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Driverless car hits

—————— public roads in Beijing

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Malaysian Ministry of Transport

Dr. Wilfried Aulbur
Managing Partner & CEO (India)
Head-Automotive(Asia)
Roland Berger Strategy Consultants

Mohammed Madani Sahari
Chief Executive Officer
Malaysian Automotive Institute

Celline Le Cotonnec
Head-Connected Services
PSA Peugeot Citroen

Vivek Vaidya
Vice President-Automotive & Transportation
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Is there a market for autonomous vehicles in Asia?

It is evident nowadays that Asian carmakers are taking the autonomous cars seriously than ever before giving a strong competition to their Silicon Valley counterparts.Folks like Toyota, Nissan and Honda are eyeing on 2020, the year when most of the industry insider believe, autonomous vehicles would go mainstream. These vehicles will arrive with a plethora of sensors, LiDARS, cameras, and scanners to aid in driving through traffic without even touching the wheel.

Shamik Ghosh
Business Editor

The public testing of autonomous vehicles is already underway in various cities. Recently, a driverless BMW 3 series prototype was seen on Beijing roads carrying Chinese internet company Baidu's logo. The Japanese government has committed to work with automakers to invest 10 billion yen on autonomous technologies. Singapore government has also set up a department, dubbed as "future mobility initiatives" to prepare the necessary regulatory & infrastructure groundwork to test these vehicles. Most recently, Tata Motors was believed to be working on driverless cars, though we are yet to see any development from them.

Seeing these developments, we can expect some form of commercially available "autonomous" functionalities in Asia to be available in next five years or so. However, initially the technology will be confined to simple ADAS functions such as parking assistance, emergency braking etc.

These technologies will be on display at this year's international Consumer Electronics Show (CES) in Las Vegas, NV. What used to be a technology show few years back is now becoming a "place to be" for automotive marquees to showcase their future vision on connected and autonomous cars.

This edition of Smart Automotive magazine features similar stories with additional in-depth insights about the latest developments in automotive space. We have also brought expert interviews and articles from senior experts that will give our readers the inside scoop about the status of telematics and connected car in emerging markets like SE Asia.

We'd love to have your continued support and valuable feedback, which keeps Smart Automotive going.

Finally, we'd like to congratulate all the companies who would be in the CES this year!

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In this Issue...

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ASIA
Autonomous vehicles' next stop

A status update on recent autonomous car deployments conducted by Asian carmakers, tech- giants and government

Shamik Ghosh
Kriti Ranjan

Vehicle autonomy is no longer just science fiction but certainly the most talked about technology in automotive sector now-a-days. Ever since Google introduced its "driver-less" prototype in 2010, the entire automotive and electronics industry has taken a deep dive in an ocean full of technology upheavals, political foot-dragging and media skepticism. The industry is now taking baby steps whereby the manufactur-ers (OEMs) are gradually phasing in the various pieces of technology required for fully autonomous cars. This is done to acclimatize drivers to this new way of "assisted" driving and eventually paving the way for "fully autonomous" mobility.

When it comes to "infrastructure readiness", the United States leads the way in pursuit of autono-mous vehicles with four states (Florida, Nevada, Michigan and California) issuing carmakers the per-mit to test their "autonomous" on public roads. Not to be outshone, other countries have also jumped on the bandwagon. The government is supporting the implementation of driverless cars and is reportedly in talks with Google. In Sweden, Volvo is planning to conduct trials involving 100 of its driverless cars on the streets of Gothenburg in 2017 under the rubric "Drive Me". Australian government also concluded its autonomous car trial in Adelaide this year mak-ing it the first-ever project in Southern Hemisphere.

Lately, self-driving cars made their entry to various Asian countries which is the gist of this story. Here's a compilation of recent autonomous vehicle trials conducted by Asian carmakers and governments alike.

Singapore "SMART" driverless car

The entire city-state of Singa-pore is no larger geographically than Tokyo, and its population is both growing and aging. Add to this the worsening traffic conges-tion across urban regions, and it is clear why the government is keen on promoting self-driv-ing cars that can move people around more efficiently and eco-nomically.

A team in Singapore has suc-cessfully developed their own self-driving car prototype at un-der half the cost – just S$30,000 ($23,500) for two off-the-shelf LiDAR sensors and an onboard computer which are mounted onto a conventional vehicle.

Last year in October, a pair of modified golf carts made their debut in Chinese and Japanese Gardens in the western Singa-pore. Instead of a steering wheel, the carts sported a touch panel. Riders simply touched the panel to start the journey and the cart did the rest, steering around pe-destrians and obstacles en route to designated stops inside the park.

The event was part of a test drive conducted by SMART, ac-ronym for Singapore-MIT Alli-ance for Research and Technol-ogy in partnership with National University of Singapore (NUS). The SMART team developing the autonomous vehicle is com-

posed of NUS doctoral students and professors from the university and from MIT. Provided all the legal obstacles are removed, SMART believes it can bring their prototype onto public roads in two years.

Besides this. Singapore Land Transport Authority (LTA) has launched its Autonomous Vehicle Initiative (AVI) which is a technical platform for industry partners and stakeholders to conduct research and development (R&D)

and test-bedding of AV technology, applications and solutions. LTA aims to incorporate this technology in mass-transport service that operates on fixed routes and scheduled timings, such as autonomous buses.

Nissan's "Piloted Drive 1.0": Ghosn's vision towards Zero Emission, Zero Fatality

At the 2015 Tokyo Motor Show, Nissan presented a glimpse into future as to what the convergence of electric mobility and vehicle autonomy could look like many years down the line.

Nissan showcased an all-electric "LEAF", which is advertised as "most affordable electric car", equipped with features such as a millimeter wave radar, laser scanners, cameras, high-speed computer chips, and a specialized HMI. Back in 2013, Nissan

received the Japanese government approval to test its LEAF equipped with an advanced driver assist system (ADAS) on public roads for the first time.

Nissan calls it "Piloted Driving 1.0" which allows for autonomous driving under heavy highway traffic conditions. By 2018, the company hopes to implement a multiple lane piloted drive that can conduct lane changes on highways (level 4 autonomy). The Piloted Driving 2.0 system

(yet to be formally announced) is far more sophisticated and includes multi-lane and city-driving capabilities, including the ability to smoothly maneuver around obstacles and slower-moving vehicles (or stop for pedestrians). It won't be seen in any production model for at least several years, although Nissan's chief Carlos Ghosn said that the technology will be ready by 2020, which is incidentally the same year when the Japanese car maker believes fully autonomous vehicles to hit the roads.

Radar
Laser scanner
Camera

Source: Nissan

Toyota Highway Teammate

Toyota, unlike its rival Nissan, didn't focus much on autonomous cars during initial days stating "driver safety" as its priority. Although, Toyota has been working on automated driving tech since the 1990s, but it wasn't until 2015 when Toyota made their first "tangible" push towards autonomous cars, a technology which it aims to commercialize before the 2020 Tokyo Summer Olympics.

The company, on Oct. 6, conducted a test run of a modified driverless Lexus GS on Tokyo's Shuto Expressway. Dubbed as Highway Teammate, the concept vehicle used on-board technology to understand traffic conditions, make decisions about what maneuvers to make, including merging, maintaining or changing lanes and keeping distance between vehicles. It also uses road map data and multiple external sensors to recognize nearby vehicles and hazards, and select appropriate routes and lanes depending on the destination, the company says.

Toyota will also invest more than
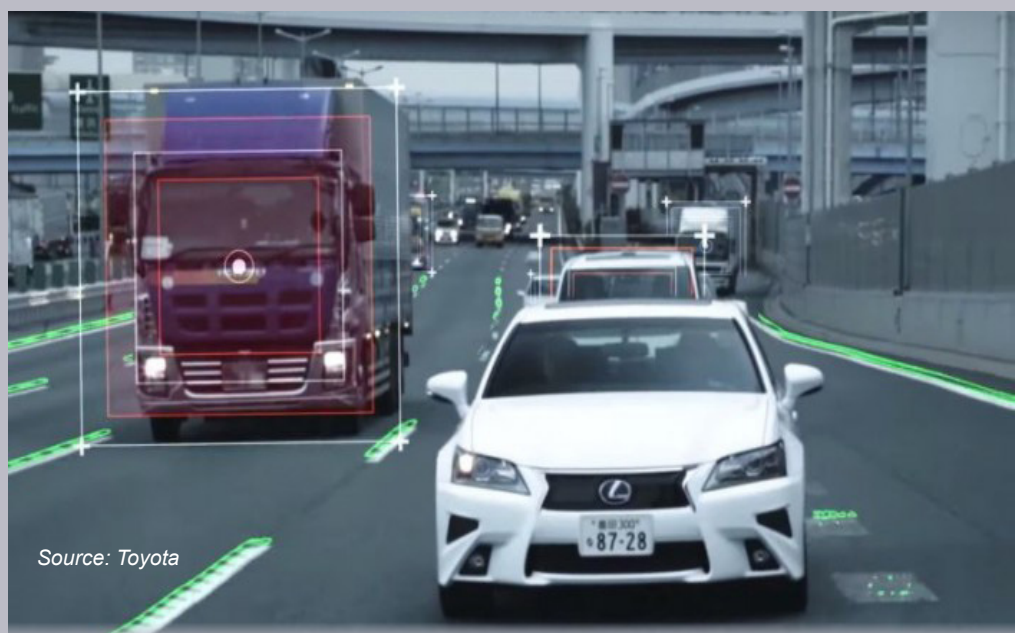
Source: Toyota

50 million USD in the next five years to establish research centers with both Stanford and MIT universities, to work on artificial intelligence and autonomous driving technology. These new projects will be led by Dr. Gill Pratt, who formerly ran DARPA's Robotics Challenge, a contest to create robot systems to help emergency responders during disaster situations.

Research at MIT will focus on "advanced architectures" that will let cars perceive, understand, and interpret their surroundings while Stanford will concentrate on computer vision and machine learning. It will also work on human behavior analysis, both for pedestrians outside the car and the driver.

Honda has not revealed any plans to bring autonomous cars in Asia. Honda's sr. chief manager, Yoichi

Sugimoto, who has been working on the technology since 1986, says it will be "at least" 2030 before a car can completely drive itself. Sugimoto says there are still too many variables — such as weather, pedestrians, cyclists and even animals that can run onto the road — and not enough computing power to process all the information fast enough, and then make the correct decision.

However, Honda has been issued a license to test driverless car in California. For this the company has already secured a testing facility to the northeast of San Francisco in Concord, CA. Its autonomous vehicles are tested here before being put out on the road.

Baidu locking horns with Google

Source: Baidu

Baidu is the latest to join the self-driving cars bandwagon. In July 2015, the Internet search engine giant collaborated with BMW to bring driverless car in China within a three years timeline. Recently, Baidu drove a modified BMW 3-Series on an 18.6-mile route around the capital city that included side streets as well as highways. The test took place on a stretch of road from Baidu's Beijing headquarters and around the G7 highway, Fifth Ring Road, Olympic Park and back again.

The car made left, right, and u-turns, changed lanes, passed other cars, and merged onto and off the highway. The company's deep learning research lab has been working on this project since 2013.

The difference between the approaches of these two rivalries could be in both production abilities. Baidu has previously said it is targeting part automated cars

that require occasional driver input, whereas Google has favored entirely automated vehicles.

Wang Jing, Sr. Vice President of Baidu even said that the company would dedicate an entire unit for the development of driverless cars. Baidu's two prototype BMW 3 Series Gran Turismo driverless vehicles are currently being tested on roads north of Beijing, he said, with plans to develop and build more models in the future.

Benefits and challenges

It only takes a closer look at the ambitious plans of automotive OEMs and tech-giants to understand how the autonomous cars will change mobility across urban cities for better in coming days. Public transit authorities and urban planners seem to believe that these vehicles could potentially autonomous vehicles could serve as new mobility modes to offer customized and demand-responsive transport servic-

es of dynamic routes within towns. An integrated network of driverless vehicles could include self-driving taxis and autonomous car-sharing that could address "first mile, last mile" issues. Most importantly, they could very well integrate with various smart city projects.

