is still only a small part of traffic that is controlled and fined on the day.”

Intelligent gantries

The WIM stations placed by Tein Technology, in a joint venture with Yvan Paque and subcontractor Sterela, estimate the weight of a vehicle at normal speed. But they do much more as well.

The protected gantries are made up of multiple sensors - piezo-ceramic bars, electromagnetic counting loops, infrared optical barriers, contextual cameras, automatic number plate recognition cameras, ADR cameras which identify dangerous goods, and

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an electronic processing cabinet with an Ethernet connection.

This shielded cabinet integrates the acquisition electronics, the data processing unit, the power supply and the thermal control of the station.

Each vehicle pass generates an individual file containing the time and place of transit of the truck, its number plate and the country of origin, its category, its detailed weight (total weight, axle weights), speed, dimensions, lane position, transport type (e.g. hazardous materials) and several digital photos.

The file is sent, in real time, to the database on two centralized virtual servers hosted at the PEREX centre, which will soon be expanded and renovated. It is also sent, by 3G network, to the tablets of the police officers on the ground. The file

is only accessible to authorized personnel for a limited time.

Reliability exceeds international standards

Tein Technology and the SPW Road Telematics Cell collaborate closely in the calibration of the WIM network and the road sections concerned, as recommended by COST 323. COST 323, a European programme, aims to promote the development and implementation of on-road weighing techniques for road vehicles and their applications. It specifies the requirements a WIM station should be subjected to.

Tests have confirmed that each of the WIM gantries installed by Tein Technology delivers 100% of measurements below the maximum permissible error.

WIM Wallonia – a possible world first

“The goal now is to migrate these dynamic preselection weighing stations to dynamic automatic ticketing stations. The equipment in place is potentially homologable,” says Jérôme Fripiat.

The advantage of using the WIM stations for automated control-sanction (CSA)

of all heavy traffic 24/7 is obvious. The CSA, however, has to deal with aspects of legal metrology governed by both legal, technical and normative constraints.

As there is no country in the world using a fully certified and exploitable WIM system, the Walloon region is looking at marking up a world first.

More than positive end assessment

The SPW wishes, in the long term, to carry out automated control-sanction – from dynamic weighing to automatic ticketing and fine collection.

Tein Technology guarantees 98% availability as well as preventive and curative maintenance, remotely and on site.

Jérôme Fripiat concludes: “Today’s WIM stations are versatile, efficient and reliable. For us, that’s what counts.”



CLIENT & SOLUTIONS

Client: Public Service of Wallonia

Project date: 2016-2017

Solutions: Traffic

Efficient traffic management heightens the capacity, efficiency and safety of road networks. Traffic data collection and analytics reveal predictive traffic flows and open the way to traffic modeling and preventive action. Our in-house know-how and experience combined with our proven relationships with city and state authorities enable us to provide innovative traffic management systems on scales ranging from the small to the very large.

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- Automatic Incident Detection (AID)
- Traffic data collection
- Traffic management and enforcement

To find out how your organisation can benefit from Tein Technology’s expertise in traffic management, contact:

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About Tein Technology

Tein Technology is a leading-edge provider in the integration of voice and video platforms for mission critical environments such as financial trading rooms, traffic control for road, rail and waterways, port monitoring, city surveillance and public transport. Tein Technology runs a team of 60 highly qualified specialists and is based in Brussels and Amsterdam.



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