

Advancing systems

The IRTE Conference afternoon technology stream served up a compelling mix of telematics, tachograph and aerodynamic information, followed by an update on advanced engines. Ian Norwell sat in

"Fleet users can identify weaknesses and areas of risk in a way that a single brand telematics system cannot"

Matt Hague

The long arm of telematics continues to telescope ever further into fleet management and operations. But in the first of the afternoon technology sessions, Matt Hague, executive director of product strategy at Microlise, outlined an important shift in data usage.

"Until recently, a good telematics system has been about monitoring the driver's behaviour on a by-the-second basis for fleet managers, and, more recently, offering active diagnostic engineering data for workshops," he told delegates. "But we've moved on from that approach, and it's now also about drivers using the system data themselves, with the big benefit being reduced management overhead."

This is an interesting development, and it marks yet another chapter in the story of telematics. It also says a lot about today's drivers' attitudes, effectively consigning the old spy-in-the-cab mentality to history. Telematics' tendrils are also curling around all the peripherals that a modern fleet needs – from cameras to tacho data. They are also playing an ever-increasing

role in demonstrating compliance.

The question of whether it's best to take a dedicated system – such as Mercedes FleetBoard or Volvo's Dynafleet – or to go for an independent alternative is also coming into sharper focus. While the former systems do deliver a mass of data – sometimes an issue in itself – and are also capable of absorbing other marques in their reporting, the specialists sport data mines that can only be envied.

Being the preferred telematics partners for DAF, MAN and Iveco, Microlise, for example, claims five billion miles of accessible data a year. "This gives us the ability to let our fleet users compare their performances against a collective baseline," said Hague. "They can identify

weaknesses and areas of risk in a way that a single brand system cannot."

Graham Lackey, group managing director of car transporter Brit European, agreed, but added another point. "We asked 14 telematics suppliers to pitch for our business, and one of the most pertinent questions for us was whether they would

be a bolt-on, or would be able to integrate with our fleet management platform."

Brit European went for Microlise, he explained, because it was "more nimble" than the OEMs' telematics people, and the only supplier that "had no issues with integrating". The result: Lackey outlined a raft of sophisticated data-based services now used and/or offered by the operator, including contextual speeding, proactive ETA management for customers, and rapid accident and safety audits. The choice is clearly working for his company.

PLAY YOUR CARDS RIGHT

September 1986 saw predictably long queues of trucks at tachograph fitting stations in the UK. The retrospective legislation that demanded fitment came with plenty of notice, but there were queues nevertheless. An unwelcome replacement for drivers' record books, to say that they were not integrated into truck dashboards is an understatement. Many were almost literally nailed on. How far we have come since then.

The first-generation digital tachograph appeared in May 2006 and, since 2012, we have been using third-generation equipment. Kevin Green, head of sales and marketing at Continental, told IRTE delegates that smarter

FACT
Being the preferred telematics partner for DAF, MAN and Iveco, Microlise claims five billion miles of accessible data per annum



fourth-generation devices are due from March 2019. What will they do?

"The current tachograph may seem like a sophisticated piece of equipment, but, in terms of connectivity, it has become the poor relation of a truck's data handling capability," stated Green. Smarter cards are needed to address what the EU sees as the persistent issue of fraudulent and false recording, he explained, adding that 75% of infringements are from manual entries, or the lack of them.

"The aim of the draft legislation and associated devices is two-fold. It's to make fraud more difficult and to reduce the administrative burden by introducing a satellite-linked smart tachograph alongside new regulatory measures," he explained. The current manual entry of vehicle location will be replaced by automated recording, using satellite-based positioning. It will also be integrated into a truck's telematics.

Fleet engineers should welcome the advent of the smart tachograph as it will provide basic information on compliance, protecting that precious OCRS (operator compliance risk score). It will also provide for early detection of manipulation or misuse, enabling the DVSA (Driver and Vehicle Standards Agency) to target roadside checks better.

Indeed, the regulation will allow authorities to check data while the vehicle is in motion, so that 'stops' will eventually no longer entail tachograph examinations. Fiddling will be further restricted by automatic recording of a vehicle's position at the starting place of the daily working period, after every three hours of accumulated driving time, and at the ending place. As telematics driver reporting systems have meant there's no hiding place for poor driving technique, so the smart tachograph will leave miscreants in the wilderness. They can run, but they can't hide.

BLOWING IN THE WIND

What about aerodynamics? Richard Owens, marketing manager for Don-Bur Trailers in the UK, told delegates he was amazed that so many truck and trailer combinations still ply our motorways with disastrous air management. "It's not as if people don't know," he said – and a game of Aerofoil bingo on any long motorway journey will prove his point.