Other applications may include driverless commercial vehicles that ply in the middle of the night to optimize road space (such vehicles are already being tested in the US). This would save manpower on drivers and minimize traffic congestion.

However, besides regulatory concerns and technological hurdles there are several infrastructural and psychological questions that are still unanswered.

For autonomous vehicles to work well, roads, road signs and signals may need to be mapped or made intelligent. These would involve costs. Who should pay for them: the owners of autonomous vehicles or the general tax-payers?

Also, despite advancements in artificial intelligence, would driverless vehicles be able to make the right decisions in unexpected situations? Can they adapt and respond to the dynamic traffic conditions and interactions with other road users, like what human drivers can do? Could an autonomous vehicle make a value judgment between avoiding a pedestrian and causing harm to its own passengers?

If both industry and governments are able to address these points, self-driving vehicles could become a common foresight in Asia.

How cloud connectivity and big data are enabling new connected driving experiences?

"

The landscape of technology shifts at the speed of light, and startups play a key role in advancing innovation in the connected car arena because of their ability to pivot and scale quickly.

Bryan Mistele
Chief Executive Officer
INRIX

With drivers in our world's worst traffic cities wasting more than 60 hours in traffic last year, the frustrating impact of traffic congestion has been known for some time. What's worse is that the cost incurred by cities due to traffic congestion is well beyond than the 'inconvenience' to our time. In 2014, USA, France, UK & Germany lost a whopping $200B in traffic congestion, if statistics from a Seattle-based traffic data company INRIX have to be believed.

So how do we cope with this global issue?

Better urban transportation infrastructure, shared mobility, autonomous vehicle technology or in-car navigation…All this put together, backed with crowdsourced real-time traffic data is what INRIX believes would transform a world we once measured in miles to one we can measure in minutes.

INRIX, a company trusted by big automotive marquees like Audi, BMW, Volvo, Porsche and Ford to high-profile government authorities is sourcing real-time GPS data from over 250 million vehicles and devices.It delivers real-time information on traffic speeds and travel times from five million miles of roads in 42 countries. Recently, in an independent quality test, the German State of Bavaria testifies that INRIX GPS-based floating car data is as accurate as road sensors!

We interacted with INRIX's CEO, Bryan Mistele, ex-data scientist from Microsoft to demystify the urban gridlock problem and the on-going activities in connected car space.

From Microsoft to a traffic data start-up and now a connected car leader. How would you like to describe your journey?

When we launched in 2005, we heard "no" at least 70 timesfrom investors until we secured partnerships that validated we were onto something. Today, we collaborate with partners across automotive, government, media retail and real estate to create a diverse and rapidly expanding ecosystem of dynamic data. We supplement mobile and other location-based information to build a highly comprehensive and nuanced picture of how populations move across a region – via foot, car, bike, bus or train. The impact of these movements and actionable insight we can derive from them is where we're focused as we shift from a data company to a connected car services and smart city solutions company.

How would you compare the connected car markets in emerging regions (BRICS, ANZ, APC) with relatively developed markets like North America and EU w.r.t.

- **Consumer Acceptance**
- **Industry Readiness**
- **Regulatory background**

According to a McKinsey report that interviewed major industry players and surveyed approximately 2,000 new-car buyers from Brazil, China, Germany and the US, 13 percent of buyers will not consider a new vehicle that does not have Internet access. And regardless of region, consumers are prioritizing connectivity over features such as engine power and fuel efficiency.

However, the industry reality is that most mid- to low-end car models still do not offer many of the most desired connected car

features, particularly at the price point required for a wide range of consumers. Additionally, 37 percent of survey respondents would not consider a connected car until privacy and security concerns were properly addressed. Consumers across emerging markets are accepting towards the notion of owning a connected car, but the industry and OEMs still have challenges to address if they are to drive mass market adoption.

How has on-board navigation evolved from mere "dots on maps", with the advent of cloud connectivity and telematics?

On-board navigation system capabilities go way beyond bare bones maps only telling you how to get from point A to point B. With the help of transportation technology and telematics improvements, startups and automakers have been able to significantly improve the in-vehicle experience with interfaces that display and monitor driving habits, fuel efficiency and even where to discover available on-street parking. In addition to navigation systems becoming a standard feature for vehicles, connected car technology allows you to seamlessly connect navigation tools available on your phone to your car's digital dashboard.

In your opinion, who will have the ultimate ownership of the harvested data from connected cars? OEMs, 3rd parties or consumers?

While OEMs may own the car data, they do not own the consumer data. Truly transforming the driving and navigation experience requires an in-depth understanding of how and when consumers harness the available technology and where they apply this information in their everyday lives. Relegating ownership of all harvested connected car data to
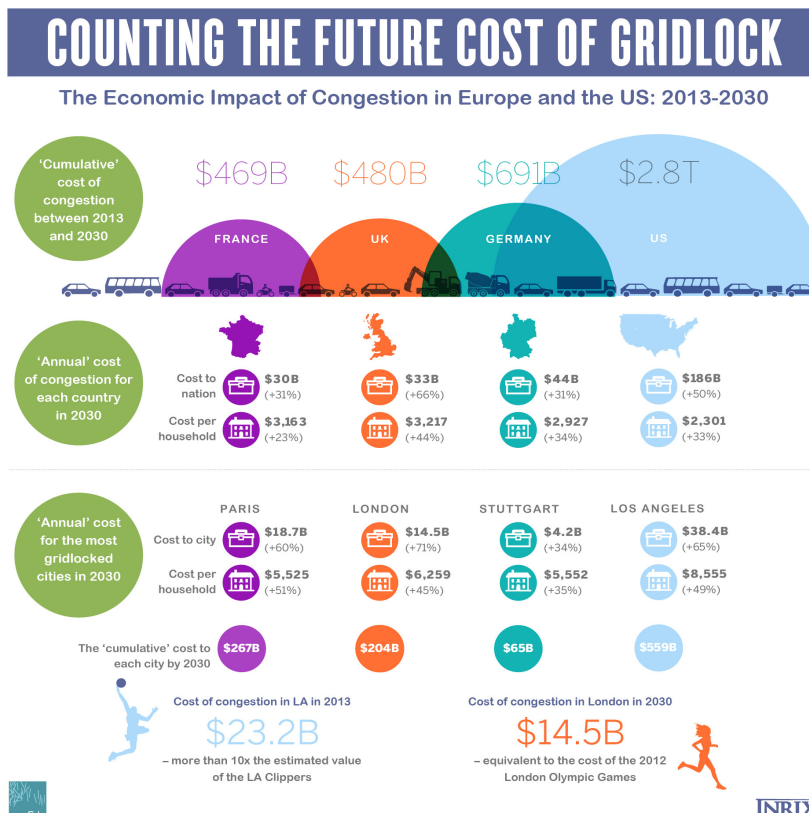
a single source or industry player would stifle innovation and prevent the connected car from truly improving urban mobility challenges.

In light of US Senator Ed Markey's report which says, "automakers haven't done their part their part to protect us from cyber-attacks or privacy invasions". How much do you agree with the statement?

As the recent Jeep hack that resulted in Chrysler recalling 1.4 million vehicles shows, much more work needs to be done. Just as the industry teams with technology companies like ours for the development and delivery of breakthroughs like real-time traffic, multimodal navigation systems and real-time fuel price, EV and parking information, they need to partner with experts in cybersecurity to develop safeguards that protect vehicles from such attacks. My guess is the phones of the security researchers who conducted the real-time hack for Wired Magazine have been ringing off the hook with offers from OEMs to come consult on vehicle systems security.

Since most of the OEMs are planning to roll out embedded telematics systems. Do you think that aftermarket industry will vanish in years to come?

With the momentum towards developing connected cars and smarter cities, there will always be an opportunity for aftermarket solutions to improve or enhance these technologies. The modern day lifestyle of consumers requires access to data anywhere, anytime and on any device. Even though we are heading toward a future where all vehicles will be connected, the demand for driving intelligence and related insightextends well beyond the cockpit.

COUNTING THE FUTURE COST OF GRIDLOCK
The Economic Impact of Congestion in Europe and the US: 2013-2030

'Cumulative' cost of congestion between 2013 and 2030

	FRANCE	UK	GERMANY	US
	$469B	$480B	$691B	$2.8T

'Annual' cost of congestion for each country in 2030

	France	UK	Germany	US
Cost to nation	$30B (+31%)	$33B (+66%)	$44B (+31%)	$186B (+50%)
Cost per household	$3,163 (+23%)	$3,217 (+44%)	$2,927 (+34%)	$2,301 (+33%)

'Annual' cost for the most gridlocked cities in 2030

	PARIS	LONDON	STUTTGART	LOS ANGELES
Cost to city	$18.7B (+60%)	$14.5B (+71%)	$4.2B (+34%)	$38.4B (+65%)
Cost per household	$5,525 (+51%)	$6,259 (+45%)	$5,552 (+35%)	$8,555 (+49%)

The 'cumulative' cost to each city by 2030

$267B	$204B	$65B	$559B

Cost of congestion in LA in 2013
$23.2B
– more than 10x the estimated value of the LA Clippers

Cost of congestion in London in 2030
$14.5B
– equivalent to the cost of the 2012 London Olympic Games

Cebr   INRIX

How do you see the intersection of automotive and wearables shaping up in days to come?

Consumer trust and familiarity with the Internet of Things continues to increase the demand for a connected lifestyle. With connected cars and wearable devices such as smart watches, the user interface defines not only how the customer interacts with the product, but also whether or not it becomes a staple in their everyday life. When choosing either an automotive or wearable, the look, feel and features are crucial factors behind purchase decisions. Moreover, the ability for these separate devices to seamlessly interact with each other will continue to drive value for consumers and increase IoT adoption.

Recently, INRIX entered into a strategic partnership with Samsung focused on leveraging mobile technology to connect cars for smarter cities.Samsung smartphones now can receive departure alerts for saved places

in the app on the Gear S smartwatch that advises them on the best time to leave and expected travel time in traffic to their next destination.

Now-a-days we're seeing a lot of start-ups entering into the connected car arena. What would be their role in the long run?

The landscape of technology shifts at the speed of light, and startups play a key role in advancing innovation in the connected car arena because of their ability to pivot and scale quickly. While INRIX began its journey as a traffic data company, we quickly understood the demand of our technology and data-driven approach for a variety of customers ranging from public transportation organizations to automakers to enterprises. The startup movement in this space hopefully will breed a broader culture among stakeholders to collectively harness technologies and access to existing data, software and infrastructure that can accelerate connected car innovation.

Researcher Zhang Zhao wearing a brain signal-reading equipment poses with a vehicle which can be controlled with his brain wave, during a demonstration at Nankai University in Tianjin

Researchers from Nankai University unveil "brain controlled" car

China's first mind-controlled car has been developed by researchers in the north-east port city of Tianjin. Chinese researchers have developed what they say is the country's first car that uses nothing but brain power to drive.

The research team from Nankai University, in the north-eastern Chinese port city of Tianjin, has spent two years bringing the mind-controlled vehicle to reality.

By wearing brain signal-reading equipment a driver can control the car to go forward, backwards, come to a stop, and both lock and unlock the vehicle, all without moving their hands or feet.

Associate Professor Duan Feng, from the university's College of Computer and Control Engineering, led the project. He emphasized that the technology is aimed at better serving human beings, and that it might soon be possible to combine brain controlled

technology and driverless cars, such as the Google Self Driving Car (SDC).

Duan said worries about potential road accidents caused by the driver being distracted while their brain was in control of his team's car were unfounded, because concentration was needed only when changing the vehicle's moving status, i.e. changing lanes or turning. Whether such an application would be enough to persuade drivers to get behind the wheel and control a car with their mind is far from certain, though.

The researchers say their initial idea was inspired by helping disabled people who are physically unable to steer cars.

At present the vehicle, in collaboration with Chinese car manufacturer Great Wall Motor, can only drive in a straight direction, and there are no plans to put it into production.

Young before your time
Corvidae

SOTA Security for Connected Vehicle

Lessons learned from IT & mobile industry...

