

ARE YOU READY FOR TELEMATICS?

REMOTE SERVICES ARE REVOLUTIONIZING THE MARKET FOR MOBILE MACHINERY, BUT THE STEP TOWARDS TELEMATICS SERVICES IS MORE OF A STRATEGIC TOP-DOWN DECISION THAN A TECHNICAL BOTTOM-UP APPROACH



Bauer drilling rigs at Lakhta Tower construction site in St Petersburg, Russia

Remote data transfer has been around for quite some time, probably nearly as long as remote communication has been possible. Nevertheless, telematics services for mobile machines could only be introduced on a wider basis after the invention of today's cellular networks which started in the late 20th century. As mobile working machines very often work in remote areas, an additional prerequisite was a wide coverage and availability of these cellular networks.

The next success factor for wider usage was the price of the necessary technical equipment. While by the end

of the 20th century the price of a cellular modem was roughly US\$100 (with support of dual-band GSM data rate of 9.6kbit/s and text messages/SMS), we are now looking at quad-band GSM/GPRS/EDGE modems at a tenth of this price with data rates of up to 85.6kbit/s. The new UMTS and LTE standards enable even much higher data transfer rates – LTE offers a downlink speed of 150Mbit/s, 15,000 times the speed that was available less than 20 years ago.

Furthermore, costs of operation came down and worldwide charging models for the data volumes are being offered. This all results in an available, mature,

and affordable technology that can create advantages within the complete telematics ecosystem.

Data and interested parties

So the technological ground is laid for telematics services along with the data communication via the internet, according data storage capacities either the traditional way or in the cloud, and enough computing power to crunch all the data.

The operating status of a diesel engine is typically monitored using pressure, temperature, torque and rpm sensors and compared with the nominal

value given by a throttle control. The concentration of chemical substances in the exhaust is also measured.

There are plenty of values that are of interest to different groups. An OEM's R&D team, technical support and maintenance crew, for example, can take advantage of services such as remote and probably preventive diagnosis. In the same way the operator will benefit from simple instruction communicated by these teams to keep his machine running or get it going again.

Similarly interested in the usage and operation hours is the owner of the machine. In case of damages, the insurance companies might be looking at diagnosis data, to see if operation of the engine was according to specification. A service provider, who might not own the engine, will need the data, as will his client who has to pay and might like to check the bill. But not all of them will be allowed to see all data, so managing access to these data is essential, which involves security and safety, too.

A real-world example

Bauer Maschinen, based in Schrobenhausen, Germany, has developed and deployed a telematics system with exactly this 'ecosystem' in mind, using a TC3G telematics unit from STW. Bauer, which designs and manufactures rotary drilling rigs, diaphragm wall equipment and all related tools, also offers the construction service itself. With its daughter company Bauer Spezialtiefbau, it concentrates mainly on the execution of complex special foundation works in difficult soil. In addition, it sells used machines or rents out machines.

With web-BGM Bauer implemented a teleservice to cover the aspects of its business, including its OEM partners. The entities involved are typically OEM aftersales and technology departments, the lesser of the equipment, the repair shop, the machine operator, and the construction site management. Care was taken to ensure that data was safely and securely stored and accessible only to the relevant people.

The services offered by web-BGM therefore comprise a multitude of functions including the technical aspects with remote diagnosis and remote update, covering logistics with service and material planning, supervision of the construction process, and supporting accounting by issuing according bills. Moreover, one of the earliest telematics services – anti-theft



ABOVE: STW's Telematics Unit for use with mobile machines

TOP: Web access to logged data using STW's VDS solution

protection and stolen equipment recovery – comes on top.

A new landscape

Of course, implementing changes to this extent involves a few challenges. It is a transformation of the business model, along with potentially new sales channels. Selling a drilling rig is different from selling the complete execution – one has to face new technologies.

It took electronic control systems a long time to find their way into mobile machines, but now one has to deal with RF communication, security, M2M standards, linking to an ERP system and more. This will involve new partners such as ERP system suppliers, cellular network providers, and operators of servers and IoT platforms. Also the financial model will be different as licensing or pay-by-use models will pop up. Finally the legal aspect must not be underestimated. Who owns the data? Who has which access rights? The

complete landscape changes – the company's new offering will address new customers.

The revolution

Data is the new currency. The differentiation on a technological level keeps getting more difficult. Invention of new features is very often linked to a long process along with typically high costs – at least in the ramp-up phase of a product. But price is a key factor.

In addition, initiatives like Industry 4.0, the fast changes in the consumer world and globalization will see machines and data merge more and more. Ignoring these trends might eliminate certain mobile working machines as a solution for a project.

To support these trends a new class of computers will become established on machines in order to support their counterparts in the back-office or cloud. Along with this, new standards such as oneM2M have to be supported.

Companies deciding for complete propositions, solutions and services have a fair chance to define and create a

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complete market – like is still happening in the music industry, in the cellular mobile phone world, and even watches. Data management offers the opportunity to widen a company's portfolio by services. The market is there, the only question is who is first? As outlined above, this is a long-term strategic decision and each company should weigh it up before making a firm decision. **ivT**

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