

# Interview: Alan Lee, Assistant President and CTO, BWI Group

*BWI group's biggest market is China, where demand for new braking and ADAS technologies is high – and so is price-pressure*

BeijingWest Industries Group (BWI) acquired Delphi's suspension and brake business in November 2009, and with it, almost 80 years of experience in designing and manufacturing brakes. Founded in the early 20th century, the Dayton Engineering Laboratory Company (Delco) would go on to become Delphi Chassis before acquisition, and entered the braking segment in the 1930s with its own drum brakes.

Currently, the company's braking business focuses primarily on China, where it supplies electronic stability control (ESC) programmes, anti-lock brake systems (ABS), callipers, rotors and brake corner modules. Increasing sales of cars and rising safety standards mean that suppliers should expect growth. 2016 research from market research group ReportsnReports suggests the automotive braking system market in China, including disc brakes, drum brakes and associated technologies like ABS and ESC, could grow at an annual average rate of 7.3% until 2020.

"What makes us unique is our international experience and practices," says Alan Lee, BWI Group Assistant President and Chief Technology Officer. "We bring these to our customers in the Chinese market in a collaborative fashion, to meet their need for affordable technology."

Whilst the Chinese and Western markets have several differences, Lee believes they are fundamentally similar. First and foremost, there is a thirst for

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technology in both: "Chinese OEMs want to show they can offer the latest technology and match the capabilities of joint venture OEM capabilities, or imports." Foreign OEMs operating in China are required to do so via a joint venture with a state-owned OEM, such as SAIC Motor. However, a number of privately owned domestic brands, such as Chery and Great Wall Motors, are going it alone in an attempt to shake off the Chinese domestic market's image of unreliable, cheaply-built products.

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### Sharing the load

The collaborative approach, Lee stresses, is essential in China, and suppliers in BWI Group's position have to demonstrate flexibility in meeting requirements, which change from OEM to OEM. New functions and features, including advances in braking, often originate in the West. Eastern-based OEMs then must figure out how to adopt the technology and whether it requires adjustment to account for local differences.

In general, says Lee, larger companies know exactly what they require, and BWI will work to specification. However, the complexity of modern day braking systems means that smaller companies will consult BWI for optimal solutions. In one current example, BWI is working to replace standalone cable pullers for electronic parking brakes.

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“Currently we are preparing to launch our latest electric park brake (EPC), designed to integrate with the ESC,” he says. “We are following specifications from the VDA (German Automobile Industry Association) and working with another chassis supplier to make sure we meet other integration needs from OEMs.”

Cost sensitivity also places strain on lightweighting efforts, in which material selection for braking components plays a role. BWI offers its products in alternative materials, such as aluminium callipers, which can contribute to weight reduction. The premiums these entail, however, mean they are often overlooked by OEMs in the country, and so BWI's focus is on optimised design based on requirements and resources.

### Electric Asia

Suppliers in China are preparing for a jump in alternative powertrains on the road. Lee points to the government's sharp focus on promoting 'new energy vehicles', including hybrids and electric vehicles (EVs). The heavy weight of batteries in EVs, along with a different weight distribution, will change the dynamics of vehicles. This will require sufficiently advanced ESC systems that are also considered to be affordable.

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Lee is confident, but the scale of the challenge is daunting. China is aiming to dramatically increase electric and hybrid vehicle sales in the coming years. Original targets called for the two powertrain technologies to make up 8% of an OEM’s sales by 2018, although following talks between China and Germany this year, Premier Li Keqiang announced that concessions would be made to ease the pressure on foreign manufacturers. Last year, sales of new energy vehicles accounted for 1.8% of total sales.

## Stopping power

Advances in brake technology, says Lee, have been among the most important in the history of vehicle safety. ABS, ESC and traction control systems (TCS) in mainstream market vehicles have undoubtedly saved lives. Some challenges remain in China, where in 2016 it emerged that several domestic manufacturers were still building models without ESC as standard, offering it instead as a pricey extra. ESC is a mandatory technology in Western markets, and groups such as NCAP continue to push for mandatory fitment regulation, as well as in other emerging markets such as India, Brazil and Mexico.

At the same time, Lee believes that much like in the West, the market is seeing increasing demand for advanced driver assistance systems (ADAS), such as automatic emergency braking (AEB). It remains unclear how quickly demand for such technologies

might grow in a market such as China, but Lee is convinced that with the automotive industry heading towards greater autonomy, now is the time to start laying the groundwork for advanced, automatic braking systems, regardless of the current market.

“How rapidly these trends will be adopted globally is not clear, but at BWI we are responding to changes with additions to our portfolio,” he says. “Currently we are developing next-generation ESC and actuation systems to meet future requirements, and we are also looking even further ahead to prepare for the significant technology changes that will shape the future automobile industry.”

At least one Chinese company wants to help the country become a global leader in autonomous technologies: Baidu, a Chinese internet giant, unveiled its ‘Apollo’ programme in April 2017. Apollo is an open-source driving platform, and the company believes suitably-equipped vehicles could be widespread on Chinese roads by 2020. Chief Executive Robin Li raised eyebrows after being put under investigation by police, after it emerged he had tested a driverless car on public roads in July.

The next challenge for BWI Group, concludes Lee, will be the inevitable increase in interest as new technologies gain wider adoption. “As demand grows, so too will the number of suppliers, as well as the number of ways systems can detect relevant obstacles and act on those conditions,” he says. “Like many aspects of automotive development, there are often trade-offs in capability. The challenge is to understand these trade-offs and make the most appropriate compromise between cost, performance and reliability.”