Terry Hughes
Managing Director and SVP
AppCarousel.com

Section 1. The case for the secure connected car

It is inevitable that cars will be connected to the internet, whether it's via built-in cellular modems or companion smartphones. In 2015, over 20% of all cars sold worldwide had embedded connectivity and forecasts predict around 200 million internet-connected vehicles within 5 years.Many industries, including banking and defense, were initially reticent about being connected to the internet but they overcame those concerns by applying layers of security and protection.Almost every business you can think of these days is online, so when we hear the automotive industry express concerns about their cars being routinely connected and updated over the air, are those concerns valid and what can they do to ensure safety and security?

In defense of the connected car and SOTA (software over the air) updates, the Volkswagen emissions scandal will result in a mass recall of millions of vehicles at tremendous cost to VW, and many owners won't bother going back to their dealer to get the update so they will be driving around with out-of-date software. Therefore, it's easy to see how much better it would have been for VW if every car was connected.

Electric Storm

100°F 102°
       62°

‹ ★ New York ›
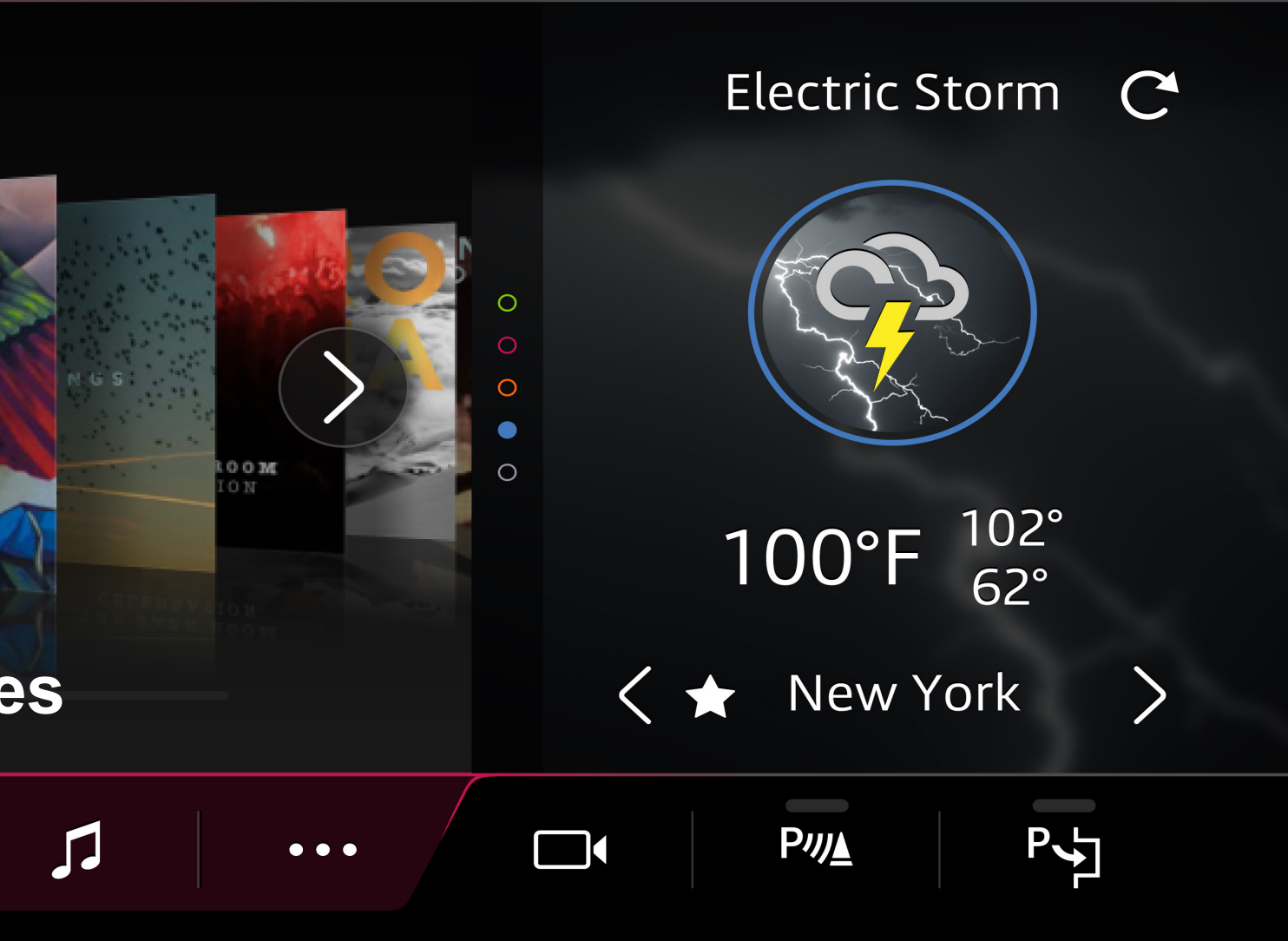
In defense of the automotive industry's concerns about being connected, although smartphones have been connected from day one and are routinely updated over the air, the car industry has threeunique and genuine concerns:

1. The average car weighs 4,000 lbs so a hacker could theoretically take over a car and turn it into a weapon capable of causing death and destruction

2. A hacker or a rogue software update to a vehicle could theoretically "brick" the vehicle rendering it useless thereby forcing the owner to return it to the dealer to be reflashed, assuming it was even capable of being driven there. If that happened on a large scale, the financial and logistical impact to the automotive industry would be massive

3. Cars that drive more autono-

mously are being rolled out and self-driving cars are under development, and by their very nature they will be hyper-connected (that's one of the reasons Google and Apple are so interested in this space).Now is the time to develop security models that can extend to these new use cases in the years to come

Consumers are demanding that their next vehicles are connected, so that they can enjoy advanced In-Vehicle Infotainment and in-car WiFi, and the manufacturers totally understand the ROI of being able to update and diagnose vehicles remotely. Therefore the connected car is inevitable so the industry's attention is turning to how to do this, just as securely as the banks and defense sector has done before them.

Section 2. Is the car just like a PC or smartphone?

My company AppCarousel has been providing app stores and software management solutions across various sectors for 15 years, all the way back to when smartphones were a twinkle in BlackBerry's eye. We have watched the antivirus and malware protection companies like Kaspersky, Bitdefender and Avast firstly enter the PC market, then the smartphone market, and now the IoT (Internet of Things) market. So I figured that if there was a genuine connected car security risk these antivirus companies would have solutions in place or at the very least they would be making lots of noise, therefore I decided to look at arguably the two biggestand best known of them all; Symantec (a public company) and McAfee (acquired byIntel in 2010 and now part of the Intel Security division).

What's interesting about Intel and their subsidiary Wind River is that they are heavily into supplying con-

nected car silicon and hardware to Hyundai (driver information system), BMW (navigation system), Infiniti (in-vehicle infotainment system), and Kia (in-vehicle entertainment system).Their acquisition of McAfee is paying dividends in their ability to provide end-to-end protection, importantly by using the essential combination of hardware and software techniques. In September 2015 Intel Security launched the Automotive Security Review Board (ASRB) to stimulate automakers and electronics companies to come together to enhance the physical system security of vehicles.

In a white paper, Intel Security discusses many techniques for protecting the connected car infrastructure, including secure boot-up loaders that check the digital signatures of all software about to be run on each ECU (electronic control unit), active memory protection to protect against overflow conditions that malicious code can exploit, and virtualization using software containers in which downloaded code is run. Regarding SOTA, Intel's paper talks about the need to protect both the cloud end and the in-vehicle end of the link including encrypted communications, threat intelligence exchanges and databases (as are commonplace in PC protection) and credential management where everyone in the SOTA value chain is authenticated via federated identities using cryptographic keys.

The paper also discusses why hackers might want to get into the car's systems in the first place, including malicious attacks to take over the vehicle, mischievous attacks just to prove it can be done (as was recently seen when a Jeep was hacked while doing 70 mph on a freeway), and fraudsters that want to steal the driver's personal information including addresses stored in the navigation system and information stored on the connected mobile phone. When you add to that the fact that today's car can be penetrated via cellular, satellite,

WiFi, Bluetooth, USB, OBD II and wireless remote keys, Intel recommends a holistic approach where it's not enough just to firewall the SOTA cloud from the car but also to have on-board protection for those attacks where one of the non-SOTA entry points are used.

Symantec have also released a white paper on vehicle security, which focuses on protecting the various layers of the connected car architecture, from the cloud-based layer, through the radio layer, to the single-board computer (SBC), body control module (BCM) and various ECUs, down to the smaller sensor modules, the chips driving those modules, and the bus protocols connecting them all together including the commonly used Controller Area Network bus (CAN bus). Symantec's paper discusses the fact that it will take many years to truly secure all aspects of the connected car but that an essential starting point should be to lock down the "head unit" which is often the most powerful SBC in the vehicle (and nearly always the most connected module today), then to use that head unit as a beachhead for managing and updating the rest of the car. Symantec's techniques include whitelisting of good code that is pre-approved along with controlling how that code is permitted to behave, running code in sandboxes, and monitoring code and activity across the CAN bus, over the air and within the modules to detect and deal with anomalous behaviour.

Section 3. Lessons learned

Both McAfee and Symantec carved out successful businesses because the world of PCs is full of hardware, software and cloud services made by thousands of different vendors that have to interact, and hackers like to exploit gaps and vulnerabilities between those interactions including weak APIs and poorly designed interfaces. That's why almost all PCs today have deep and total protection from the likes of Intel Security and Symantec. Con-

trast that with today's car; it does have those same characteristics as the afore-mentioned PC, but without that deep end-to-end holistic protection. AppCarousel therefore recommends that automotive manufacturers should:

1. Secure their value chain of suppliers, by only buying from trusted vendors and by auditing every aspect of their design and security policies to ensure that those components are as secure as they can be, not only in isolation but when connected to other parts of the car. Car companies should design and implement top-down end-to-end hardware and software security models and then ensure that their value chains adopt them

2. Carefully and slowly open up the car's connections to the wider world, firstly by securing the connections to the networks and internet, then only allowing a small set of curated and trusted partners to provide apps, software and data to the vehicle, followed by a rigorous and secure set of highly policed APIs and interface points between partners and the connected car cloud.

In summary, the connected car doesn't need to – and therefore shouldn't – be as open as the PC and the smartphone.Because the car is unique among connected IoT devices due to the expensive and dangerous risks of being hacked, a different approach to securing the car is needed. I believe that one day the car will be just like a PC, but the road to securing it like a PC is long, with many lessons to be learned from how other connected devices are being secured along the way.

AppCarousel is a tier 1 vendor of secure cloud solutions and curated walled garden app and partner programs to companies including Jaguar Land Rover, and as such AppCarousel is working within the connected car industry to secure vehicles while enhancing driver experiences today and into the future.

Faraday Future to showcase app-driven autonomous electric car concept

"

We're both (FF & Tesla) trying to bring cleaner, better products to the market, and sure, some people will compare us. But I'm more interested in what the rest of the industry is doing, how fast or slow they may be reacting.

Nick Sampson, Faraday Future's
Senior Vice President of R&D and Engineering

Faraday Future, a Los Angeles-based automotive start-up is planning a big product reveal at 2016 CES in Las Vegas. Recently, the company posted a 10-second teaser video on Twitter with little details about the actual product. . At the LA Auto Show last year, the company hinted that it plans to establish an app-driven network of autonomous electric cars, sort of a zero-emissions, driverless Uber.

Not much is known about Faraday beyond that it is backed by Chinese billionaire Jia Yeuting, CEO of Web video service Leshi TV, and has amassed about 400 employees. The company

recently brokered a billion-dollar tax incentive-laden deal with Nevada legislators that will see Faraday's first manufacturing plant pop up in the desert just north of Las Vegas.

The mysterious electric car company has a team of highly experienced ex-Tesla employees and some experts from BMW i-Drive team. Faraday says it plans to begin producing cars by 2017. Some industry watchers have mused whether the company is a front for Apple, which is rumored to be getting into the auto business.

The company had also partnered with the Nevada govt. to proposed $1 billion factory to North Las Vegas, the incorporated city north of Sin City. Nevada Gov. Brian Sandoval announced Thursday that the state has put together a $335 million incentives package to lure the automaker.

The deal would bring 4,500 direct jobs to southern Nevada with an average wage of $22 per hour as well as 9,000 indirect jobs,state officials estimate.

