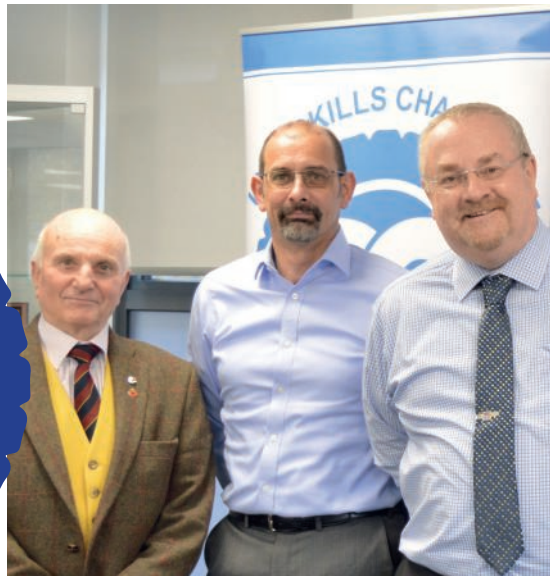
Challenging TIMES

A roundtable discussion of four engineering directors reveals how bus operators, unexpectedly, are at the forefront of the powertrain technology development cycle, finds Will Dalrymple, who also chaired the event



This year's bus and coach technician Skills Challenge comes at a difficult time for bus operators, according to first-person testimony at an IRTE roundtable to kick off the event, scheduled as usual for the first week of June at S&B Automotive Academy, Bristol. (Entry deadline is 30 March: apply at ***https://is.gd/qadewa***.)

Over a light lunch at the IRTE offices, four directors shared their views in a lively discussion that centred on the demands of the London market. Participants included: Steve Perks, group engineering director of CT-Plus/HCT London community bus service; Phil Pannell, service delivery director at Yellow Buses (Bournemouth Transport); Ian Warr, engineering director of First Group; and Ian Foster, Metroline engineering director.

Buses are changing. Air quality regulations in urban areas, present and future, are driving adoption of new low-emission powertrain technologies. Ian Foster points out that bus operators are being forced to become early adopters, and sometimes beta-testers, of innovative emissions-reduction technology to meet the ever more stringent requirements. For example, he says that by the end of the year there will be more than 300 electric buses in London and 3,000 hybrid buses in the Metroline fleet. In addition, a much smaller contingent of CNG- and hydrogen-powered buses is also running. In response, Metroline is running training in 2018 and 2019 for hybrid electric and electric-hydrogen buses, its first, to meet internal demand for service competence. It buys training direct from the manufacturer as part of the bus contract, as its upskilling needs often run ahead of the dealer training offering.

Phil Pannell of Yellow Bus points out that since environmental imperatives are driven by devolved local governments, they vary by region. So there is no market for hybrid buses in Bournemouth, for example; as a result it is planning to stick with diesel propulsion for now. Ian Warr complains that each region is settling on its own technology choice. York's strategy is completely different to Leeds', for example, limiting the First Group's ability to move fleets around and take advantages of economies of scale in bus purchase and maintenance.

RECRUITMENT PITFALLS

All of this new technology is a central feature of Metroline's recently launched recruitment campaign, which argues that nowhere else could young people get hands-on experience working on such cutting-edge low-carbon drivetrain technology. Other recruitment pitches emphasise the financial savings for a student of a degree-level qualification compared to a university education.

Such exercises are vital to sustain the future of an industry that suffers in places from big gaps between generations of technicians. Most operators are having difficulty recruiting, and keeping, new apprentice technicians. Reasons suggested included competition from other high-technology sectors, such as automotive (JLR) and train (Hitachi Rail) manufacturing. Second, intakes are harmed by the relatively poor reputation of buses in engineering; it ranks below careers in medical and aerospace

L-R: John Eastman, chair of IRTE professional sector council; Perks; Pannell; Warr; Foster; and Paul Gay, assessment director at Skills Challenge host S&B Automotive Academy

roles. For that reason, attracting female apprentices is even harder. Third, even if apprentices make it through the three-year term, they don't always stay on after their course, robbing the company of skills. Pannell says that Yellow Bus has instituted a training bond specifically to discourage early departures.

Ian Foster says that one of Metroline's strategies to hold on to its younger employees has been to increase the duration of the apprenticeship, from three to five years, to focus on achieving master technician status (to which about 20% migrate, down the line). It has also created a path for technicians to enter managerial and supervisory roles later in their career (attracting about 25%).

For proving the competence of trained technicians, bus companies' methods differ; some, such as Yellow Buses and CT-Plus, use the IRTE's irtec inspection technician and Workshop Accreditation schemes internally (for the former, this is contractually required by National Express). Metroline uses internal licences based around a skills passport scheme, though its quality inspectors are irtec accredited; First Group, with IRTE, adapted elements of irtec for internal use.

And the IRTE Skills Challenge also helps with development and engagement, they said. The Skills Challenge tests the prowess of technicians in real time with a series of inspection and maintenance tasks, plus an exam, within a particular discipline.

One of the biggest barriers to entering it is technicians' fear of failure in a competitive environment, states Pannell. If that can be overcome, the challenge helps them appreciate the bigger picture of bus maintenance today, he adds. First, the varied nature of the tasks exposes them to the breadth of the industry, from tyre suppliers to transmissions and electronics. For the apprentices that accompany them, it opens their eyes to what they can do, and what they need to learn to get there.

What's more, if either technician or apprentice win, the news of an award travels like wildfire through the depot. Once they see that there is something in it for them, they all want to do it, Pannell says. TE

TECH AND ITS EFFECTS

The group discussed two other technology-based challenges. The first is a consequence of the way advanced buses are made. To fulfil an order, a UK manufacturer may buy in one of several imported chassis platforms, each with a different ECU (electronic control unit). This raises the potential for technical problems arising from the body-chassis interface, contends Ian Warr.

Ian Foster predicts that fewer manufacturers will be involved in making buses in the future, and some will form preferred partnerships, to simplify this complex supply chain situation. Also, the European Common Vehicle Architecture programme might help here, argues Steve Perks. Foster adds that Metroline is involved in that project, supplying vehicles for a TfL-run London trial of the CAN line system, which involves common gateways for the control and access to data.

Data also features in another modern challenge. Big data, generated for example from modern exhaust after-treatment systems, requires management. To reduce the need for monitoring diagnostic and telematics information, Metroline has decided to rule by exception: that is, to only receive an alert when there is a problem. As to the data that systems generate, technology providers don't necessarily know what it means about the operational state of the bus, complains Warr at First Group – so analytical platforms require cooperation with the experts, bus operators.

Another technological innovation of concern for technicians is the use of advanced intelligence for fault diagnosis, Perks says. He argues that software that identifies bus faults by mining on-board sensor data and analysing it would take away responsibility from technicians, leading to de-skilling. Foster disagreed, stating that Metroline will still need skilled technicians to take gearboxes and axles apart. Food for thought.