

EN

# Poland: a successful toll road network.



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# 2,200 KM of Free-Flow tolling.

The viaTOLL electronic toll collection system, currently the largest, most technologically advanced intelligent transportation system project in Poland, became operational in July 2011 and was built from the ground up in a record-breaking eight months. Kapsch Telematic Services has signed an eight-year contract for the provision and operation of the system with Poland's General Directorate for National Roads and Motorways. The system implementation costs were recouped in just 18 months – an excellent result for a major infrastructure project.

## **Finding ways to modernise.**

Poland's new Electronic Toll Collection (ETC) system is called viaTOLL. Prior to its implementation, the country had operated an obsolete and loss-making vignette system which charged trucks for access to the road network by the day, week, month or year. Poland needed a solution which would be interoperable, future-proof and, most of all, a source of revenue for the National Road Fund which finances the construction and modernization of roads.

## **Fair and efficient.**

At launch in July 2011, the viaTOLL system covered 1,560km of roads in Poland.

Eventually, it is intended to cover a total of 7,000km of national roads, expressways and motorways managed by the General Directorate for National Roads and Motorways (GDDKiA). The roads covered are divided into sections and tolls are gathered electronically according to the number of sections travelled.

At present, vehicles and combinations of vehicles with a Gross Combined Weight (GCW) exceeding 3.5 tonnes are subject to tolls. The actual rates depend on road category and a vehicle's mass and emissions standard – in the case of the lastmentioned, for example, a vehicle which complies with the latest Euro 5



emissions standard pays half that which a Euro 2-compliant vehicle pays.

A key performance criterion of an effective ETC system is the accuracy level of transactions and a low level of 'leakage' – that is, its ability to make sure that all those vehicles eligible to pay a toll in fact do so. Since its launch the viaTOLL system has demonstrated an accuracy level of 99.9 per cent, thus ensuring that the revenues for future infrastructure improvements will be maximized.

The levels of equipment involved in a national-level tolling scheme are appreciable. Kapsch's contract encompasses more than 650 gantries. In

addition, the company has been responsible, inside less than a year, for the delivery and distribution of more than 1,200,000 of the OnBoard Units (OBUs) which are carried by vehicles eligible to be tolled. Kapsch is also responsible for a control system based on laser scanning profiling of vehicles and automatic number plate recognition, for equipping the road transportation inspection authority with 100 super-advanced mobile enforcement units, and for an information campaign directed at drivers and carrier companies.

As part of the contract, Kapsch Telematic Services is also responsible for manual tolling operations on motorway sections built and managed by the state. On these





routes, manual tolling has been supplemented with an implementation of the viaTOLL system for vehicles with GCWs under 3.5 tonnes which is called viaAUTO. Drivers of light vehicles equipped with viaAUTO OBUs can enjoy the benefits of free-flow tolling, paying electronically and saving time by not having to stop at toll plazas. This solution was implemented on two sections of state toll motorways in Poland.

#### **Reliable DSRC technology.**

The architecture of Poland's viaTOLL ETC system incorporates a central system, a data transmission infrastructure, a settlement center and back office systems. The system is built on proven Dedicated Short-Range Communication (DSRC) technology which complies with international (CEN, ISO and IEEE) standards and has found successful application in many countries across Europe and elsewhere in the world.



On-board unit.

The gantries which are erected over the carriageways of tolled road sections hold all the equipment necessary to facilitate a tolling transaction from the roadside. They use special antennas to communicate with the OBUs of vehicles passing underneath. Tolls are charged without vehicles stopping or even slowing. Charging can also take place when a vehicle is switching lanes or if there are several vehicles driving in close proximity.

#### **Development options.**

The networks of gantries used with DSRC lend themselves readily to other applications. By virtue of providing optimum positioning over vehicle lanes and existing power and data connections, technologies for enforcement and traffic management can also be integrated and supported. Gantry-to-gantry monitoring can support section- or average speed-based measurement and enforcement, for example. This is a much more sophisticated method of controlling vehicles' speeds that the familiar 'spot' enforcement, where speeds are only captured at a single point on the road. Because drivers learn to maintain a constant speed, rather than jam on the brakes each time they see a camera, section-based speed enforcement has been shown to have more beneficial effects on safety and on congestion and overall road capacity.

Integration of new or existing traffic management systems is also possible. Technologies designed to detect incidents or the presence, types and numbers of vehicles not only allow road operators to address current road conditions in real time; the traffic information and statistics generated by the viaTOLL system can help the GDDKiA and the Ministry of Transportation to precisely plan further development of road infrastructure in Poland.

#### **Huge implementation scale.**

Nationally, the launch of the viaTOLL system was a huge undertaking, comparable only in scale with Poland's motorway construction program. In operation the system currently registers between 2.5 and 3 million transactions per day. System revenues have balanced the cost of implementation in just 18 months. This is an especially rare occurrence where large infrastructural projects are concerned. By April 2013, the National Road Fund had received over PLN 1,66 billion through the viaTOLL system.

#### **Kapsch Group.**

Kapsch is one of Austria's most successful technology corporations, specialized in the future-oriented market segments of Intelligent Transportation Systems (ITS), Railway and Public Operator Telecommunications as well as Information and Communications Technology (ICT). Kapsch. Always one step ahead.

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