Faraday Future seems to view its customers not as drivers and passengers, but as an audience for a steady stream of digital media, delivered to work hand-in-hand with the autonomous driving technology that's surely coming.

Christopher Penrose
Sr. Vice President-Internet of Things
AT&T Mobility

Telcos redefining their
role in Connected Cars

> { We expect to have more than 10 million vehicles on the AT&T network by the end of 2017. }

Connected cars has influenced the outlook of global telecom players (both network operators and telecom OEMs) to go beyond smartphones and tablets, to connect wearables, cars, homes, businesses and cities. Consistent to their involvement in Internet of Things (IoT), the Mobile Network Operators (MNOs) or telcos are increasingly finding (or searching) their seat in the connected car.

Many have even tried replacing the traditional value chain and offering end-to-end telematics solutions directly to automotive OEMs, fundamentally changing the value chain and business models. One obvious reason for this "leapfrogging" is of course their declining voice and messaging revenues and consumers inclination towards OTT (over-the-top) services, which more or less ushers the telcos out of the equation. Unsurprisingly, they are now turning to connect millions of automobiles on-road to claim

the only hours in the day that are still largely out of reach of broadband.

AT&T should not be deprived of being given the status of the "undisputed king" in connected cars. If their financial reports and speculations are to be believed, out of a total 1.2 million wireless connections that AT&T powered, 684,000 of them were for connected vehicles (includes Audi, Buick, GMC, Tesla, Volvo Cars, Chevrolet models).

Recently, Shamik Ghosh from Telematics Wire carried out an interview with Chris Penrose, Sr. VP-IoT of AT&T who leads company's IoT strategy as well as other emerging niche markets.

How does a connected car fit into today's data intensive digital lifestyle of a consumer?

Companies and consumers are embracing the con-

nected world. Connectivity is the engine powering our economy and is making the things we interact with every day smarter. It also is helping create a better, more sustainable world – from connected cars and homes to smarter, more resilient energy grids and tools that help cities manage traffic to reduce pollution.

The car isa key pillar of the Internet of Things(IoT) frontier. We expect to have more than 10 million vehicles on the AT&T network by the end of 2017. The AT&T network had nearly 22 million IoT connected devices worldwide as of March 31, 2015. More than 945,000 smart devices were connected during the first quarter of this year. Of those devices, 684,000 were connected cars.

Consumers can experience the benefits of connectivity in the car either through embedded wireless technology or plug-in solutions that give many of those features to older vehicles. As more cars launch with the embedded connectivity built in, that's when

you'll see adoption increase. Connectivity now is a key factor in a consumers' decision to buy one car model over another.

Why connected car is increasingly becoming important for telecom industry? How does it fit into AT&T's overall corporate strategy?

Telecom companies have an extremely important role to play. For example, AT&T is leading the industry, working with eight of the top automakers. We are helping automakers improve driver safety and provide rear-seat entertainment with faster connectivity. Features include safety monitoring, air-bag deployment alert, repair diagnostics, streaming audio, Wi-Fi hotspot and even video for the backseat.

We were the first telecom company to establish a dedicated group to explore IoT in 2008. We were also the first telecom company to open a dedicated research facility for connected car, the AT&T Drive Studio in 2014. We've been ag-

gressive in this space for some time, and it's a key part of our growth strategy.

We are thinking about IoT in a much different way than our competitors. We are working across platforms to connect people to people, people to machines and machines to machines … connecting things that have never been connected before. We've moved beyond smartphones and tablets, to connect wearables, cars, homes, businesses and cities.

AT&T is primarily helping automakers improve driver safety and provide rear-seat entertainment with faster connectivity. Features include safety monitoring, air-bag deployment alert, repair diagnostics, streaming audio, Wi-Fi hotspot and even video for the backseat. In 2014, AT&T became the first carrier to open a dedicated 5,000-square-foot research and innovation center called AT&T Drive Studio will enable automotive OEMs, tech companies and young app developers to

explore new automotive connectivity solutions that could include 4G/LTE, cloud solutions and data services.9

When it comes to connected car, what other aspects can a mobile network operator bring to the table other than "connectivity"?

AT&T is uniquely positioned to deliver integrated solutions to device automakers with our technologies, network, customer base, global partnerships and reach, global SIM, integrated billing capabilities and continuous innovation.

AT&T recently reported to have powered close to 0.7 million connected vehicles. How would you like to describe this in words?

More than 684,000 connected cars were added to our network in just the first quarter of 2015. Through 1Q15, AT&T already has over 3 million connected cars on our network, and weexpect to connect nearly half of all new connected U.S. passenger vehicles this year.We are definitely a leader in this space.

Who do you think will have the ultimate ownership of connected car data? OEMs OR Telecom Operators?

It will depend upon the use cases for the data and who is in the best position to support and deliver against these use cases. For instance, for data surrounding the performance of the vehicle itself, most OEMs will want to own that data to continuously improve their vehicles, but they may ask for assistance from operators with regard to how additional data can improve the outcomes and/or around models, storage, tools, and security.

In your opinion, what type of connectivity do you see going mainstream in coming years for vehicles: 1) Embedded 2) Tethered 3) Hybrid (Please also share your comments)

AT&T supports all vehicle operating systems (both brought in and embedded) and offersautomakers the opportunity to create their own experience in the vehicle with AT&T Drive.

AT&T supports all vehicle operating systems (both brought in and embedded) and offersautomakers the opportunity to create their own experience in the vehicle with AT&T Drive.

Some services are only provided with embedded connectivity, such as:

● Remote Services – start/stop/ vehicle slow down/air/heat/lock/ unlock/etc.

● Over the Air Updates

● Car Integration – knowing the state of the vehicle to offer services (like repair, software updates, best gas price when tank is low, etc.)

We believe vehicles should be independently connected to provide the broadest range of services to drivers and automotive manufacturers; however, cars should also be able to seamlessly integrate with devices brought into the vehicle environment.

Do you think a "shared data billing" approach in connected cars would be helpful in avoiding subscription fatigue for consumers?

AT&T has been investing for some time in flexible billing solutions for automakers and customers. We've seen an uptick in

usage due to this offering. For example, OEM's may want pay for software updates, diagnostic / safety services, and potentially pay for trials. And, consumers can pay for a variety of services on an ongoing or as needed basis, from Wi-Fi hotspots to streaming music and potentially map updates.

Tell us how AT&T Drive Studio has been able to attract 3rd party app and content developers and various start-ups?

For developers who are creating a wirelessly connected, next-generation device, it can be a tremendous challenge to refine your device design while optimizing your component options and validating your OS and chipset selections.

AT&T Drive Studio assists developers as it features a working lab, showroom to exhibit latest innovations and serves as an overall hub where AT&T can respond to specific challenges from automotive manufacturers.

We've integrated several applications that are available for automakers to use in their upcoming cars via the AT&T Drive platform. We are already working with a variety of app developers like Glympse, iHeart Radio, and Urgent.ly to explore the in-car experience.

How does connectivity and telematics enable new business models of "shared mobility"?

The ability for cars to share meaningful data to both the consumer and the automaker is enabling new business models like car sharing, smart parking and more. This also is resulting in more start-ups and manufacturers making devices even smarter.

Half of the drivers prefer "parking assist" ADAS features in new connected vehicles: Bosch

Driver assistance systems in new passenger cars[1)]
Germany 2013 and 2014

	2013	2014	
	4%	8%	ACC / ACC Stop & Go
	4%	6%	Road sign recognition
	10%	21%	Lane assist systems
	11%	20%	Automatic emergency braking systems
	20%	13%	Intelligent headlight control
	23%	25%	Driver drowsiness detection
	Not available	52%	Park assist systems

2013
2014
1) based on new car registrations
Source: Bosch
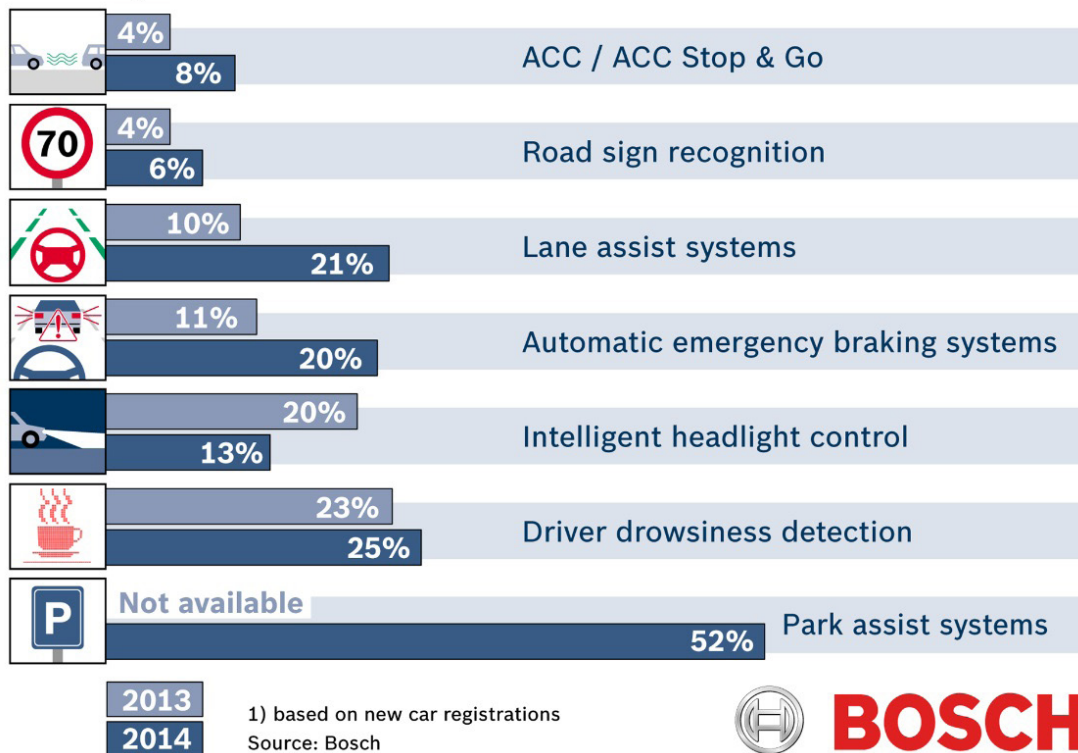
BOSCH

According to a Bosch evaluation based on the 2014 registration statistics, one in five of the nearly three million newly registered passenger cars in Germany last year were equipped with ADAS. By way of comparison, the evaluation for 2013 revealed that the two assistance systems featured in only one in ten new cars.

In Germany alone, up to 72 percent of rear-end collisions resulting in injury could be prevented if all vehicles were equipped with an emergency braking system. According to Bosch accident research, lane keeping support can prevent up to 28 percent of accidents resulting in injury that are caused by drivers accidentally leaving their lanes.

For the first time, Bosch included parking assistance systems in its evaluation. They include parking aids based on ultrasonic sensors, which use acoustic signals to inform drivers of the distance between the vehicle and obstacles while parking, as well as reversing cameras and parking assistants.

The latter also take control of the steering when parking, while the driver remains in charge of accelerating and braking. In 2014, according to the Bosch study, one in two (52 percent) newly registered cars in Germany was equipped with parking assistance systems, which makes them the most common assistance system in new cars.

A look at the other EU countries with respect to lane keeping support reveals that 14 percent of new cars in Belgium in 2014 were equipped with such a system, eleven percent in the Netherlands, nine percent in Spain, and six percent in the United Kingdom.

Sirish Batchu
Head-Infotronics
Mahindra & Mahindra

"It's just a matter of time that connected cars will become a mainstream in India

Few months ago, we reported when Mahindra & Mahindra, India's leading vehicle manufacturer announced plans to bring Android-enabled infotainment systems in its flagship Scorpio and XUV models by joining Google-spearheaded Open Automotive Alliance. The announcement was made at Google I/O, Google's developer conference in San Francisco. In the interest of current developments at Mahindra, Telematics Wire got a chance to interact with Sirish Batchu, Head-Infotronics, Mahindra to discuss the potential and future growth of telematics and infotainment in India.