Owens revealed that attempts at reducing drag started more than 40 years ago, with rudimentary deflector blades on cab roofs. "Of course, fuel was a consideration even back then, but not the burning issue it is today, and it had

FACT

75% of tachograph infringements relate to manual entries involving false recording, or the lack of reporting

little of the environmental edge that we are now focused on."

Nowadays, though, the figures are well established, he said, adding that of an average truck's whole life costs, the major factors influencing fuel economy – vehicle choice, driver training and vehicle innovation, including its aerodynamic profile – account for 64% of the total. Interestingly, he puts tyres in the maintenance category, so the true figure is probably higher.

That said, inventors can bang their drums about the efficacy of their aerodynamic aids for as long as they like. Unless a significant fleet takes them up, few are likely to take the plunge. In the case of DHL, however, the water's lovely, with innovation manager Ian MacAulay telling conference delegates that the Don-Bur teardrop trailer design is a winner. "We use them on drawbars, too, and the effect is immediate and obvious."

Indeed, MacAulay said that aerodynamics are responsible for 50% of fuel consumption. "That total is an engineer's theoretical figure, of course, and we will never win it all. And while the other half of fuel goes in mechanical losses – waste heat, rolling resistance and the like – that 50%



"Brit European went for Microlise because it was more nimble than the OEMs' telematics systems"
Graham Lackey

“Don-Bur has over 1,500 teardrop trailer in service in the UK. Nevertheless, a Mk III version is in development”
Richard Owens



just screams potential. It shows the sheer savings waiting out there.”

However, the truth is also that most of the easy wins have already been made. So, as with engines, big new percentage improvements are now harder to find. For example, Don-Bur has over 1,500 teardrop trailers in service in the UK. Nevertheless, a Mk III version (CD 0.402) is in development. Aside from the established technology – including recent innovations such as rear ‘boat tails’ and Don-Bur’s ‘Aeris’ automated cab-gap filler – legislators seem likely to sanction increased length regulations for an extended cab nose front.

Don-Bur is also looking at faring the underside of trailers, leaving only the lower halves of the wheels exposed. That would remove the unseen drag of awkward fabrication shapes and axle tubes – they are readily apparent if you see a truck on its side. “Truck makers can’t do this yet – they have cooling issues. But we can,” said Owens. “All that’s in our way is leaving access for maintenance and repair, plus the added cost and weight.” Maybe the next oil crisis will remove that barrier?

SPIN-MEISTER

Moving on to future engine technologies, delegates were reminded that total reliance on internal combustion engines is already a thing of

the past. Hybrids are well established as part of the solution to fuel economy and pollution control – albeit not for all vehicle types, weight and drivecycles.

Torotrak is one of the sharpest innovators in this field though, and product development director and deputy chairman Jon Hilton provided context and a convincing update on progress with its Flybrid mechanical hybrid system.

The base technology is not new, but it is much refined. In 1980, spurred by the 1974 energy crisis, Volvo Flymotor developed its Flybus, using a flywheel energy storage system. Housed in a gawky trailer section, the heart of the matter was a 300kg flywheel that peaked at 10,000 rpm. That was 35 years ago and, since then, electric

hybrids have pushed their mechanical cousins out of the limelight.

But there are several acts yet to play. Torotrak’s latest flywheel weighs in at just 8.5kg and rotates at 50,000 rpm in a compact, vacuum sealed enclosure. It’s currently the centre of a joint development project between five serious industry players: Wrightbus, Arriva, Voith, Productiv and Flybrid. Collectively, their goal is to provide a sub-five year payback on a lightweight midi-bus, assuming (and here’s the brave bit) no financial subsidy.

The project was launched in 2012, and the StreetLite bus prototype started public service with Arriva in Medway in Q1 this year, after extensive trials at Millbrook. The 15kW Microhybrid 3 provides electrification for auxiliaries and a stop-start capability. “Unlike batteries, mechanical hybrid systems are designed for the whole life of the vehicle – one million kilometres, 40,000 hours and eight million ‘charge and discharge’ cycles,” explained Hilton.

Putting the system in perspective, he added: “An electric bus may capture the public’s imagination, but its well-to-wheel performance is worse than Euro 5.” Just as important, he told delegates that, with OEM support, Torotrak’s system is retrofitable, including on trailer axles where more space is available.

So, come on Jon, how far are you from production? Development hardware is available now, he answered, with production due to start in Q2 2016 and full volume expected Q1 2017. It could be that Cinderella is finally getting toggled up for the ball. ■



FACT

“Unlike batteries, mechanical hybrid systems are designed for the whole life of the vehicle – 1,000,000 kilometres and 40,000 hours... An electric bus may capture the public’s imagination, but its well-to-wheel performance is worse than Euro 5”

Jon Hilton