

Opel optimises Endurance Test

Opel engineers and test drivers speed down with their prototypes over the proving ground in Dudenhofen near Frankfurt up to ten million kilometres (six million miles) a year. An Electronic Proving Ground Management System (EPM) that among others was designed and implemented with Devoteam controls the operation and makes the roads safer. Author Bernd Seidel dared to enter the road and completed a test drive.

“You drive!“, says project engineer Dietmar Terhörst and throws a kind of key to me. It is about noon. Opel’s vehicles are twinkling in the sun, at the car park in the Opel test centre near the A3 motorway. “These are all models which are near series production and still not on the market“, says the engineer. Since April 1966, Opel has tested its vehicles on the 2.6 million square metres huge grounds. Twelve different test roads are available. “Only here the quality of the engineers’ many years of development work becomes apparent.“ Terhörst smiles. What is important are a highly precise test procedure and its reproducibility. Only this way, engineers can exactly identify errors and thus keep the testing costs low.

Terhörst gave me a rectangular device with a LED display which was as big as a hand. “User Guide“, he said. „The driver control system stores today’s route. It exactly defines at which speed and in which gear the car should drive at the respective test track. A data logger in the cockpit collects all generated information and centralises them in the system.“ The engineer opens the passenger door and sticks a RFID tag which is smaller than a business card to the inside windscreen. The tag stores privileges as well as information on which test tracks the driver is allowed to drive within a specific period. The access to each of the track sections is secured by gates that are controlled via the RFID tag.

EPM takes over the Wheel

“When we launched the project at the beginning of 2004, we reached the limits of track occupancy and road -safety“, explains Terhörst. “At our site, other automotive manufacturers and suppliers are as well parallelly testing vehicles and components. Moreover, the most diverse events take place at the same time. These rising requirements called for a new, state-of-the-art system which

had to be developed according to Opel’s specifications. Its name: Electronic Proving Ground Management System (EPM). Opel opted among others for Devoteam as implementation partner. “Crucial for this decision was their telematic expertise, the deep knowledge of business processes and the experience with technologies such as mobile network, WLAN, and RFID“, remembers Terhörst. On the whole, Devoteam’s master plan – the so-called “big picture“ – as well as its approach proved to be very consist-tent.



Opel: Test run electronically operated. (Source: Opel)

We get in the car. I ask: “Is this a top secret vehicle?“ -Terhörst smiles. Of course not. Industrial espionage is a major issue at Opel. This is why a top secret vehicle – a highly confidential prototype – must be well protected. EPM can ensure this by means of appropriate access control. I steer the Insignia in the direction of the high-speed loop. The gate opens, the driver guidance system tells me to accelerate to 100 kilometres per hour (60 mph) in seven seconds. Being the son of a driving instructor, I was born with the knowledge of how to dose the throttle. The control system displays: „Drive at track three for 30 minutes at maximum speed“. We pass an electronic gantry. Track three is open. “EPM controls this as well“, explains Terhörst. At track four, a silver-grey sports car overtakes us with such a scary coolness which makes me look at my speedometer – it displays 210 km/h (130 mph).

Holding the Connection even at High Speed

Terhörst grins. “The Opel team is doing 300 km/h (190 mph) when testing here. The system must be able to localize the vehicles even at high speed in case of an accident where the dispatcher in the control centre must fully close the road and must call the EMS“, explains Terhörst. “At a speed of 300 kmh (190 mph), the mobile network connection could fail. With GPS and WLAN, however, we got a handle on it after extensive evaluations.“ The

Electronic Proving Ground Management System (EPM)

EPM System Architecture

- On Board: EPM box with determination of the position, data logger CAN bus interface to the vehicle, WLAN interface and driver control system
- Web-based application
- Server with J2EE based standard with components and modules such as order management, vehicle recording, RFID label generation and reusage, logging of the track usage for the invoicing of services and visualisation components
- Third-generation RFID technology
- WLAN network at the entire site

Devoteam as Realisation Partner

- Creation of the “Big Picture/Target Scenario“ for EPM (functional level)
- Common technology evaluation with regard to customer requirements and cost-benefit ratio (e.g. RFID for the gate control, WLAN at very high speed, exact determination of the position based on GPS)
- Deduction of the IT technical EPM architecture
- Implementation of EPM at extension stages and integration of a reliable overall system

trip ends. At the car park, I get my invoice and the “test results“. I can clearly see how long I was driving on which track, how often I used it and how much fuel I filled up. The test results are sobering: almost always too slow. The son of a driving instructor is like a leopard that cannot change its spots.



Opel Test Centre Rodgau/Dudenhofen (Source: Opel)

„The technology is good value, stable and can be extended“

Dr. Matthias Schollmaier, Head of the Opel Test Centre Rodgau/Dudenhofen, explains the benefits and the vision of the Electronic Proving Ground Management System (EPM) to Devoteam Context.

Mr. Schollmaier, what were the main reasons for the implementation of EPM?

Dr. Schollmaier: The main reason is the safety: We must ensure that only allowed vehicles get to a specific track. With the RFID chip of the third generation, this is reliable and very cheap. Moreover, we want to achieve a better utilisation of the test site and explore new revenue sources. In other words: opening the test site for further customers, manufacturers, and suppliers. In addition,

company and marketing events as well as driving safety trainings and motor sports should take place in a coordinated manner.

How do you benefit from the present project status?

Dr. Schollmaier: The technology is good value, stable and can be extended. In addition, the system provides all generated vehicle data in a central place and allows for exact, inexpensive and high-quality tests. What is very important is the fact that due to all existing vehicle bus and measuring data, the test drives can be exactly reproduced. This considerably facilitates and accelerates the elimination of errors and avoids replicate tests.

Is the Test Centre a standalone application?

Dr. Schollmaier: No. Devoteam has integrated the technical solution into our back-end applications. Thus, an exact recording and calculation of each single order is possible, including the scheduled filling station at the proving ground.

About Devoteam

Devoteam is an award winning EMEA leader in Connecting Business & Technology, specializing in information system infrastructures and telecommunications. Headquartered in France with 5,000 employees in 25 countries across EMEA, it achieved a 2010 turnover of €0.5 billion. Combining consulting and technology solutions enables Devoteam to provide its customers with independent advice and effective solutions that meet their strategic objectives. Our Consulting services range from idea and high level business advice through choice of technology solutions to organisational IT centric transformation implementations and change in large & complex IT projects. Our Solutions teams have the skills, experience and methodologies to deliver large and complex IT implementations across a range of technologies. Our Expertise of IT specialists are available for hire on-demand, accessible through a consulting service, providing our clients with highly specialised subject matter experts both locally and across EMEA.

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