How would you compare the Indian connected cars market with relatively developed markets like EU or North America in light of?

- **Consumer Acceptance**
- **Industry Readiness**
- **Regulatory Framework**

The Indian market today is relatively in early stages of adoption as compared to EU or NAM markets. Though there are a number of aftermarket solutions in the commercial vehicle space and 3rd parties that are foraying with very innovative solutions, the market is lacking an integrated offering from the OEMs in India as compared to NA or EU and the consumer is very cost conscious.

However the consumer awareness is on the rise due to the technology exposure and experiences

in the personal space (Consumer electronics, smartphones, Internet. etc.). The Government is also aggressively bringing in reforms/policies towards more and more digitization. The OEMs and the third parties are also gearing up by developing the relevant and compelling connected car features that can be offered to the customers. Today practically every other technology company is putting its fingers in for creation of connected car solutions unique to this market and eying a share of the revenue pie.

I think that the connected cars market in India will shoot up exponentially in the coming years with a host of solutions/services and revenues and catch up with the global markets within no time.

What connected car services in India are beyond the "hype" and will make sense to the end-consumers?

The "hype" around the connected car features mainly revolves around integrating the smartphone features and giving a seamless end-user experience by utilization of loads of information/content through appropriate applications. Today these are positioned mainly as a niche offering. However there are more fundamental connected services that can enable better serviceability, efficiency and maintenance that can make an immediate impact on the adoption by the end consumer. Emergency/breakdown services, eco-routing, dynamic traffic information, early warnings related to vehicle health, etc. can largely benefit the customer.

The benefits of Telematics services for efficient operations in the commercial vehicles is already proven beyond doubt and is being adopted by all Fleet owners today. Bringing the benefits of the telematics to individual ve-

hicle owners (especially LCV/Taxi owners) for maximizing their business will be the key.

Going ahead integrating safety and ADAS features and enriching these with the connected services will be very useful for the end-consumers.

How do you think the India consumers would like to pay for connected car services in future?

- One-off payment at time of ca purchase
- Subscription-based
- Basic services at no cost wit the purchase of additional functionaity (Freemium)

On the lighter side, as a consumer I would expect the connected services free of cost. Having said that, once the consumers see the value in the services/content, they will be more than willing to pay for what they are getting. Here I will draw a parallel to the Digital TV and content, the way it has evolved from the free Doordarshan days to the current Set-top box where various subscription & pay-per-use models are existing for various TV channels and content.

I will rule out the one-off payment option as today neither the con-

sumer nor the OEMs are clear as to what all services will evolve in the future and it also involves certain operational costs. However I would see a combination of the subscription-based, Freemium and pay-per-use being more popular for the various connected car services.

Do you think that in future telematics & connectivity will influence the purchase decision of a new vehicle buyer?

We already see this shift in the global markets and India is not far behind. The customer exposure is very high and the lifestyle experiences are also driving the decision making while buying the cars. The smartphone exposure and the need for being connected is also on the rise. As people spend more time on the road in the vehicles, this need is becoming imperative. The Gen-Y & Gen-Zalso have a very strong influences on the buying preferences and priorities.

On the commercial vehicles front, the customers are looking for more efficient vehicles that not only give better fuel efficiency, but also bring down the total cost of ownership/operations. With the telematics solutions it is very much possible to address the operational efficiency and productivity and I believe this would be

the most preferred solution from the customers.

How will Mahindra benefit by joining the Open Automotive Alliance (OAA)? Are we going to see Android-enabled vehicles hitting the road anytime soon?

Being the First Indian OEM to join the OAA gives us a head start to offer the advantages of the Android Auto to our customers, where today Android OS accounts for over 90% of the total smartphone market in India.

We should see the first Android-Auto powered cars sometime in 2016 in our flagship models the XUV 5OO and the Scorpio.

Android Auto will enable Android phone users to seamlessly connect to a compatible car and use customized apps and services that will be accessible on an in-dash screen. After the integration with Android Auto, the owners of the Mahindra vehicles will have in-car access to Google maps, customized services, and third party apps through an infotainment screen.

At present the market is dominated by aftermarket solutions (mostly track n trace). By what time, we can see a large scale roll-out of OEM-fitted telematics solutions in India?

This is true at present and the aftermarket is also very fragmented. Various OEMs in India have tried their hands in the past to roll out factory-fitted telematics solutions in a limited way, but could not see a success in the market either due to the lack of scale or the right costs/business model.All those introductions were marred with the concerns of how to recover the cost of the telematics

solutions, with limited emphasis on the value addition that the solution can bring. However I believe that it will take strategic call from the OEMs to make telematics an integral offering in the vehicles (especially commercial vehicles) where it would not only benefit the customer for bringing in more efficiency but will also help the OEMs in a big way through the insights (Data Analytics) that can be available to better the service offerings and product designs. You will soon see such an introduction in the market from M&M across the breadth of our portfolio and I am sure the industry will also scale-up rapidly.

How sustainable are new telematics-based business models i.e. Usage Based Insurance (UBI), car-sharing etc. in India?

The new telematics based business models are yet to find traction in India. The UBI is very relevant in EU or North America where the insurance premiums are very high and the incentives offered through UBI are very attractive. However this will not make such a big difference to the Indian customer as the quantum of this one-time incentive will be very less. Customers will looking forward to something more substantial by sharing their driving data. However it could be of huge interest for the Insurance companies in order to tackle the fraudulent claims. This is where the conflict between the customers and the Insurance claims arises.

Car-sharing on the other side has its own set of challenges where there are many solution enablers that existing today like Ridingo, Lets Drive Along, BlaBlaCar, etc, but the pooling works more at an individual level between a known groups of people rather than a

systemic level due to safety & security concerns.

On the contrary the business models of Uber & OlaCabs have found instant success (albeit with their share of issues).

I believe that we will see an evolution of new and unique business models in the Indian context in the coming days through the use of Data Analytics.

In your opinion, what challenges need to be addressed before connected cars can move from niche to mainstream in India?

It is just a matter of time that connected cars will become a mainstream in India. There are basic infrastructure challenges today like reliable connectivity and data rates on one side and the associated costs for the technology/solutions on the other side. However these are well on their way towards maturity.

It would not be an overstatement to say that the Indian telematics industry has reached its watershed moment. The combination of changing Indian macro and micro economic, political and business scenarios has given the impetus for embracing this technology, with more and more OEMs and after market players trying to take advantage, to enable their customers have a better control over their businesses.

It would also be appropriate to state that the ecosystem players are also reaching a maturity level sufficient enough to offer the "connected experience" seamlessly to the connected car customer. Considering the customer exposure and experience in the personal lifestyles, I think that the demand for connected cars in India will rise exponentially over the coming years.

Tata Motors to test
autonomous cars in India

At a time when many automakers and tech-giants are working on autonomous cars, Indian automobile OEM Tata Motors is also getting ready with its driverless car.

Tata is working on Autonomous Car Framework and the prototype of this car may be seen on Indian roads in the next 2 years. Tata will install several sensors and cameras in the car. It will have 12 cameras and 5-6 laser sensors. It will run through phone, tablet and other wearable devices.

"For some time it's been an article of faith that driverless cars are the ultimate safety solution, but there is still an increased risk to passengers, should something in the driverless system fail," Tata vice chairman **Ravi Kant** said in a statement. "Currently, passengers are the victims of fatal car crashes 20% of the time. Once driverless cars be come the norm, that figure will jump to 100%. We at Tata find that prospect unacceptable, and we have come up with the ultimate in preventative safety."

Kant also predicted that drone automobiles are the only cars that stand a chance with a younger generation who have shown a steadfast unwillingness to approve of, let alone participate in, automotive culture.

Today, Google, Nissan, Volvo and Tesla are the companies who are independently working on the ambitious project of a driverless car. Of these, Google and Volvo plan to launch their respective cars in 2017 while Nissan plans to roll out their version in 2020. Tata Motors will be the first of the developing nations to undertake this project. The car, when it sees the light of day, will only strengthen Tata Motors' repute in the international market.

News Source: Zee

An inside scoop of the connected car market

Services, challenges and roadmap ahead…

Dominikus Hierl
Chief Executive Officer
Telit Automotive

> " Having the car not permanently attached to the Internet cannot be easily fixed by installing aftermarket devices.

The connected car is definitely a key driver of the IoT, maybe even the most important one. You need to consider that the "old", but still powerful automotive industry will push and shape this trend as well as the Silicon Valley.

Automotive companies (OEMs and suppliers) were one of the early adopters of the IoT. Some have a lead of nearly a decade compared to technology-driven companies in the manufacturing sector. An important reason is that automotive OEMs and sup-

pliers have been driven by the pressure of short production cycles for many years. Their ecosphere is characterized by challenges like a critical demand for cost-control solutions, flexible value chains, and quicker decision making on the basis of transparent information. This means that they are very experienced in developing and using new technologies that reduce total cost of ownership, provide better security and enhance real-time cost control. One example is the need to update different building blocks inside the car over-the-air.

THE RACE FOR OWNERSHIP ON CAR DATA
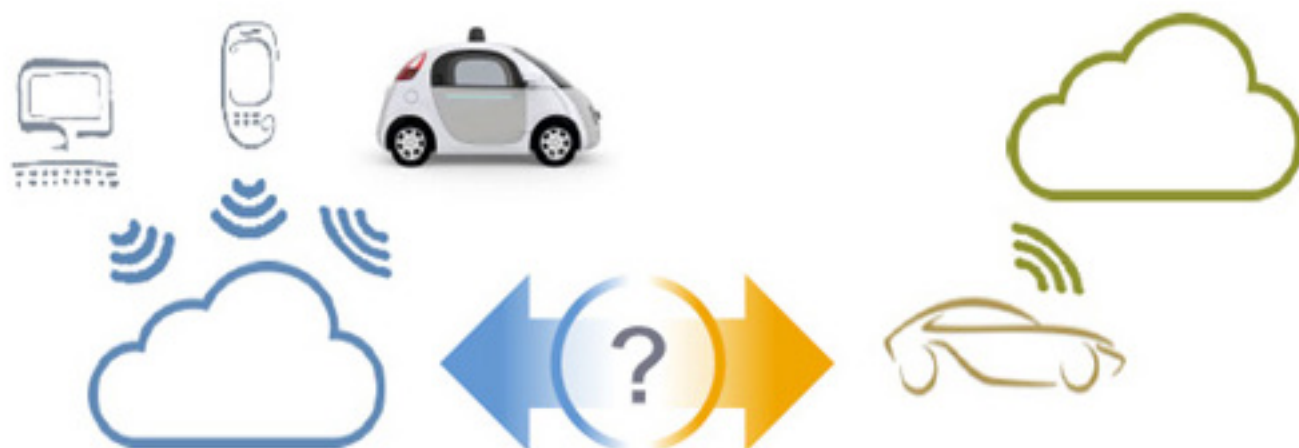
"Silicon valley wins"

Industry profits shift towards software and monetizing car user data.

cars will become one among many commonditized devices providing access to user's online data and profiles.

"Carmakers keep control"

Connectivity extends user experience within car, adds to premium and opens access to new revenue and profit streams for car OEM and new entrants

Additionally, there's a race of ownership of car user data between Silicon Valley based IT companies like Google or Apple and the car OEMs (see figure). The users will also drive this process: customers expect to have a real-time data and applications downloaded into their cars, especially when they buy an expensive car head-unit.

Another massive challenge is for vehicles employing assisted and self-driving technologies, is the same as that of most IoT solutions: security. In-vehicle networks are not secure and therefore they are an easy target for hackers.

Connected Services that are available in the near foreseeable future

With the increasingly connected lifestyle of today's consumer, drive time is one of the few places

or times when the vehicle owner experiences limited access to connected assets. While some of us may reminisce fondly about a less connected lifestyle, the bulk of drivers have come to expect a robust connected experience anywhere and everywhere – and automakers are responding.

Real time access to data in the vehicle by definition promises an enhanced driving experience. As a result, automakers are pushing for more and more connectivity both within the vehicle itself to deliver enhanced "pilot" data to the driver, as well as connectivity to the Internet for traffic, infotainment, what's nearby and more.

