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Shift 2019 - the Future of Mobility: Autonomous cars will disrupt an industry that's so large, it could be the world's 6th largest economy

The future of mobility: integrated transport solutions – Will autonomous vehicles put an end to private car ownership or double their number? – Huge public trust gap is holding back self-driving cars – To succeed, Smart Cities have to securely integrate data from local governments, private citizens and industry – Designing cars where everyone is a passenger

Smart Cities, autonomous vehicles and electric cars are set to deliver integrated transport solutions that will fundamentally disrupt an automotive industry which is so large that it rivals the world's 6th largest economy – that was the key message from experts and industry leaders speaking at SHIFT, the two-day convention at IFA Berlin exploring the Future of Mobility. This year's SHIFT saw a record number of participants listen to and network with speakers from companies like AXA, BMW Designworks, Daimler/Smart, Ford, Fujitsu and VW, alongside experts like Zipcar founder Robin Chase, the former CTO of Barcelona Francesca Bria and Venkat Sumantran, the chairman of Celeris Technologies and former CEO of Tata Motors.

For the first time SHIFT also featured a designed and curated exhibition unlike anything one would expect to see at a motor show.

During two days, speakers and participants explored the future of mobility and discussed how integrated transport solutions can help to transform a world where cities are congested, where most cars are not used for 95 per cent of the time, where ride-hailing services don't solve but add to transport problems, and where air pollution and climate change demand a sharp reduction of vehicle emissions.

Robin Chase, the founder of Zipcar and other mobility start-ups, said that the change coming to the world's transport systems was as unstoppable as "tectonic plates." In a passionate speech, she said cars should be put on a level playing field, to make them pay for the space they use and the environmental damage they cause.

The big disruptor: autonomous vehicles

The consensus at SHIFT was clear: electric vehicles will be a key part of the future of mobility, but they are not the only solution. Instead, smart cities and autonomous vehicles will be key components of our "mobility-as-a-service" future, where cars are just one component of a broad mix of transport modes that we are using. While there was no doubt among participants that autonomous vehicles would soon become reality, they were split on how this would affect the world's car culture. Robbert Lohman, Chief Commercial Officer at 2getthere, was one of several speakers who argued that autonomous vehicles would spell the end of private car ownership; in contrast, the Singularity University's Melba Kurman predicted that driverless cars would double car ownership, because these new vehicles would be smaller, lighter, greener, safer – and much more affordable.

First though, autonomous cars need to earn trust, as a vast majority of people across the world say they are afraid of travelling in self-driving vehicles.

This, said Tyron Louw of Leeds University, was in stark contrast to the fact that 1.3 million people die on the world's roads every year, with human error a contributing factor in 93 per cent of crashes. He echoed the warning by David Williams, Managing Director at AXA Insurance, who had said that some manufacturers were inflating drivers' expectations of what self-driving cars can already achieve. Still, the clear consensus at SHIFT was that - whether owned or shared - autonomous cars will underpin the future of mobility.

How to make Cities smart

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The challenge of making cities truly smart was a big topic on both days of Shift. Francesca Bria, until recently the Chief Technology Officer of Europe's smartest city Barcelona, said that "cities are at the heart of the mobility revolution." She outlined a vision where smart cities will layer data that are shared – securely and with strong safeguards for privacy – between local government, citizens and mobility service providers; a distributed "City Operating System" would then identify problems and model transport solutions. However, this approach requires highly scalable real-time computing, said Hugo Lérias, the chief technology officer for automotive at Fujitsu, who described digital annealing and quantum computing as possible technology solutions.

Not every vehicle needs to be connected and share data to make it work, though. John Lippe of Ford Europe shared new data from a pilot project in London, which used 160 vans to generate more than 500 million data points covering much of the city, successfully pinpointing traffic problems, accident hotspots and their possible causes.

Designing the car of the future

New transport systems will also result in a total rethink of the car itself. Richard Seale, lead automotive designer at SeymourPowell, said that self-driving technology would be so disruptive that it would fundamentally change how we work, socialise and perceive the time we travel. Soon, said Fujitsu's Hugo Lérias, automotive "designers will not design cars anymore, but systems," to which VW design director Peter Wouda added that the focus would shift to "designing transport experiences." Deneb Moosmeier at BMW Designworks explored how carmakers could create "emotional experiences for the autonomous era," which would build trust in these new technologies.

Car makers will only succeed with this ambition if they get their storytelling right and manage to build an emotional connection between drivers, passengers and the cars of the future, argued Jay Ward, the creative director of the Cars franchise at Pixar Animation Studios.

"There's a big risk that smart cities will sell our data to private investors. We don't start with 5G, big data, and so on... we start with our citizens. With DECODE, we're shifting into a model where citizens of Barcelona actually have a lot of agency over their data that they share to make Barcelona greener."

Francesca Bria, Chief Technology and Digital Innovation Officer, Barcelona City Council

"We need ecosystems of partnerships: cities, startups, efficient operations. Technology helps combine massive amounts of data generated from these and apply it in real-time to optimise eco systems."

Christof Schleidt, Head of Sales & Business Development, Manufacturing and Automotive Central Europe, Connected Services

"Connected vehicles are an opportunity to access very deep data. The vehicle is a distributed sensor and we want to apply big data analysis to solve big problems. The Ford City Data Report in London generated 500 million data points. Even as someone who works at Ford I can confidently say that sometimes the right thing to do is remove parking and re-green the area, creating space for activities other than traffic."

John Lippe, Director of City Engagement, Europe Ford Mobility

"There are 3 myths that prevail about the driverless car industry: the car industry is doomed, people will no longer buy cars, driverless vehicles will kill jobs. In fact, it will set off a cascade of change in how cities operate and how we move goods."

Melba Kurman, Author & technology analyst

"Nobody knows for sure how the world will look in 5 years, yet we are all under pressure to prepare for that future. Driverless cars merge two imperfect systems - humans and automation - to anticipate new types of road accidents."

Tyron Louw, Research Fellow at the Institute for Transport Studies, University of Leeds

“Yes, no two big cities are the same, but when thinking about mobility we must not forget about rural areas and their totally different needs.”

Peter Wouda, Design Director Vehicle, Volkswagen Group Future Center Europe GmbH

“We can stay at home and everything will come to us. We’re moving the purpose from obligation to leave the house, to making decisions from emotional perspectives”

Deneb Moosmeier, Director Strategic Partnering, Designworks, A BMW Group Company

“In a driverless car, the driver becomes a passenger. The car could become a perfect medium for consuming multimedia entertainment that might not normally be sustainable in a home environment, such as VR.”

Sebastian Stegmüller, Leiter Team Mobility Innovation, Fraunhofer-Institut für Arbeitswirtschaft und Organisation IAO

“Everything we do is about people. We see these driverless car systems as an organism, like a moving flock of birds.”

Richard Seale, Lead automotive designer, Seymourpowell

“A car by itself has no character by itself, but in the future it will learn more about its passengers and adapt to their personalities.”

Jay Ward, Creative Director, Cars Franchise Pixar Animation Studios

The full programme of SHIFT – the future of mobility – can be found [here](#).

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