

# Ford accelerates tech efforts

*Car manufacturing giant Ford recently opened a new research centre in Palo Alto. By the end of the year, Ford expects to have 125 people working in the centre, which would make it one of the biggest auto-industry research facilities in Silicon Valley. Jim Buczkowski, a Henry Ford Technical Fellow and Director, Electrical and Electronics Systems Research and Advanced Engineering, says that by collaborating with local companies and universities and by interacting with local engineers and programmers, the company expects to make better cars and get ahead of new technology trends. Among the areas that Ford's research centre will focus on are autonomous vehicle technologies; connecting the car to the Internet and other devices; and how to manage and use all the data that will be collected by sensors on cars.*

Mr. Buczkowski is responsible for the research and design of electrical and electronic systems including in-car information and entertainment, telematics, driver information, and active safety systems for Ford vehicles globally. He has been with Ford for 35 years. He says that while he grew up with electronics in cars, the technology

has come a long way in recent years. Semiconductors now pretty much control every function, from fuel economy to connectivity and safety. "Ford has pushed hard in electronics in various areas, ranging from micro-controllers to airbags," he adds. "We have long had a friendly relationship with technology, what with our SYNC infotainment platform, our support for third-party apps, and our investment in autonomous vehicles. We are proud of achievements such as having democratised in-car connectivity, making functionality such as voice recognition available to the masses." At the 2015 Consumer Electronics Show (CES), Ford highlighted SYNC 3, the company's new communications and entertainment system that is said to be faster, more intuitive and easier to use with enhanced response to driver commands. Ford expects that SYNC 3's more conversational speech recognition technology, a more smartphone-like touch screen and easy-to-read graphics will help millions of drivers connect with their lives and control their smartphone while on the road.

Technological innovation clearly is at the top of Ford's agenda. The company, headquartered in Dearborn, Michigan, has several additional research centres worldwide. Its research centre in

Dearborn focuses on things such as advanced electronics and the human-machine interface, while its research centre in Aachen, Germany, focuses on power trains and driver-assistance technologies. The new research centre in Palo Alto isn't limited to a specific terrain, says Mr. Buczkowski: it should help drive innovation across Ford's global operations. The attraction of Palo Alto as one of the high-tech hubs in Silicon Valley seems to be the main pull for Ford. "The area has a strong culture of innovation, a wealth of innovative startups, and a world class university. That's why we believe it is important for us to have a presence there. We plan to do plenty of networking within the local high-tech communities, also in the hope of helping us adjust our innovation mindset; we want to have more of a startup mindset."

Ford is not new to forming partnerships outside of the conventional automotive sphere. Widely publicised is its partnership with Google's Nest. This has resulted in a technology that allows Ford drivers to have their smart thermostat automatically switch to the 'Away Mode' when their vehicle leaves the driveway and have it flip to 'Normal' when they've arrived back home, for example. The Nest Protect smoke detector can also send an alert to the in-car dash to let the driver know if something's wrong. Ford is also cooperating with several parties in the scientific community. In 2014, the company announced new projects with Massachusetts Institute of Technology and Stanford University to research and develop solutions to some of the technical challenges surrounding automated driving, notably.

Automated driving is a key component





of Ford's Blueprint for Mobility, which outlines what transportation will look like in 2025 and beyond, along with the technologies, business models and partnerships needed to get there. With its automated Fusion Hybrid research vehicle, Ford is exploring potential solutions for the longer-term societal, legislative and technological issues posed by a future of fully automated driving. Despite of these issues, Ford and Mr. Buczkowski believe that automated driving can have a valuable place in a rapidly urbanising world, particularly in mega cities. "On-going urbanisation forces cities to rethink their infrastructure, and it requires Ford to take on a more integrated mobility approach. Yes we focus on the car, the actual product, but a broader perspective is needed for integrated systems in new generation cars."

While fully automated driving may seem a bit futuristic, we already have the technology to make it happen. But there are many stakeholders in this space, and they all, from local governments to legislators through to insurance companies, will have to work together and create an ecosystem where different systems and technologies are integrated seamlessly. This will undoubtedly take time. But, as Mr. Buczkowski points out, some aspects of semiautonomous

technology are already quite common, partly thanks to Ford: self-parking, including both self parallel parking and perpendicular parking, as well as adaptive cruise control and lane-keeping assistance come to mind.

The new research centre in Palo Alto could help accelerate the arrival of fully autonomous driving, but it is also working on other projects with the aim of improving the overall customer experience of the Ford drivers. Interesting in that regard is that the

centre is led by Dragos Maciuca, a former Apple engineer with significant experience in consumer electronics, semiconductors, aerospace and automotive tech. Under Maciuca's leadership, several projects are already on-going at the centre. They are working on a technology that helps to figure out an easier way to find open parking spots, while the company also aims to improve the user interface of its in-dash system to fit multiple people. Other projects include gathering data about urban mobility from bicycle use





what our customers really want. We will focus on making our new generation functionality as intuitive and easy to use as possible. For the new research centre, it will be important to communicate about their work with Ford headquarters and all other operations in the group, also to ensure the quick integration of new technology into our cars.”

and remotely driving a golf cart on Georgia Institute of Technology's Atlanta campus to test remote repositioning. It's also working with Carnegie Mellon University to add natural language support to speech recognition.

As Ford is a global brand that caters to the needs of pretty much all classes of drivers, the company is definitely considering cultural differences in their research and development efforts says Mr. Buczkowski. This is evidenced by the fact that the first steps for Ford Smart Mobility are 25 experiments – eight in North America, nine in Europe and Africa, seven in Asia and one in South America. Each experiment is designed to

anticipate what customers will want and need in tomorrow's transportation ecosystem. The 25 experiments address four global megatrends – explosive population growth, an expanding middle class, air quality and public health concerns, and changing customer attitudes and priorities – challenging today's transportation model and limiting personal mobility, especially in urban areas. “The smartphone revolution in emerging economies and the impact that this has on driving also has our interest, for example,” Mr. Buczkowski adds. “Overall we have a diverse and international customer base to keep happy. We don't want to alienate anyone by pushing technology without knowing that this is



Ford Research & Innovation Center  
3200 Hillview Avenue  
Palo Alto, CA 94304  
USA  
Website: [www.fordsvl.com](http://www.fordsvl.com)