Usage-Based Insurance (UBI) is also a hot topic: solutions are delivering tangible benefits to consumers, the insurance industry and society, but take-up has been slow. And despite media hype, it is too early to talk about

smartphone solutions gaining widespread traction. Robust UBI needs to be provided by an embedded or self-installed device that is tied into a vehicle's electronic system.

Probably the most interesting and potentially life-saving application of M2M technology to the car is what today is marketed as "driver assist," but what before long is likely to evolve into full-fledged automated vehicles. Beginning with rear-view cameras and perimeter sensors to make parking easier, driver assist now incorporates self-parking and adaptive cruise control to avoid accidents even when you're cut off in rush-hour traffic.

We may soon find that the combination of location awareness, vehicle-to-vehicle communications and vehicle-to-infrastructure communications (using roadway sensor networks), together with

systems sensors monitoring everything from tire pressure to fluid levels to RPMs, makes cellular-based emergency calling (and maybe even drunk driving laws, vision requirements and anti-texting laws) obsolete.

It is hard to exaggerate the potential of vehicle telematics, but it is still a huge untapped market. The situation is changing and government legislation is a key driver. There is the ERA-GLONASS initiative in Russia, Contran 245 in Brazil, eCall in Europe, and now the U.S. Dept. of Transportation potential mandate on connected-car collision avoidance systems.

As such, we have been involved with ERTICO (European government agency responsible for carrying out pilot projects on eCall) since 2003, and are pleased to partner with ERTICO both in the development and adoption of the standard, and in pilot projects. As the automotive segment continues to drive M2M adoption, significantly outpacing other verticals, Telit will continue to partner with ERTICO for the benefit of auto-makers, emergency response personnel and, most importantly, drivers around the world.

Telit was an earlyeCall signatory in 2006 and the company has significantly contributed to the finalization of the standard. We have attended several interoperability test and guidedquite a few car OEMs and 1st tier suppliers through extensive field tests in Europe but also in Russia.

Future-proofing telematics services

The industry can and is future-proofing its telematics services by deploying advanced solutions that have powerful computing resources and that enable service and application updates over-the-air throughout the long lifetime of the average car. In addition, these solutions need to function as a state-of-the-art development platform in order to enable the creation and deployment applications.

The challenge is to enable an on-going portfolio of applications and services over ten or more years, which is the typical lifetime of vehicles produced by the automotive industry. Changing embedded application platforms in short time frames to meet changing requirements isn't cost effective.

Embedded vs. Aftermarket: Is hybrid approach the most optimal way?

Telit's point of view is that any hybrid solution will have significant constraints: Many car-related services would not function when the driver removes the phone from the car. Also there are safety considerations: smartphones might be disconnected or be destroyed when accident occurs. At such a critical moment the safety of the driver might depend on availability of an emergency call service.

Having the car not permanently attached to the Internet cannot be easily fixed by installing aftermarket devices. The better idea is to connect any car today by a fixed installation that offers the flexibility of a Telit ATOP module, which can be at any given future date, beupdated to meet new requirements and features by over-the-air updates.

Entry of Apple & Google

Absolutely. Google is the name that one associates with autonomous, self-driving cars and that is a hot topic, particularly in the U.S. The company has unveiled the first fully working road-legal prototype and legislation has been passed in four states as well as Washington D.C. Google is con-fident in its self-driving technology and is taking the next steps towards commercialization.

Apple's entry point is less ambitious. They're a consumer electronics company and their current objective is to expand usage of smartphone based apps and their content ecosystem into vehicles. Apple will also continue to focus on establishing and solidifying their CarPlay offer, which means that their connected car strategy is set to start and end with infotainment.

Telit's contribution

Automotive OEMs need embedded platforms in order to meet current and future functionality requirements. And of course they must be very secure.

Telit has been an established supplier of automotive-grade modules for several years and they are widely deployed in so-called black box solutions. They are used by Tier-1 automotive suppliers and systems integrators to deliver various telematics solutions to fleet managers and consumers, e.g. usage-based insurance.

Of course, we don't make ITS systems ourselves – but we do enable our customers to make them, and improve them. We are particularly excited about our new automotive focused-business unit which was formed from our acquisition of the Automotive Telematics On-board Platform unit of NXP Semiconductors. With that acquisition, which closed in April 2014, we added a significant amount of engineering expertise focused on the automotive market. They have already commercialized two highly-integrated products designed to serve the growing needs of auto OEMs.

Every connected car will send 130TB of data to cloud per year in future: Actifio

According to experts, the connected car of the future will send 25 Gigabytes of data to the cloud every hour, representing up to 130 Terabytes of primary data storage per car, per year. Managing, accessing, and protecting that data will be a monumental challenge, and Copy Data Virtualization company Actifio today highlighted the important role data virtualization will play in enabling the Connected Cars of the future.

As networked mobility grows so will the demand for on on-the-fly data analysis (real-time data analysis) and software development, challenging in particular the availability of data. As more data is processed through a data center, this data will need to remain in constant interaction with the vehicle on the road. In addition, new applications and software for networked vehicles will be required in future and must be continuously developed.

The sheer volume of data due to the growth of networked mobility is likely to overwhelm traditional approaches for data management in the future. Copy data virtualization offers a proven solution to the problem, breaking the traditional geometric relationship between the growth of primary data and the expansion of networked storage. Its implementation ensures that data is not burdened by multiple redundant copies of the various application data, which are still managed in separate silos in traditional environments.

Data can be decoupled from its underlying infrastructure to achieve better reliability and mobility. The data is then de-duplicated globally and virtual copies can be provided seamlessly across the whole IT spectrum – from the traditional data center to private or public cloud, SaaS, or hybrid cloud structures.

Benjamin Hoffman
CEO
Movimento

The software-defined connected car is underway

By 2020, there will be 250 million connected vehicles on the road according to Gartner Group while the value of the market for connected car services will grow to $148 billion according to PricewaterhouseCoopers (PwC). These estimates triple the amount of car connectivity from today's levels. In both Europe and North America, connected car has gradually become more similar over the past 3 years and will continue a path of commonality and alignment through 2018.

It is believed that this rapid uptake of connectivity in vehicles is pushed not only by the demand for connected car components but also by the rise of new digi-tal business opportunities. Those new opportunities are fueled in part by the ability to use the car's connection to change the in-vehi-cle software to adapt to an evolv-ing set of needs.

The capability to completely rei-magine a device's functionality through software — either loaded remotely or replaced over the air without requiring a trip back to the factory — is a powerful concept that has impacted many indus-tries. Car software updates can add new functions and features but we are at just the edge of this revolution for the car.

Are automotive OEMs and Tier-1 suppliers becoming "soft-ware" companies?

While both Automotive OEM and Tier 1 Suppliers are indeed mov-ing to increase their software capabilities through acquisition, hiring and internal restructuring it is a huge leap to say they are becoming software companies. There are many talented and technologically focused persons within the companies the vast majority of the employees includ-ing leadership are not software focused.

It is a major transformation for decades or century old compa-nies that have traditionally manu-factured mechanical products to make the shift to a software first

way of thinking that will ultimately be needed to succeed as the tech and automotive worlds continue to converge.

The problems with "legacy" un-connected vehicles

The legacy vehicle topic has been discussed and "solved" many times in the past as major technology shifts took place. These included powertrain developments like unleaded fuel, electronic fuel injection and an impressive range of emissions improvement technologies.

The 'unconnected' cars being referenced here have the potential to become connected either simply through the consumer's mobile device, with an installed aftermarket device or some combination of the two. The perceived and real value of connectivity to the vehicle owner, OEM and perhaps dealership will ultimately determine how many legacy vehicles will become connected.

Much of the underlying OEM and Consumer value of the Connected Vehicle can only be realized with a secure and integrated vehicle connection – something not easily addressed with conventional aftermarket devices or most legacy electrical vehicle architectures. It is also simply impossible with solutions based solely on mobile devices.

The potential of software OTA updates

The automotive industry is only at the earliest stages of leveraging the vast potential provided by secure and robust software updates. Those two descriptors are key differentiators from the tech world. If my phone update is unsuccessful, I'm unhappy and inconvenienced until the problem is resolved – or I get a new phone.

Perhaps even by driving to a mobile phone store.

If my vehicle update is unsuccessful I may not be able to drive to work in the morning or the dozen's of other reasons people rely on their vehicles for reliable transportation. Or the vehicle may be left in an unsafe operating condition that is unknown to the driver. With this key difference in mind Movimento has launched our OTA Platform – a tech company approach to the Connected and Autonomous Vehicle software future with our automotive DNA as a foundation. **http://movimentogroup.com/#movimentootaplatform**

" If we add future-proofing hardware to the car, we can release new software that drastically extends the car's capabilities far beyond what originally came off the vehicle line. "

Today, most discussions about automotive software updates have been limited to bug fixes, recall avoidance, and security patches. However, as so much of the car's capabilities are provided by software, software updates give us an amazing flexibility that the industry hasn't yet fully realized. Today's car is a rich hardware platform bristling with sensors, providing an amazing opportunity for releasing innovative new software throughout the vehicle's entire life. If we add future-proofing hardware to the car, we can release new software that drastically extends the car's capabilities far beyond what originally
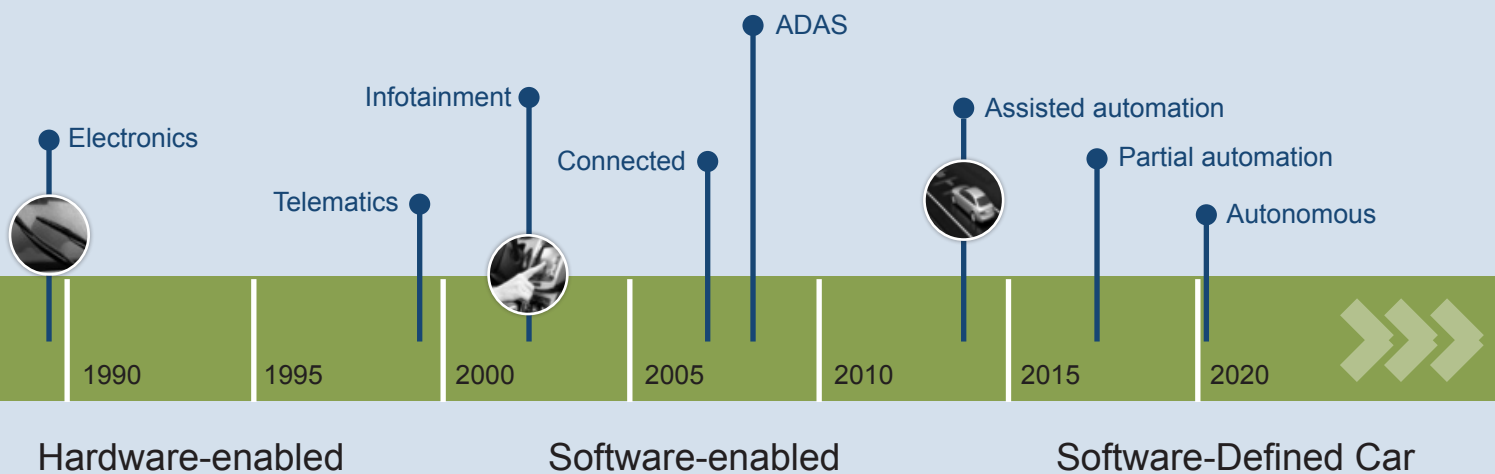
came off the vehicle line. We're not just talking new auto infotainment apps, but completely new features: wholesale personalization, brand-new advanced driver assistance features, extensions for car sharing, regional specific adaptations, car-to-home integration, new vehicle safety options, remote mobile control, new 4×4 drive modes, smart watch key fobs, … the possibilities are endless!

We describe this move toward the future-proofed car as the Software Defined Car (SDC). This follows the well-documented transition of previous technology industry technologies starting with the Software Defined Radio and then the Software Defined Network. The Software Defined Car will follow the previous path of allowing for abstraction of key capabilities enabled by software from the hardware platforms that they run upon.

However, a software defined car is not "just" about downloading new apps to the car. It is about letting the car's function be defined by software components that stitch together the environmental sensors, safety systems, mechanical linkages, and visual interfaces to build a vehicle where the function can be redefined after it has shipped.

