

Nationwide Toll Enforcement System for Belgium



With around 31,000 km² of land area and 11.6 million inhabitants, Belgium has a well-developed transport network with around 150,000 km of roads and 1,800 km of motorways. Due to its geographical location in Europe, Belgium experiences over 80% international transit traffic from more than 40 different countries.

Belgium faced multiple problems with heavy truck traffic

Eurovignette
an inefficient and
unfair media for
road funding

Until 2016, Belgium encountered significant challenges associated with truck-based road usage. Firstly, the time-based Eurovignette system promoted inefficiency and inequity: the more you drive, the less you pay. Secondly, the cost distribution between domestic and international traffic – which constitutes the majority - became even more unfair. Additionally, Belgium is divided into three regions, making it impossible to fairly allocate and distribute the collected vignette revenues under the "flat" Eurovignette system.

Modern GNSS toll system - a truly distance based tolling system

In 2014, the three Regions of Belgium decided to implement a modern, GNSS-based kilometre charge for Heavy Goods Vehicles above 3.5 t. A GNSS system can accurately measure the true distances of road usage while also considering emissions- and weight classes.

Thus, the system ensures a fair differentiation and allocation of the costs incurred, while simultaneously promoting cleaner, more efficient logistics and sustainable CO2 reductions.



STRABAG and EFKON implemented the complex enforcement system

Enforcement
a key success
factor for
compliant toll
collection

In 2014 the consortium SATELLIC has been selected to design, build, finance, maintain and operate the truck tolling system for 12 years. STRABAG and EFKON were responsible for supply and maintenance of the entire enforcement sub-system as a significant part of the entire tolling scheme. The system went in operation in April 2016 and has grown to a successful toll system with more than 600.000 international customers and a kilometre tax income of more than 800 Mio Euro in 2023.

EFKON's supply of the comprehensive enforcement sub-system

EFKON has supplied, installed the still operates the entire enforcement sub-system for the nationwide toll system in Belgium. The following systems were delivered for the large-scale project:

- ➔ 39 Stationary enforcement systems, each average > 6 lanes, covering > 250 lanes in total and detecting and verifying on average > 2 Mio vehicle passages per day
- ➔ 22 flexible moveable enforcement system for daily deployments on highways, national roads, and urban areas.
- ➔ 30 mobile enforcement vehicle key-components
- ➔ the comprehensive application software for the "Toll Compliance Backoffice", handling the enforcement business processes up to final preparation of fines
- ➔ Technical operations and maintenance of the entire enforcement system until minimum 2028

To ensure high accuracy and reliability, the stationary roadside system is built of video tolling components (cameras and ANPR), DSRC communication and laser-based detection- and classification systems. Dual-ANPR (front/back-shot) and redundant components ensure high reliability. All key components were developed, manufactured, and supplied by EFKON (DSRC transceivers, cameras, flashes, mobile vehicle roof units, the flexible enforcement stands and camera/DSRC- and lessor sensors).

Main challenges in the project

- ➔ Manage the complexity of the Belgian toll enforcement with three regions
- ➔ Provide excellent ANPR rates >98% with <0,1% error rate)
- ➔ Seamless integration of multiple Service Providers by EETS implementation

Achieved results and benefits

- ➔ Significant reduction of CO2 emissions and pollutions
- ➔ > 97% of the trucks belong to Euro-class 5 and 6 today
- ➔ A pioneering EETS project in Europe with 7 international Service Providers today
- ➔ Achieving ANPR rates exceeding 98% with error rates below 0.1%

Impressive

results for traffic, environments and a fair cost distribution by the new toll scheme

In 2023, a kilometre tax income of more than 800 Mio Euro was generated by more than 600.000 international customers. Around 97% of the trucks belong now to Euro-class 5 and 6, which contributes significantly to the reduction of CO2 emissions and pollutions produced by older trucks. The enforcement system is seen as one essential key element and success factor by ensuring an accurate and effective compliance control with the toll legislations.

The decentralized jurisdiction and law enforcement by the three Belgian regions (Flanders, Wallonia, Brussels) increased the system complexity. To handle this challenge, specific business process in the central compliance back office was successfully implemented .

The project was the first European GNSS project that enabled the seamless integration of private EETS service providers. Currently, 7 EETS service providers are accredited and integrated by ViaPass.