Like its predecessors, SDC can enable a whole host of revolutionary changes and stretch the adaptability of the car all the way to the end of its physical lifespan — new innovations and feature improvements to meet changing consumer demands the entire time the car is in service. It is arguably in its infancy but we are already seeing the first rollout of SDC through Tesla Motors, a move that will gradually enable the autonomous car through a series of software upgrades.

The Eras of Automotive Electronics

Timeline:

- Electronics (1990)
- Telematics (~1997)
- Infotainment (2000)
- Connected (~2005)
- ADAS (~2007)
- Assisted automation (~2013)
- Partial automation (~2016)
- Autonomous (~2020)

Timeline years: 1990, 1995, 2000, 2005, 2010, 2015, 2020

Hardware-enabled | **Software-enabled** | **Software-Defined Car**

Security through OTA updates

The automotive cybersecurity concern is both very real and monumental. A secure connection is critical to realizing much of the true potential for connected vehicles and the Software Defined Car. Without security, software updates of anything more than the Infotainment System and Apps will be forbidden. Without security, the ability to capture critical vehicle performance data and diagnostic information will be restricted to the point of greatly diminished OEM analytics value.

One of the realities is that robust and secure OTA software updates are one of the key enablers of the future automotive cybersecurity solution. Security issues drive many of the tech industry software updates and the connected vehicle will have a similar fate.

The right solution for automotive cybersecurity will include a wide range of hardware and software technologies but it is without question the ability to update software, including security keys, firewall settings, encryption updates and more will be part of the answer.

The missing link in automotive connectivity: Auto Dealerships

We believe that the role of dealership is often minimized or even eliminated in the future connected car story that many experts promote.

We at Movimento expect the dealer to play a critical role in the industry for the next 10 years and more – well beyond the point where all new vehicles are fully connected. In fact, a core component of our OTA Platform is a new value driving approach throughout the entire vehicle product lifecycle. In our world, the secure and robust connected car solution begins with the earliest prototypes. It is then refined and enhanced throughout vehicle development before being continually validated as part of an OTA and technology focused vehicle manufacturing process. Then moving into the Dealership and aftersales phase. A connected vehicle has the potential to help dealers better manage the vehicle inventory in the pre-sale world and to enable an entirely new and trusted relationship with their customers.

Summary

In conclusion we believe there is still a significant gap in culture, product development, support and customer perspective between the two industries (automotive & tech). In leading a technology company with over a decade or automotive focused experience, I am optimistic about the future for closer alignment of these two critical industries due to continued learning and respect of the important factors from both sides.

It is hard to know what will be next, but one thing is for certain SDC is a concept that has been years in the making and it's time has come. Cars have the power to be far more capable than they are when they leave the assembly line, and the companies who leverage that capability will define the future of automotive.

Toyota reveals details of its mapping technology for autonomous cars

Toyota is developing a map generation system that will crowdsource data from on-board cameras and GPS devices installed in production vehicles. This new technology will aid the rapid deployment of autonomous vehicles and also provide an alternative over traditional mapping schemes.

Due to the infrequent nature of data collection, maps generated in this manner are seldom updated, limiting their usefulness. Additionally, this represents a relatively cost-intensive method of gathering data, due to the need to manually input specific types of data. In fact, Toyota believes one of the major issues with Google's mapping cars is that they must specifically return to roads already covered for updates.

Until now, map data for automated/connected driving purposes has been generated using specially-built vehicles equipped with three-dimensional laser scanners. The vehicles are driven through urban areas and on highways, and data is collected and manually edited to incorporate information such as dividing lines and road signs.

Toyota's newly developed system uses automated cloud-based spatial information generation technology (developed by Toyota Central R&D Labs., Inc.) to generate high precision road image data from the databanks and GPS devices of designated user vehicles.

While a system relying on cameras and GPS in this manner has a higher probability of error than a system using three-dimensional laser scanners, positional errors can be mitigated using image matching technologies that integrate and correct road image data collected from multiple vehicles, as well as high precision trajectory estimation technologies.

This restricts the system's margin error to a maximum of 5 cm on straight roads. By utilizing production vehicles and existing infrastructure to collect information, this data can be updated in real time. Furthermore, the system can be implemented and scaled up at a relatively low cost.

Toyota says they expect to have autonomous cars ready to go by around 2020. That technology will revolve around an extremely detailed network of maps with data collected by anyone who might be driving one of their cars.

The idea is that production Toyotas with cameras and GPS units will start logging lots of data about everywhere they go; lanes, speed limits, signs, everything in the car's field of vision.

That information will then be uploaded to a cloud that Toyota's engineers will distill into programming for later cars to drive themselves down those very same roads.

Toyota now seeks to collaborate with mapmakers, with the goal of encouraging the use of high precision map data in services offered by both the public and private sectors.

SE Asia

The new chapter in global auto connectivity and telematics market

" I think the insurers are slowly coming to grips with the fact that competing without telematics will mean negative customer selection leading to a potential sizeable shift in their portfolios.

Pravar Gautam

Vice President - Asia & EMEA

Scope Technologies

How is the growth of telematics shaping up in South East Asia, as compared to the developed economies?

We're getting there. The improved economic activity has certainly helped and so has the fast growing infrastructure. There seems to be a rapid growth in both the awareness and adoption of the telematics technology in the Southeast Asian countries especially in the last two years or so. While some countries within the region are embracing the technology faster than the others, the penetration rate of telematics still remains low in comparison to that of the more developed and matured markets.

I feel the next couple of years will be quite significant in so far as the market growth is concerned. On the one hand, some of the barriers and infrastructural issues that impede growth are falling away quickly and on the other, technology itself is getting

Source: Scope Technology

commoditized, more affordable, easy to use and quick to deploy. In addition to this, there are large regional insurers, cellular providers, vehicle manufacturers and aftermarket providers that are already starting to aggressively invest in telematics based business models in the region. All this means that a more coherent ecosystem will emerge which will lead to a greater acceptance of the technology on a mass-market scale.

Having said this, no doubt we have work to do here to boost this growth further.

How do you think connectivity and telematics will influence the purchase decision of a new vehicle buyer in South Asia region?

Bringing connectivity and telematics to consumer can po-

tentially be quite revolutionary and game changing. It can be transformative. We have already seen some very compelling use cases as to this.

Imagine a car that talks to you, keeps you updated on its health, calls the garage when a service is due to schedule it, allows you to perform functions like switching its ignition on and off via a mobile phone app, provides you with constant driving feedback, stream location data to your friends and family when you want it to, offers suggestions on where to find parking lots or simply that cheese burger you had yesterday and in the event of an accident, automatically files a claim with the insurance company!

This probably is the future of the car and bringing this faster to the

consumers will certainly be quite rewarding.

Since most of the OEMs are planning their proprietary embedded telematics system. Would it pose a great amount of threat to the aftermarket ecosystem?

Not really, I feel this will and should be more about collaboration rather than competition. No doubt, OEMs can play a significant role in building an overall ecosystem. At this current point, both embedded and aftermarket telematics offerings can co-exist side by side to provide consumers with a seamless mobility experience.

In as far as the future is concerned, there is enormous potential for OEMs and aftermarket players to partner with each other so as to ensure that a

sustained and ongoing innovation is delivered to the consumers. Such a partnership can bring in even more integrated services to the consumers with alacrity as the mobile technology evolves and as insurers embrace the telematics data further.

How aware do you think are the fleet operators in the SE Asian region about commercial telematics solutions?

I would say that majority of the fleet operators in the region are well aware of telematics solutions and their potential benefits. There's a number of them that have harnessed the technology over the years for different business needs. Having said this, penetration rates here remain quite low and there seems to be little awareness on how to fully leverage such solutions to get critical business and operational insights. Surely, some of these operators are making full use of the data generated, however, most of these are just utilizing quite basic telematics functionalities. The operators should invest in solutions that can create value from the large set of data collected to boost operational productivity gains and to provide a more efficient and connected service to their customers.

Scope has been delivering telematics solutions in about 50 countries. How do maintain innovations at a global scale while localizing services as per the region?

Good question. Over the years, at Scope we have constantly delivered a number of industry firsts as we continue to significantly invest in research and developmentto innovate to come up with useful solutions for different industry verticals.

We bet on the future.Our innovations, quite simply, are about predicting what solutions our customers are going to need in the future.This is no easy challenge as you need to make sense of emerging trends globally both in the terms of the direction and dynamics of the market and also the evolution of the technology. Have a look at some of our current patents which are a result of this approach. These patents are heavily adopted in our current solutions such as the unique offering we designed and implemented to streamline insurance claims experience for insurers and insureds combining the telematics data and drones.

When designing a new solution offering, we lay quite a bit of emphasis on its scalability, localization and aesthetics, this to ensure that the solution remains useful but more importantly, relevant and price competitive across various continents we operate in.

What challenges to do you think the industry will have to surpass before telematics becomes "the" solution for the fleet industry?

The telematics barriers as I said earlier on are fading out quite quickly now.Howeverstrategic, regulatory and technological challenges still remain. More specifically for the fleet market, solution pricing remains a key challenge in Southeast Asia. Theunderlying economics still doesn't quite work in some countries. Various reasons for this but primarily it is a result of the supply side being as fragmented as the demand side across the region.This apparently leads to significant cost inefficiencies in the ecosystem resulting in higher customer pricing. While there

are telematics service providers that have been offering innovative and bespoke business and service models, there is certainly a need to do more for the adoption rates to edge up.

Tell us how various auto insurance companies in SE Asia are leveraging on telematics data to provide better services to the customers?

Despite being new to the region, insurance telematics is under the spotlight. While there have been multiple "experiments" in the past on insurance telematics, the first serious commercial initiative was launched by Bangkok Insurance in Thailand earlier this year called BKI Telematics. A very uniquely conceptualized program, it offers a range of advantages to both the insurers and the end customer. The program currently targets 10,000 customers in the first year of implementation and offers value added services like family safety, out of area alerts, driver safety score etc. to the consumers. We at Scope provide the enabling end to end technology for this program.

Similar such initiatives are being conceptualized, tested and finalized by a number of insurers across the region for both personal and commercial lines. The telematics data is being used by insurers for a variety of reasons including better risk management (selection), offering motor insurance that is completely usage based, adding more consumer touch points, fraud detection and gamification by building in an ecosystem of affinity partnerships etc.

What is general acceptance rate of telematics amongst SE Asia motor insurance carriers?

Globally, the insurance telematics acceptance rates are becoming quite high. There are over 230 telematics pilots and commercials programs in place as of now. Progressive in the US has hit over 2 million customers on telematics policies. By 2020, estimates suggest that nearly 100 million vehicles will be ensured with telematics policies globally.

Having said this, we are picking up quite a lot of interest on insurance telematics by the insurance community and associations here. I think the insurers are slowly coming to grips with the fact that competing without telematics will mean negative customer selection leading to a potential sizeable shift in their portfolios. With insurance digital transformation picking up pace here in the region, telematics is being considered as a prominent focus area to not onlyjust offer bespoke premiums but also to help in fraud and claims management. A lot of insurers we have spoken to have expressed a very clear intention to leverage the first mover advantage in their markets with quite creative business and service models using telematics.

Moving forward, I have no doubts that we will see significant activity on the insurance telematics front in the next 18to 24months in the key Southeast Asian economies. I also expect the growth of insurance telematics to be uneven across various countries, pretty much like Europe.

Which UBI telematics model is more prevalent in SE Asia:- Black Box-based, OBD-II based or smartphone-based

This is certainly a key question we come across quite often. There is very clearly more

acceptance and demand for the self-install OBD based hardware devices as the consumers can be educated to install them fairly easily. Secondly, these OBD devices can provide useful vehicle diagnostic data that can be used to offer value added services like complete automation of vehicle servicing that incorporates parts price comparison. We feel that the OBD devices will carry on being the most popular option.

A number of insurers also remain interested in offering smartphone based solution due to the relative ease of distribution and consumer friendliness.However, the limited vehicle data gathering ability of the phone somewhat makes this option little less attractive. There are only a handful of mobile phone based motor insurance programs globally at this stage. Having said this, mobile phones have a central role to play when telematics extends to health and life insurance.

The black box solution will have its own niche specifically in high theft rate markets like Malaysia. These solutions will undoubtedly grow in high premium markets.

How do you foresee the role of government in driving innovations in the auto telematics sector?

Governments have a vital role to play and as such can use the available telematics technologies to adopt innovative policy changes such as road usage charges and CO_2 emission reduction. On the road usage charges, telematics can provide the necessary tools to the governments to adopt a more fair and an equitable way to charge for road usage to ensure that heavy users pay their share of the usage.

Ditto for emissions reduction, the governments can regulate and monitor the emissions using telematics to provide, for instance, vehicle tax incentives to eco-friendly drivers and as such penalize the not so eco-friendly ones so as to control the emissions. There are also road safety benefits to be had here as excessive emissions and safety are directly linked.

What are your views on the hype building around "autonomous vehicles" across the globe?

Autonomous vehicles are coming, this is clearly a revolution in the making. We all know that there are significant investments being put into this by all the major OEMs and technology titans – I have no doubts that autonomous vehicles will prove to be a major disruptor for the motor industry and will also change the current surrounding ecosystem for the better.

With autonomous vehicles available around us, who will need to own a car if you can just summon one instantly that's ready to take you wherever you need to go and that too without the hassles of driving, traffic and so on. One of the direct benefits of autonomous vehicles is that the car utilization will substantially go up (unlike the current cars which are just used around 7 to 10% of the time) which means fewer cars on the road, lesser traffic and a healthier air to breathe, something we are all vying for here in Southeast Asia.

Surely, questions remain on the adoption challenges in various countries that might even take decades, however, it is clearly an idea whose time has truly come!

LiDAR System

THEN · $$$$$ THOUSANDS

[Large : Expensive : Visible]

Existing LiDAR solutions are large and costly, limiting broader access to this technology.

NOW · $$$ COUPLE HUNDRED

[Small : Inexpensive : Integrated]

Delphi, with Quanergy, will provide a low-cost, high-performance solid-state LiDAR solution that will accelerate automated driving.

VS.

DELPHI drive drive drive

LOWER COST leads to **WIDE-SPREAD ADOPTION OF LIFE-SAVING** technology.

↓$ = **LIVES SAVED**

Quanergy brings solid state LiDAR for autonomous vehicles @ 200$

Quanergy Systems paves the roadmap for Level 4 autonomous vehicle with its solid state LiDAR (Light Detection and Ranging) sensor for self-driving cars for less than $1,000 per car. Quanergy's LiDAR sensors were used in the famous Delphi's coast-to-coast autonomous drive last year.

One of the biggest hurdles for "Level 4" type driverless cars (complete automation from portal-to-portal) is the sensor gap in bad weather conditions; these cars are known to fail in bad weather conditions like heavy rain or snow.

LIDAR technology will change that, and this company (Quanergy) is bringing the cost down from

a $70k sensor (on Google driverless car), to just four $200 sensors. This is a key competent towards making these cars a reality.

Legislation will most likely be the last hurdle, as usual, but testing has proven and will continue to affirm that these cars are much safer than humans, which will probably hasten the legalization process.

The Sunnyvale-based company LiDAR sensor, used for autonomous vehicles, contains an integrated circuit that scans in every direction without any moving parts on both the macro and the micro scale, creating a live 3D view around a car, and detecting, classifying, and tracking objects in the

scene. The new solid state LiDAR will be on display at the upcoming CES in Las Vegas, January 6-9 in Booth 36065.

The company has already sealed deals with automotive marquees like Mercedes-Benz, Hyundai-Kia and Renault-Nissan along with other companies in the automotive industry.

Last year, Quanergy was recognized as one of the top 10 Automotive Startups (Top 10) for its disruptive LiDAR-based smart sensing solutions. Quanergy was chosen because of its potential to shape the future of the automotive industry and make cars safer, more accessible and more exciting.

Honda brings "Honda Connect" app in India

Source: Honda

Honda Cars India has launched Honda Connect, an intelligent and advanced information platform for customers. The platform paves the way for advanced connectivity and enables new form of communication between the customer, car, his family and Honda.

"Honda Connect" feature is developed by UNO MINDA (Minda i-connect) that provides a unique experience of "JOY OF DRIVING WITH SENSE OF SECURITY". The cloud based mobile App provides to the customer unique Safety & Convenience features like "Share My Location" (a security feature for connecting car with the family), Car Impact SOS (Impact Alert to Honda 121 for Emergency Assist), Trip Analysis to review Drivers Driving Styles, Vehicle Health Monitoring (Engine & Battery Health – useful for Long Trips), Notifications for "Fast Battery Draining out" (in case of forgetting switching-off of Lights), Car Parking Locate Assist etc. The same is available at a very reasonable price of Rs.2199/- (for initial 20K Vehicles).

The service is being offered at Honda dealerships exclusively to all new customers of Honda Jazz, Honda City and Honda CR-V at an introductory price by Honda's subsidiary for accessory business.

Japanese insurance carriers to covers risks associated with self-driving pilots

Japan's Mitsui Sumitomo Insurance and Aioi Nissay Dowa Insurance have jointly developed a new insurance product to cover risks involved in demonstration tests of self-driving cars.The two insurers expect to sell policies to automakers, research institutions, parts suppliers, telcos telecommunication firms and software companies.

It is the first such insurance product in Japan. The two insurers, both subsidiaries of MS&AD Insurance Group Holdings, said they have already won a contract from a venture company for the new insurance service.

The new product will encourage more companies to demonstrate their technology. Insurance premiums will differ, depending on the number of vehicles used in a demonstration test and the test period. They are expected to be between tens of thousands of yen (hundreds of dollars) and hundreds of thousands of yen per test per year.

Continental launches connected mobility & smart parking app in Singapore

Source: Continental

Continental has introduced Park&Go smartphone app that helps drivers in Singapore to efficiently search for currently available parking spaces. For this purpose the app uses data on parking occupancy of large retail-, commercial- and government- buildings and also includes a digital map and a navigation system allowing drivers to navigate to available parking spaces.

The app also provides forecasts regarding the availability of parking spaces and a text-service informing the driver on arrival about the price of the selected parking space.

The app is being developed together with the Singaporean government organization A * STAR Institute for Infocomm Research (I²R) and a research organization of the technical University Munich in Singapore (TUM CREATE). Drivers can download the app for free for android smart phones.

HERE launches 4G cooperative-ITS in Netherlands to reduce traffic jams

HERE and the Dutch Ministry of Infrastructure and the Environment are together evaluating the deployment of a cellular network-based Cooperative Intelligent Transportation System (C-ITS) for improving road safety and reducing congestion in the Netherlands.

HERE has agreed to support the ministry's comprehensive program to optimize the efficiency of the country's transportation networks through innovative solutions, with a demonstration of the technology in Amsterdam during the Netherlands' Presidency of the European Union in the first half of 2016.

The system would serve as an efficient low latency data exchange mechanism, whereby targeted information – about, for example, an accident or black ice – could be communicated to the right people at the right time and location.
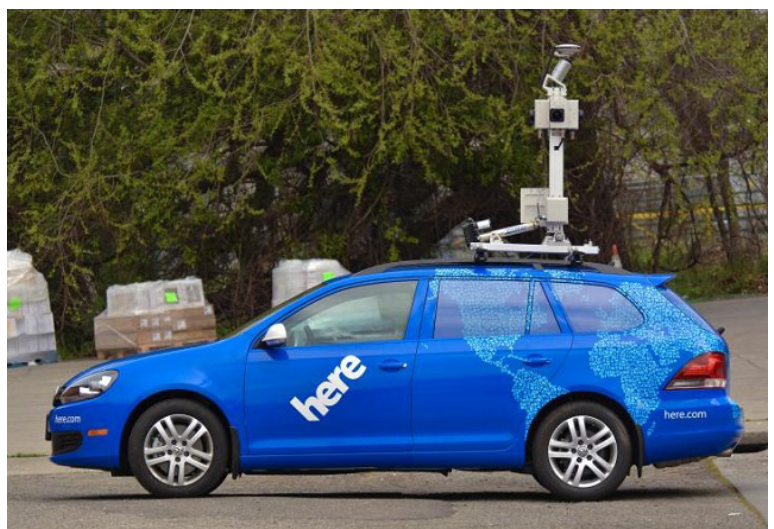
Ford secures autonomous vehicle driving permit in California

Ford is officially enrolled in the California Autonomous Vehicle Tester Program to test autonomous vehicles on public roads. The company is to begin testing fully autonomous Ford Fusion Hybrid on public roads next year

The testing is further advancement of Ford's 10-year autonomous vehicle development program and a key element of Ford Smart Mobility, the plan to take the company to the next level in connectivity, mobility, autonomous vehicles, the customer experience, and data and analytics.

Source: Ford

Ford has cultivated relationships with top universities this year, including University of California-Berkeley, Carnegie Mellon University, Santa Clara and San Jose State. The company is further expanding its strategic research collaboration with Stanford in 2016, planning 13 projects covering all five areas of Ford Smart Mobility – more than double the number of collaborations this year.

Baidu concludes testing of BMW 3 series concept vehicle in "driverless" mode

Along the lines of Google, Baidu tested its modified, sensor-laden "BMW 3 series" concept car on the roads of Beijing in driverless mode.The Chinese Google's autonomous car travelled an almost 19-mile route that began at its headquarters in Beijing without the intervention of a human driver.

Baidu's autonomous car is loaded with the company's "AutoBrain" that brings object recognition and environment perception technology on-board to detect other vehicles, obstacle and road lanes. It is also loaded with the company's highly automated driving (HAD) maps, which records 3D road data (to within a few CMs of accuracy) that the vehicle can access when positioning itself.

Baidu is the first in the Asian country to accomplish a fully driverless test under mixed-road conditionsbut it's clear that it still has a ways to go before it can release a car people can buy.

Aston Martin collaborates with Chinese tech giant LeTV to develop connected cars

Aston Martin and LeTV (video streaming company) have signed a MoU on a research partnership for the development of connected electric vehicles. The partnership will see the two companies working together on research projects ranging from connected car technologies to manufacturing consultation on new electric vehicles.

LeTV has previously set up an R&D centre in Silicon Valley, with a specific team dedicated to developing their connected electric car. LeTV has already debuted a concept UI that can link smart devices and cars.

The new research partnership will begin a feasibility study focused on bringing Aston Martin's consulting expertise in high quality manufacturing to support the production of future LeTV electric vehicles. LeTV has set a timeline to release the car in April 2016.

Jaguar Land Rover introduces InControl apps for India

Jaguar launched extended InControl smartphone integration platform for its Land Rover model range in India. The new InControl Apps platform has been designed to transfer the smartphone's interface to the in-car touch-screen infotainment system. This will allow the user to access some of the most popular apps, thus significantly enhancing user experience.

Source: Jaguar Land Rover

Additionally JLR and Bosch have closely worked with some other esteemed third party app developers (MapmyIndia, Hungama Music, Zomato), specifically in India, to enable access to an initial suite of Android and iOS compatible applications.

The InControl Apps platform will be available on 2016 Model Year Range Rover, Range Rover Sport, and Discovery Sport. Moreover the carmaker will subsequently roll-out the integrated platform for other Jaguar and Land Rover vehicles as well.

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- multiple language support
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ADAS

and more...

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Don't take our word for it!

Nice event, nice speakers! The crowd is very lively and encouraging.

Martin Jerresand | Volvo Buses India

This is the only event in India which gives an opportunity for all connected car stakeholders to meet under one roof. We look forward to participate every year.

Vishnu Verma | HERE

An amazing gathering of like-minded people. I was amazed to see the number of bold questions put by the audience to speakers.

Vishnu GS | Harman

Great platform for OEMs to speak about their future vision on connected & autonomous cars.

Seetharaman Rajappan | General Motors

We have been participating in Telematics India from the beginning and would continue to in coming years.

Sekhar Subramani | Omnicomm

It has been a fantastic event for us altogether and I thoroughly enjoyed it.

David Nicholls | MiX Telematics

As a logistics company, such an event helps us understand how telematics can be useful to our business and also meeting our potential technology partners.

Abhiram Athawale | DHL India

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